

SKILL ENHANCEMENT COURSES
2021-22

Sl. No.	Course Code	Course Name	Teaching Hour Per Week	ESE	CIA	Total Marks	Credits
1	C5 21 SB 101	Digital Fluency	1+ 0+2	30	20	50	2
2	C5 21 SB ***	Statistics with Minitab - I	1+ 0+2	30	20	50	2
3	C5 21 SB ***	Statistics with Minitab - II	1+ 0+2	30	20	50	2
4	C5 21 SB ***	Statistical Analysis with Jamovi	1+ 0+2	30	20	50	2

C5 21 SB 101: DIGITAL FLUENCY

COURSE OBJECTIVES:

The students will be able to:

1. Explain the type of emerging technologies and potential cyber attacks in the world of digital
2. Evaluate the relevance and applicability of Artificial Intelligence, Big Data Analytics, Internet of Things and Cloud Computing on specific operations citing a example for the same
3. Justify the building of Essential Skills beyond Technology that goes well with adoption the Technology

Module 1: Emerging Technologies

5 Hrs

Artificial Intelligence- Machine Learning- Deep Learning- Database Management for Data Science- Big Data Analytics- Internet of Things (IoT) and Industrial Internet of Things (IIoT)- Cloud computing and its service models- Cyber Security and Types of cyber attack

Module 2: Applications of Emerging Technologies

5 Hrs

Artificial Intelligence- Big Data Analytics- Internet of Things- Cloud Computing- Cyber Security

Module 3: Building Essential Skills beyond Technology

5 Hrs

Importance of Effective Communication Skills, Creative Problem Solving & Critical Thinking, Collaboration and Teamwork Skills, Innovation & Design Thinking, Use of tools in enhancing skills

COURSE OUTCOMES:

After completion of the course, the students will be able to

1. Explain the type of emerging technologies and potential cyber attacks in the world of digital
2. Evaluate the relevance and applicability of Artificial Intelligence, Big Data Analytics, Internet of Things and Cloud Computing on specific operations citing a example for the same
3. Justify the building of Essential Skills beyond Technology that goes well with adoption the Technology

BOOK FOR REFERENCE:

1. Volker Lang, Digital Fluency: Understanding the basics of Artificial Intelligence, Block chain technology, Quantum Computing and their applications for Digital Transformation, 1st Edition, Apress Publications, 2021
2. S. B. Ramoshi and S.P. Sajjan, Digital Fluency, 1st Edition, Karnataka, Ekalavya E-educate, 2021.
3. Eric Downey, Fundamentals, Applications and Emerging Technologies, Create space Independent Publications, 2017
4. Chris Hackett, The Big Book of Maker Skills (Popular Science): Tools & Techniques for Building Great Tech Projects Flexi bound, Weldon Owen, Illustrated edition, 2014

Statistics with Minitab - I

COURSE OBJECTIVES:

The students will be able to

1. Analyze the Data by perform Display Descriptive Statistics on Minitab
2. Perform Display Descriptive Statistics and Graphical Summary by using Minitab
3. Develop charts and Cause and Effect Diagram on the Minitab

Module 1: Overview of Minitab

5 Hrs

Introduction to Minitab, Installation process, Importance of Minitab in Statistical Analysis of Data, Minitab Menu Bar – Graph Tab, Stat Tab, etc., Meaning - Display Descriptive Statistics, Performing Display Descriptive Statistics on Minitab

Module 2: Graphical Summary on Minitab

5 Hrs

Meaning – Graphical Summary on Minitab, Difference between Display Descriptive Statistics and Graphical Summary, Perform Graphical summary on Minitab

Module 3: Different charts and Plots in Minitab

5 Hrs

Run chart, Bar chart, Pie chart, Pareto chart, Scatter Plot, Box Plot and Histogram – Meaning, Creating various charts and Plots, Cause and Effect Diagram on the Minitab

COURSE OUTCOMES:

After completion of the course, the students will be able to

1. Analyze the Data by perform Display Descriptive Statistics on Minitab
2. Perform Display Descriptive Statistics and Graphical Summary by using Minitab
3. Develop charts and Cause and Effect Diagram on the Minitab

Books for Reference:

- Minitab Demystified - Andrew Sleeper McGraw-Hill Education
- Minitab Handbook - Ryan, Joiner, Cryer, Cengage Learning

Statistics with Minitab - II

COURSE OBJECTIVES:

The students will be able to

1. Perform Hypothesis Testing to examine the relationship that exists between two or more variables on Minitab
2. Apply Correlation and Regression analysis to examine the relationship that exists between two or more variables on Minitab
3. Use Analysis of Variance to examine the main and interaction effect between two or more variables on Minitab.

Module 1: Hypothesis Testing on Minitab

5 Hrs

Hypothesis testing, One-sample t-test, Two sample t-test, Paired T-test, One sample proportion test, Two sample proportion test, One-Sample Variance test, Two-sample variance, Chi-square: Test of association, Chi-square: Goodness -of-fit test, Chi-Square: Cross tabulation

Module 2: Correlation and Regression

5 Hrs

Introduction, Correlation Coefficient, Regression Analysis, Simple Linear regression, Multiple Linear regression

Module 3: Analysis of Variance

5 Hrs

Analysis of variance (ANOVA), Normality, Equal variation, residuals, Main Effects Plot, Interaction Plot

COURSE OUTCOMES:

After completion of the course, the students will be able to

1. Perform Hypothesis Testing to examine the relationship that exists between two or more variables on Minitab
2. Apply Correlation and Regression analysis to examine the relationship that exists between two or more variables on Minitab
3. Use Analysis of Variance to examine the main and interaction effect between two or more variables on Minitab.

Books for Reference:

- Minitab Demystified - Andrew Sleeper McGraw-Hill Education
- Minitab Handbook - Ryan, Joiner, Cryer, Cengage Learning

Statistical Analysis with Jamovi

COURSE OBJECTIVES:

The students will be able to

1. Use Jamovi for analysis of data and show Descriptive statistics, Data visualisation, Correlations.
2. Perform T Test to examine the relationship that exists between one or two or more samples on Jamovi.
3. Use Analysis of Variance to examine the main and interaction effect between two or more variables on Jamovi.

Module 1: Overview of Jamovi and Data Variables

5 Hrs

Jamovi, Install Jamovi, Navigating Jamovi, Importing Data, variable types and labels, compute variables, transformed variables, Descriptive statistics, Data visualisation, Correlations

Module 2: T tests

5 Hrs

One sample T test, Independent sample T test, Paired sample T test

Module 3: Analysis of Variance

5 hrs

ANOVA, Repeated Measures, One way ANOVA (non-parametric) and repeated Measures (non -parametric)

COURSE OUTCOMES:

After completion of the course, the students will be able to

1. Use Jamovi for analysis of data and show Descriptive statistics, Data visualisation, Correlations.
2. Perform T Test to examine the relationship that exists between one or two or more samples on Jamovi.
3. Use Analysis of Variance to examine the main and interaction effect between two or more variables on Jamovi.

Books for Reference:

- Statistical testing with jamovi and JASP open source software: Sociology (Statistics without Mathematics) – Cole Davis, Vor Press
- Design and Analysis in Educational Research Using jamovi: ANOVA Designs – Kamden K Strunk – **Routledge**