

UPSC IES Syllabus

- **General Economics I:** Theory of Consumer's Demand, Theory of Production, Welfare Economic, Theory of Value, Theory of Distribution, Quantitative Methods in Economics.
- **General Economics II:** Economic Thought, the Concept of National Income and Social Accounting, Theory of Employment, Money & Finance, Financial and Capital Market, Economic growth and development, International Economics, Balance of Payments, Global Institutions.
- **General Economics III:** Public Finance, Environmental Economics, Industrial Economics, State, market, and planning.
- **Indian Economics:** History of development & Planning, Federal Finance, Budgeting, Poverty, unemployment, and Human Development, Agriculture, The strategy of Industrial development.
Labour, Foreign Trade, Money and Banking, Inflation.

UPSC ISS Syllabus

- **General Studies:** Current Events -National & International, Indian Geography, Polity & Governance, Indian History, Indian Polity, Environmental Studies, Indian Constitution, Science & Technology etc.
- **General English:** Passages, Precise Writing, Essays, Comprehension, Antonyms, Synonyms, Letter Writing etc.
- **Statistics-I:** Probability, Statistical Methods, Numerical Analysis, Computer Application, Data Processing etc.
- **Statistics-II:** Linear Models, Statistical Inference, Hypothesis Testing, Official Statistics, Sector Wise Statistics, Population Census, Socio-Economic Indicators etc.
- **Statistics-III:** Sampling Techniques, Estimation of Population, Econometrics, Applied Statistics, Time Series Analysis, Fourier Transform etc.
- **Statistics-IV:** Operations Research and Reliability, Branch and Bound Method, PERT and CPM, Exponential Distributions, Demography and Vital Statistics, Survival Analysis and Clinical Trial, Data Management, Quality Control, Multivariate Analysis, Design and Analysis of Experiments, Computing with C and R etc.

The syllabus of both IES and ISS include 2 general papers - General English and General Studies. The syllabus of these two papers will be the same. Here are the syllabus of UPSC IES/ISS 2020 separately for better understanding:

Probability

Classical & Axiomatic Definition of Probability

Law of total probability

Conditional probability

Bayes' theorem and applications

Discrete and continuous random variables

Standard discrete & continuous probability distributions

Modes of convergences

Mathematical expectation and conditional expectation

Inversion, uniqueness and continuity theorems

Borel 0-1 law, Kolmogorov's 0-1 law

Tchebycheff's and Kolmogorov's inequalities

Laws of large numbers & central limit theorems

Statistical Methods

Collection, compilation & presentation of data/charts/diagrams/histogram

Frequency distribution

Measures of location/dispersion/skewness/kurtosis

Bivariate and multivariate data

Association and contingency

Curve fitting and orthogonal polynomials

Bivariate normal distribution

Regression-linear, polynomial

Correlation coefficient

Partial and multiple correlation

Intraclass correlation

Correlation ratio

Standard errors & large sample test

Sampling distributions of sample mean

Non-parametric tests

Order statistics

Concept of Asymptotic relative efficiency

Numerical Analysis

Finite differences of different orders

Concept of interpolation and extrapolation

Inverse interpolation

Numerical differentiation

Summation of Series

Numerical solutions of differential equations

Computer application & Data Processing

Basics of Computer

Operations of a computer

Different units of a computer system

Output and peripheral devices

Software, system and application software,

Operating systems

Low and High level languages

RAM, ROM, unit of computer memory

<p>Network – LAN, WAN, internet, intranet Basics of computer security Basics of Programming</p>	
<p>Statistics II (Objective Type)</p>	<p>Linear Models Theory of linear estimation Gauss-Markov Linear Models Error & Estimation Space Normal Equations Estimation of error variance Estimation with correlated observations Variances and covariances One way and two-way classifications Analysis of variance Statistical Inference & Hypothesis Testing Characteristics of good estimator Estimation methods Minimum variance unbiased estimators Minimum variance bound estimators Hypothesis testing Official Statistics National and International official statistical system National Statistical Organization National Statistical Commission Index Numbers Sector Wise Statistics National Accounts Population Census Socio Economic Indicators Gender Awareness/Statistics Important Surveys and Censuses</p>
<p>Statistics- III (Descriptive Type)</p>	<p>Sampling Techniques Concept of population and sample Need for sampling Complete enumeration versus sampling Methodologies in sample surveys by NSSO Subjective or purposive sampling Probability sampling or random sampling Estimation of population mean Stratified random sampling Covariance and Variance Function Ratio, product and regression methods of estimation</p>

	<p>Systematic sampling Sampling with probability proportional to size Concept of multistage sampling and its application</p> <p>Econometrics Nature of econometrics General Linear Model (GLM) and its extensions Ordinary Least Squares (OLS) estimation and prediction Generalized Least Squares (GLS) estimation and prediction Heteroscedastic disturbances, pure and mixed estimation Auto correlation, its consequences and tests Theil BLUS procedure, estimation and prediction Linear regression and stochastic regression Simultaneous linear equations model and its generalization Estimation in simultaneous equations model</p> <p>Applied Statistics Index Numbers Time Series Analysis Exploratory time Series analysis Detailed study of the stationary processes Discussion (without proof) of estimation of mean Spectral analysis of weakly stationary process</p>
<p>Statistics-IV (Descriptive Type)</p>	<p>(50% Questions from all subsections below & Candidates need to choose two subsections)</p> <p>Operations Research and Reliability Definition & Scope of Operations Research Transportation and assignment problems Decision-making in face of competition Analytical structure of inventory problems Queuing models Sequencing and scheduling problems Branch and Bound method</p>

Replacement problems
PERT and CPM – basic concepts
Notions of aging
Reliability estimation based on failure times

Demography and Vital Statistics
Sources of demographic data
Complete life table and its main features
UN model life tables
Measurement of Fertility
Measurement of Mortality
Internal migration and its measurement
Projection method including logistic curve fitting

Survival Analysis & Clinical Trial
Concept of time
Life tables, failure rate, mean residual life
Estimation of survival function
Two sample problem
Semi-parametric regression for failure rate
Competing risk model
Data management
Design of clinical trials
Reporting and analysis

Quality Control
Statistical process and product control
General theory and review of control charts
Acceptance sampling plans for attributes inspection

Multivariate Analysis
Multivariate normal distribution and its properties
Maximum likelihood estimators
Wishart matrix
Hotelling's T² and its sampling distribution
Classification problem
Principal components, dimension reduction

Design and Analysis of Experiments
Analysis of variance for one way and two way classifications
Need for design of experiments
Basic principle of experimental design

	<p>Complete analysis and layout of completely randomized design</p> <p>Missing plot technique</p> <p>Split Plot Design and Strip Plot Design</p> <p>Factorial experiments</p> <p>Analysis of covariance</p> <p>Analysis of nonorthogonal data</p> <p>Analysis of missing data</p> <p>Computing with C and R</p> <p>Basics of C</p> <p>Control Statements</p> <p>Functions</p> <p>Structure</p> <p>Files in C</p> <p>Statistics Methods and techniques in R</p>
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UPSC IES 2020 Syllabus

In the written exam, there are six papers. Here are the topics that covers the syllabus of UPSC IES Syllabus:

Subject	Topics
General English	<ul style="list-style-type: none"> • Essay Writing • Understanding of English language and vocabulary • Summary or Precis Writing • Passages
General Studies	<ul style="list-style-type: none"> • General Knowledge • Current Events or Affairs • Indian Polity • History of India • Geography
General Economics I	<p>Part - A: Theory of Consumer's Demand, Theory of Production, Theory of Value, Theory of Distribution, Welfare</p> <p>Part - B: Mathematical Methods in Economics, Statistical and Econometric Methods</p>
General Economics II	Economic Thought, Concept of National Income and Social Accounting, Theory of employment, Output, Inflation, Money and Finance, Financial and Capital Market, Economic Growth and Development, International Economics, Balance of Payments, Global Institutions
General Economics III	Public Finance, Environmental Economics, Industrial Economics, State, Market and Planning

Indian Economics	History of Development and Planning, Federal Finance, Budgeting and Fiscal Policy, Poverty Unempl Development, Agriculture and Rural Development Strategies, India's experience with Urbanisation and Labour, Foreign Trade, Money and Banking, Inflation
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