

ANALYTICAL THINKING AND LOGICAL REASONING (SEC)

1. QUANTITATIVE APTITUDE & DATA INTERPRETATION

- a) Whole numbers, Integers, Rational and irrational numbers, Fractions, Square roots and
Cube roots, Surds and Indices, Problems on Numbers, Divisibility
Steps of Long Division Method for Finding Square Roots: .
- b) Basic concepts, Different formulae of Percentage, Profit and Loss, Discount, Simple
interest, Ratio and Proportion, Mixture
- c) Time and Work, Pipes and Cisterns, Basic concepts of Time, Distance and Speed;
relationship among them
- d) Concept of Angles, Different Polygons like triangles, rectangle, square, right angled
triangle, Pythagorean Theorem, Perimeter and Area of Triangles, Rectangles, Circles
- e) Raw and Grouped Data, Bar Graphs, Pie charts, Mean, Median and Mode, Events
and
Sample Space, Probability

11. LOGICAL REASONING

- a) Analogy basing on kinds of relationships, Simple Analogy; Pattern and Series of
Numbers, Letters, Figures. Coding-Decoding of Numbers, Letters, Symbols (Figures),
Blood relations
- b) Logical Statements — Two premise argument, More than two premise argument
using connectives
- c) Venn Diagrams, Mirror Images, Problems on Cubes and Dices act-í_)

Introduction to Statistics and Data Analysis

GEO

Course description

This paper helps students to learn the fundamental elements of Data Analytics and to gain proficiency in working with SPSS. Upon Completing the Course, students will be able to identify advanced techniques of data analytics using Excel/Statistical Package for Social Sciences (SPSS), use Exploratory data analysis to visualize the data, analyses survey and other data sets using statistical methods

Course Outcomes:

1. This course is designed to help students learn fundamental elements of Statistics and Data Analytics and to gain proficiency in working with SPSS.
2. Upon Completing the Course, students will be able to identify advanced techniques of data analytics using Statistical Package for Social Sciences (SPSS) software.
3. They will be exposed to exploratory data analysis techniques.
4. This course shall enable them to use statistical tools to visualize and analyze surveys and other data sets.

Learning Outcomes:

1. This course shall help the students to understand the basics of data and identify, understand, and deal with different types of data sets
2. Students shall develop proficiency to identify patterns, trends of the data sets; and be able to understand applied statistics to develop suitable concepts and methods that will help to analyses data and solve research problems.
3. They shall be able to carry out exploratory data analysis using Excel/SPSS

Module I: Introduction to Statistics and Data

Definition and scope of Statistics,

Concepts of population and sample.

Concept of data; Classification of Data- Structured, Semi-Structured, Unstructured data; Various Data Sources

Module II: Presentation of Data and Basic Statistics

Data presentation: Table, Graphs and Chart;

Basic statistics: Measure of Central Tendency (Arithmetic mean, median, mode, geometric mean and harmonic mean) , Dispersion (mean deviation, standard deviation, variance, range, Lorence curve, Ginicoefficient), Skewness.

SDA

Module III: Analysis of Bivariate Data

Concept of Bivariate data and examples

Correlation: scatter diagram, simple, partial and multiple correlation (3 variables only), rank correlation.

Simple linear regression, principle of least squares

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Computer Applications (Skill Enhancement Course)

Course Outcomes (COs):

On completion of this course, the learners will be able to:

CO1: Learn basis of Basics of MS Windows.

CO2: Demonstrate basic understanding of computer applications with reference to MS Windows, MS excel and MS PowerPoint.

CO3: Generate spread sheets, charts and presentations.

CO4: Design personal, academic and business documents using MS Office.

CO5: Model the modes of development of self-learning materials and prepare different types of instructional material.

CO6: Explain different OERs, MOOCs available for effective learning.

C07: Develop learners' e-portfolios.

CO8: Classify various e-resources for effective learning.

COY: Describe the concept of artificial intelligence and its applications in teaching learning.

COIO: Determine similarity index of the various documents like dissertations, theses etc.

Course Contents

Unit I: Basics of Computer Applications

1.0: Able to use a computer.

1.0: Operate MS Window System, MS Excel, PPT and Hyperlinking

- Basics of MS Windows: Desktop, Recycle bin, My Computer, Documents, Pictures, Music, Videos,

Task Bar and Control Panel. MS-Word and its features: Creating, Editing, Formatting and Printing of

Documents, Inserting, Word Art, Page Numbers, Mail Merge.

- MS-Excel and its features: Creating a new worksheet, selecting cells, Entering and editing Text,

Numbers, Inserting Rows/Columns, changing widths and heights of row and columns, Formulae, referencing cells, changing of font sizes and colours.

- MS-PowerPoint and its features: Creating, Inserting and Deleting Slides of a Presentation. Adding Pictures, Inserting Objects, Audio, Video, Custom Animation and Hyperlinking of documents.

Unit II: Introduction to E-learning

LO: Understand and use E-learning facilities through computer and other digital instruments like mobile and tablets.

- Concept of e-learning, benefits of E-learning, Introduction to LMS using E-learning
- Approaches to e-learning: Offline, Online, Synchronous, Asynchronous, Blended learning and Mobile Learning.

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v/ Rana, S. (1994): Open Learning in India, Commonwealth Publishers, New Delhi.

✓ Roblyer, M.D. (2008). Integrating educational technology into teaching. New Delhi: Pearson.

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constructivist perspectives. Bhubaneswar: Regional Institute of Education, NCERT.

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