St. Michael's College, Cherthala

Alappuzha, Kerala-688 539
Affiliated to University of Kerala
and Re-accredited by NAAC with 'A' Grade

ADD ON COURSE 2022-23

Name of the Programme	:	**STATISTICAL DATA ANALYSIS USING SOFTWARE PACKAGES**
Name of the Department	:	**ECONOMICS & STATISTICS**
Course Code	:	**EC 244**

St. Michael's College

MAYITHARA P.O., CHERTHALA, ALAPPUZHA-688539

An institution with Minority Status Affiliated to the University of Kerala and Re-accredited by NAAC with 'A' Grade

Add on Course - 2022-23

CHEMISTRY
Food Science and Quality Control

COMMERCE
Certified Insurance Advisor and Risk Analyst (CIARA)

MANAGEMENT
Diploma in Port Operations and Management (DPOM)

ECONOMICS
Statistical Data Analysis Using Software Packages

PSYCHOLOGY
Guidance Counciling and Psychology of Interpersonal Relationships

PHYSICS
Basics of C Programming

SOFTWARE DEVELOPMENT
Python

TOURISM STUDIES
Customer Service Skills

ZOOLOGY
Techniques in Coastal Aquaculture

HISTORY
(Certificate Course)
Introduction to Indian Constitution

ENGLISH
(Certificate Course)
Basic Proficiency in English Language

MALAYALAM
(Certificate Course)
Madhyama Malayalam

Phone : 0478-2822387, 2810387
Email : michaelscherthala@gmail.com. Web : www.stmcc.in

NAME OF COURSE : STATISTICAL DATA ANALYSIS

USING SOFTWARE PACKAGES

COURSE CODE : EC 244

NO OF STUDENTS ENROLLED : 67

CONTENTS

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ADD -ON COURSE ON STATISTICAL DATA ANALYSIS

USING SOFTWARE PACKAGES

DEPARTMENT OF STATISTICS

&

DEPARTMENT OF ECONOMICS

1. **Name of the Course and Offering Department**
   (with Associating Department)

   Department of Statistics and Department of Economics

2. **Program Objective:**

   To equip the students with the concepts, principles and methods of Statistics. It is aimed that students be acquainted with the applications of statistical methods to analyze data and draw inferences wherever the statistical decisions are meaningful. Emphasis is given to understand the basic concepts and data analysis tools like EXCEL software

2. **Admission Eligibility:**

   Students who have a basic knowledge in elementary Statistics and Mathematics

4. **Nature of Program such as Certificate Program/Diploma**
   / Advanced Diploma etc.

   Certificate program

5. **Duration of Program:**

   30 hrs

6. **Attendance Rules**:

   80% of the attendance is mandatory

7. **Evaluation Process & Criteria:**

   The evaluation scheme for the course shall contain two parts; (a) Written examination and (b) Practical Examination.

60% of the total marks shall be given to the written examination and the remaining 40% for the practical examination.

Assessment	Marks	Duration of the examination
Written Examination	60	2 hrs
Practical Examination	40	2hrs
Total	100	4hrs

For the course grade point and % of marks are introduced in 7- point Indirect Grading System. The indirect Grading System in 7 point scale is as below:

% of Marks	Grade	Interpretation
90 and above	A+	Outstanding
80 to below 90	A	Excellent
70 to below 80	B	Very Good
60 to below 70	C	Good
50 to below 60	D	Satisfactory
40 to below 50	E	Pass/Adequate
Below 40	F	Failure

8. Course Structure:

The course is designed in 4 modules

Structure	Title	Hours
Module1	Descriptive Statistics	10
Module 2	Elements of Statistical Inference	10
Module 3	Basics of data analysis using MS-EXCEL	10
Total		30

9. Course Objective

1. To impart the skills required to gather information from resources and use them.
2. To equip the students in methodology related to statistics.
3. To get familiarize the package EXCEL and use it in data analysis

11.   Course Names with detailed Syllabus of Courses and References.

Module 1: **Descriptive Statistics (10 hrs)**

Statistical population and sample. Census and sampling. Sampling techniques for the selection of representative samples probability sampling and non- probability sampling

Primary and secondary data. Data collection methods. -Classification and Tabulation of data-Methods Diagrammatic representation of data, Graphical representation of data

Module II: **Elements of statistical inference(10 hrs):** Estimation of parameters , Properties of a good estimate; Testing of Hypothesis ,tests of significance: chi-square, t, F and Z tests

Module III: **Data analysis using MS-EXCEL(10 hrs)**

Practical based on Modules I & II, – Data analysis: presentation of data –Charts and Diagrams, Frequency table, Frequency graphs, calculation of descriptive statistics, T, F and Z tests in EXCEL

Books for references

1) S.C. Gupta, V.K. Kapoor (Sulthan Chand & sons) –Fundamentals of Mathematical Statistics

2) S.P. Gupta - (Sulthan Chand & sons) – Elementary Statistical methods

3) M. R. Spiegel (1961): Theory and problems of statistics- Schaum's outline series.

4) Goon A.M., Gupta M.K., Das Gupta.B. (1999): Fundamentals of Statistics, Vol.I, World Press, Calcutta.

5) Dan Remenyi, George Onofrei, Joe English (2010). An Introduction to Statistics Using Microsoft Excel. Academic Publishing Ltd., UK

6) Neil J Salkind (2010). Excel Statistics, A Quick Guide. SAGE Publication Inc. New Delhi

7) Vijai Gupta (2002). Statistical Analysis with Excel. VJ Books Inc. Canada

12.   Expected Outcome from each Course

By the end of the course students will attain a common level competency in basic principles of statistics and EXCEL software for data analysis and lay a strong foundation for their future courses.

Class Schedule Format 2022-2023					
Department:Statistcs & Economics				Course:Statistical Data Analysis using software packages	
Sl N o	Date	Day	Time	Name of Teacher	Class Room No
1	26-10-2022	Wednessday	10.30am-12.30pm	K V Sebastian	Fenicio Digital Seminar Hall
2	31-10-2022	Monday	3.30pm-4.30pm	Minnu Mathew	A32
3	02-11-2022	Wednessday	3.30pm-4.30pm	Minnu Mathew	A32
4	04-11-2022	Friday	3.30pm-4.30pm	Minnu Mathew	A32
5	07-11-2022	Monday	3.30pm-4.30pm	Minnu Mathew	A32
6	09-11-2022	Wednessday	3.30pm-4.30pm	Minnu Mathew	A32-Practical class
7	14-11-2022	Monday	3.30pm-4.30pm	Minnu Mathew	A32
8	21-11-2022	Monday	3.30pm-4.30pm	Minnu Mathew	A32
9	23-11-2022	Wednessday	3.30pm-4.30pm	Minnu Mathew	A32
1 0	28-11-2022	Monday	3.30pm-4.30pm	Minnu Mathew	A32-Practical class
1 1	01-12-2022	Tuesday	3.30pm-4.30pm	Minnu Mathew	A32-Practical class
1 2	05-01-2023	Thirsday	3.30pm-4.30pm	Minnu Mathew	A32
1 3	10-01-2023	Tuesday	3.30pm-4.30pm	Minnu Mathew	A32
1 4	11-01-2023	Wednessday	3.30pm-4.30pm	Minnu Mathew	A32
1 5	13-01-2023	Friday	3.30pm-4.30pm	Minnu Mathew	A32
1 6	16-01-2023	Monday	3.30pm-4.30pm	Minnu Mathew	A32
1 7	17-01-2023	Tuesday	3.30pm-4.30pm	Minnu Mathew	A32
1 8	18-01-2023	Wednessday	3.30pm-4.30pm	Minnu Mathew	A32
1 9	19-01-2023	Thirsday	3.30pm-4.30pm	Minnu Mathew	A32
2 0	25-01-2023	Wednessday	3.30pm-4.30pm	Minnu Mathew	A32-Practical class

2 1	02-02-2023	Thirsday	3.30pm- 4.30pm	Minnu Mathew	A32
2 2	07-02-2023	Tuesday	3.30pm- 4.30pm	Minnu Mathew	A32
2 3	08-02-2023	Wednessday	3.30pm- 4.30pm	Minnu Mathew	A32
2 4	09-02-2023	Thirsday	10.30am- 12.30am	Minnu Mathew	BVoc Software Lab
2 5	10-02-2023	Friday	3.30pm- 4.30pm	Minnu Mathew	A32
2 6	14-02-2023	Tuesday	3.30pm- 4.30pm	Minnu Mathew	A32
2 7	15-02-2023	Wednessday	1.30pm- 2.30pm	Minnu Mathew	BVoc Software Lab
2 8	15-02-2023	Wednessday	2.30pm- 3.30pm	Minnu Mathew	BVoc Software Lab
2 9	16-02-2023	Thirsday	3.30pm- 4.30pm	Minnu Mathew	A32-Practical class
3 0	20-02-2023	Monday	3.30pm- 4.30pm	Minnu Mathew	A32-Practical class

ATTENDANCE STATEMENT

Sl No	Name of the student	No. of days attended (Total-30 days)	% of Attendance
1	ABHIRAMI A P	25	83
2	AMRUTHA S GOPAN	29	97
3	ANASWARA LAL	24	80
4	ANJALIMOL	21	70
5	ANJANA P R	15	50
6	ANN SAJEEV	24	80
7	ANU JOSEPH	22	73
8	ANUPAMA RAMESH	28	93
9	ARDRA R	22	73
10	AROMAL UDAYAKUMAR	24	80
11	ASWINI S SURESH	27	90
12	DEVIKA GOPI	19	63
13	HELGA JOSEPH	24	80
14	MIDHUN KRISHNAN K R	26	87
15	NAFIZA BEEGOM A	22	73
16	PRAJIDA B	21	70
17	PUNYA JOSE	24	80
18	SARANYA RAJ	25	83
19	SAYANTH SREEKUMAR	23	77
20	SREEMOL SABU	23	77
21	SWATHY S	28	93
22	AASHISH K R	24	80

23	ABHIJITH J JITHENTH	26	87
24	ADHEENA S	20	67
25	AHILYA JACOB	15	50
26	AJITH SALVAN	22	73
27	AKHILA DEVASY	18	60
28	AKSHAY SHIBU	24	80
29	AKSHAYA B	17	57
30	ALAN XAVIER	21	70
31	ALBIN PETER K G	20	67
32	AMALDEV FRANCIS	25	83
33	AMRUTHA SHAJI	28	93
34	AMRUTHAMOL V A	23	77
35	ANAKHA RAVEENDRAN	23	77
36	ANILA MARY	20	67
37	ARCHANA C S	26	87
38	ARDRA B	22	73
39	AROMAL STEPHEN P L	23	77
40	AROMAL L	27	90
41	ATHIRA MADHU	19	63
42	AVANI K M	23	77
42	DEFIN A J	25	83
44	DEVIKA B	25	83
45	DEVIKA MANOJ	28	93
46	FEMIN F	24	80
47	GEORGE ATHUL	24	80
48	GOPIKA M S	24	80
49	GOPIKA T J	25	83
50	GOURI T BABU	25	83
51	HARIKRISHNA MURALI	26	87
52	HARIPRIYA C J	21	70
53	HARMYA	25	83
54	JASILA K	21	70
55	JITHU SETHUNATH	22	73
56	JOSNA PETER	22	73
57	KRISHNA PRIYA M	26	87
58	LAYA ELIZABETH LAWRANCE	20	67
59	MARIYA J PUTHURAN	20	67
60	MARY ALEENA T J	23	77
61	MEENU G	29	97
62	MONICA M S	23	77
63	NITHYA K B	19	63
64	SANIYAMOL P F	28	93
65	SANKERDEV V	21	70
66	SONA MARY M G	20	67
67	THERESA A J	21	70

St. Michael's College, Cherthala

Statistical Analysis using software packages

Time:1 hour   **Max.Marks:30**

Part A
Answer all questions. Each question carries *one* mark

1. **Of the following sampling methods, which is a probability method?**

   (a) Judgement   (b) Quota   (c) Simple random   (d) Convenience

2. **Increasing the sample size has the following effect upon the sampling error?**

   (a) It increases the sampling error (b) It reduces the sampling error

   (c) It has no effect on the sampling error (d) All of the above

3. **Sample is regarded as a subset of?**

   (a) Data (b) Set (c) Distribution (d) Population

4. When you enter text in a cell in Excel. It also appears in the

   (a) Status bar (b) Formula bar (c) Row heading (d) Name box

5. **Among these, which sampling is based on equal probability?**

   (a) Simple random sampling (b) Stratified random sampling

   (c) Systematic sampling (d) Probability sampling

6. What do we say to all units aggregate about a study?

   (a) Sample (b) unit (c) universe or population (d) Frame

7. What do we call the population value?
   (a)statistic (b)parameter (c)data (d)variable

8. What will be the degree of an angle in the pie diagram if a family spends 50% of its income in food?
   (a)180 (b)90 (c)60 (d) 50

9. A hypothesis that states zero difference or no difference between the parameter and its assumed value is known as
   (a)Simple hypothesis (b)Alternate hypothesis

   (c)Null hypothesis(d)Composite hypothesis

10. The process of using sample data to estimate the values of unknown population parameter is called
   (a) Estimate (b) Estimator (c) Estimation (d) Interval estimation

Part B
Answer any 5 questions . Each question carries *two* marks

11. Define population and sample

12. Make a suitable diagram of the following data on population in India:

Year	1951	1961	1971	1981	1991	2001	2011
Population (crore)	36.1	43.9	54.8	68.3	84.6	102.8	121.0

13. Make a multiple bar diagram of the following data:

Faculty	Number of Students		
	2018-19	2019-20	2020-21
Arts	600	550	500
Science	400	500	600
Commerce	200	250	300

14. What are the properties of a good estimate?

15. Define

 a) Null Hypothesis   b) Alternate hypotheses

16. Write the test statistic used for testing a specified value of sample mean in large samples.

17. What is the test statistic used for testing goodness of fit.

18. Define p-value

Part C
Answer any one question. Each question carries *ten* marks

19. Entrance to and from a departmental store is via one of four sets of doors. The number of customers entering or leaving is counted at each set of doors for a period of time with the following results.

Set of doors	North	South	East	West
Number of customers	32	26	24	18

Test whether the customers are uniformly entering or leaving through all the doors.

20. What is a pie-diagram? Represent the following data of favourite sports of students of a class using a pie -diagram

Football	Hockey	Cricket	Basketball	Badminton
10	5	5	10	10

Mark List

Discipline   : Economics & Statistics
Course Title :Statistical Analysis using software packages
Date of
Examination
: 16/03/2023   Maximum Marks: 30

Sl No	Name of the Student	Mark Obtained		
1	ABHIRAMI A P	26	86.67	A
2	AMRUTHA S GOPAN	24	80.00	A
3	ANASWARA LAL	25	83.33	A
4	ANJALIMOL	24	80.00	A
5	ANJANA P R	25	83.33	A
6	ANN SAJEEV	27	90.00	A+
7	ANU JOSEPH	25	83.33	A
8	ANUPAMA RAMESH	29	96.67	A+
9	ARDRA R	23	76.67	B
10	AROMAL UDAYAKUMAR	25	83.33	A
11	ASWINI S SURESH	28	93.33	A+
12	DEVIKA GOPI	26	86.67	A
13	HELGA JOSEPH	24	80.00	A
14	MIDHUN KRISHNAN K R	25	83.33	A
15	NAFIZA BEEGOM A	26	86.67	A
16	PRAJIDA B	26	86.67	A
17	PUNYA JOSE	23	76.67	B

18	SARANYA RAJ	26	86.67	A
19	SAYANTH SREEKUMAR	23	76.67	B
20	SREEMOL SABU	27	90.00	A+
21	SWATHY S	26	86.67	A
22	AASHISH K R	25	83.33	A
23	ABHIJITH J JITHENTH	14	46.67	E
24	ADHEENA S	26	86.67	A
25	AHILYA JACOB	25	83.33	A
26	AJITH SALVAN	25	83.33	A
27	AKHILA DEVASY	26	86.67	A
28	AKSHAY SHIBU	Absent	Absent	Absent
29	AKSHAYA B	25	83.33	A
30	ALAN XAVIER	27	90.00	A+
31	ALBIN PETER K G	Absent	Absent	Absent
32	AMALDEV FRANCIS	Absent	Absent	Absent
33	AMRUTHA SHAJI	Absent	Absent	Absent
34	AMRUTHAMOL V A	Absent	Absent	Absent
35	ANAKHA RAVEENDRAN	Absent	Absent	Absent
36	ANILA MARY	Absent	Absent	Absent
37	ARCHANA C S	28	93.33	A+
38	ARDRA B	Absent	Absent	Absent
39	AROMAL STEPHEN P L	24	80.00	A
40	AROMAL L	22	73.33	B
41	ATHIRA MADHU	25	83.33	A
42	AVANI K M	Absent	Absent	Absent
43	DEFIN A J	24	80.00	A
44	DEVIKA B	24	80.00	A
45	DEVIKA MANOJ	27	90.00	A+
46	FEMIN F	25	83.33	A
47	GEORGE ATHUL	24	80.00	A
48	GOPIKA M S	27	90.00	A+
49	GOPIKA T J	29	96.67	A+
50	GOURI T BABU	25	83.33	A
51	HARIKRISHNA MURALI	Absent	Absent	Absent
52	HARIPRIYA C J	Absent	Absent	Absent
53	HARMYA	24	80.00	A
54	JASILA K	27	90.00	A+
55	JITHU SETHUNATH	Absent	Absent	Absent
56	JOSNA PETER	25	83.33	A
57	KRISHNA PRIYA M	28	93.33	A+
58	LAYA ELIZABETH LAWRANCE	Absent	Absent	Absent
59	MARIYA J PUTHURAN	Absent	Absent	Absent

60	MARY ALEENA T J	24	80.00	A
61	MEENU G	29	96.67	A+
62	MONICA M S	25	83.33	A
63	NITHYA K B	Absent	Absent	Absent
64	SANIYAMOL P F	Absent	Absent	Absent
65	SANKERDEV V	Absent	Absent	Absent
66	SONA MARY M G	Absent	Absent	Absent
67	THERESA A J	Absent	Absent	Absent

St. Michael's College, Cherthala
Mayithara P.O., Cherthala,
Re-accredited by NAAC with 'A' Grade

Add-on / Certificate Course
Certificate of Merit

This is to certify that Mr./Ms. ANU JOSEPH of

BA Economics

has completed certificate/Add-on course on

Statistical Data Analysis Using Software Packages

in the academic year 2022-2023.

He/She is awarded with a grade A

Head of the Department   Co-ordinator   Principal

St. Michael's College, Cherthala
Mayithara P.O., Cherthala,
Re-accredited by NAAC with 'A' Grade

Add-on / Certificate Course
Certificate of Merit

This is to certify that Mr./Ms. ANUPAMA RAMESH of

BA Economics

has completed certificate/Add-on course on

Statistical Data Analysis Using Software Packages

in the academic year 2022-2023.

He/She is awarded with a grade A+

Head of the Department   Co-ordinator   Principal

Cherthala, Kerala, India
M82P+3FP, 11th Mile, Mayithara, Cherthala, Kerala 688539, India
Lat 9.650167°
Long 76.33605°
26/10/22 11:03 AM

Report of the Add-on course on statistical data analysis using software packages

In the information era, data is no protracted scarce, on the other hand, it is irresistible. From delving into the overpowering quantity of data to precisely interpret its complexity in order to provide insights for intense progress to organizations and businesses, all sorts of data and information is exploited at their entirety and this is where statistical data analysis has a significant part. Statistical data analysis has various applications in the field of statistical analysis of market research, business intelligence(BI), data analytics in big data, machine learning and deep learning, and financial and economical analysis.

Data comprises variables which are univariate or multivariate, and extremely relying on the number of variables, the experts execute several statistical techniques. If the data has a singular variable then univariate statistical data analysis can be conducted including t-test for significance, z test, f test, ANOVA test- one way, etc. And if the data has many variables then different multivariate techniques can be performed such as statistical data analysis, or discriminant statistical data analysis, etc.

Statistical data analysis can be adopted in;

- Existing essential findings/conclusions unveiled through a dataset.

- Abstract and compile information.

- Compute measures of cohesiveness, relevance, or diversity in data.

- Originate forthcoming prophecies on the basis of earlier reported data.

- Test experimental forecasts.

Various software programs are available to perform statistical data analysis, these software include MS -EXECEL, *Statistical Analysis System (SAS), Statistical Package for Social Science (SPSS), Stat soft and many more.* These tools allow extensive data-handling capabilities and several statistical analysis methods that could examine a small chunk to very comprehensive data statistics. Though computers serve as an important factor in statistical data analysis that can assist in the summarization of data, statistical data analysis concentrates on the interpretation of the result in order to drive inferences and prophecies.

The ability to analyze data is a powerful skill that helps you make better decisions. Microsoft Excel is one of the top tools for data analysis and the built-in pivot tables are arguably the most popular analytic tool.

Conclusion

The statistical data analysis furnishes sense to the meaningless numbers and thereby giving life to lifeless data. This will assist in conducting an appropriate and well-designed study pre-eminently to accurate and reliable results. Also, results and inferences are explicit only and only if proper statistical tests are practised. After the successful completion of the course students attained sufficient competency in basic principles of statistics and EXCEL software for data analysis and achieved a strong foundation for their future courses.

Principal
St. Michael's College
Cherthala