DEPARTMENT OF STATISTICS				*CLASS: I M.Sc. Statistics*				
Sem	**Course Type**	**Course Code**	**Course Title**	**Credits**	**Contact Hours/week**	**CIA**	**Ext**	**Total**
I	Practical - 2	21P1SMP2	Statistical Data Analysis with MS-Excel	2	4	50	50	100

Nature of Course				
Knowledge and skill	✓		Employability oriented	✓
Skill oriented	✓		Entrepreneurship oriented	

Course Objectives:

The main emphasis of this course is to equip the student with necessary analytic and technical skills to compute the various measures using MS-Excel.

Description	Hours	K-Level	CLO(s)
Functions for basic Statistics: Measure of central tendency: Average – Trimmean – Harmean – Geomean. Location measure of central tendency: Median – Mode. Other location parameters: Maximum, Minimum, Percentiles – Quartiles – RankMeasure of Dispersion: Variance, Standard deviation. Shape of density function: Skewness – Kurtosis	5	K2	1
Probability density functions and Confidence intervals: Normal – Standard Normal – T – F – Chi-square. Beta – Gamma – Exponential – Weibull and Fisher. Binomial – Poisson – Hypergeometric – Negative binomial	10	K3	2
Statistical tools: *Basic Statistics:* Descriptive statistics – Rank and Percentile – Correlation - Covariance *Hypothesis Testing:* Parametric: Z test – T test – ANOVA (one and two factor). Non Parametric: Sign test – Run test (one and two samples) – Mann-whitney U test – Kruskal-wallis test – Friedman test	15	K3	3
Predictive analytics: Regression analysis (simple and multiple) – Logistic regression. *Time series analysis:*Simple moving average – Weighted moving average – Simple exponential smoothing – Holt's linear trend – Holt-winter method – ARIMA – Seasonal ARIMA – ARIMAX	15	K4	4
Multivariate analysis: Hotelling T square tests – MANOVA (one and two factor) – Factor analysis – K-mean cluster – Discriminant analysis – Correspondence analysis	15	K4	5

Books for references

Berk, K.N and Carey, P. Data Analysis with Excel, 3rd edition, Brooks-Cole, Boston, USA (2010).
Guerrero, H. Excel Data analysis Modeling and Simulation, Springer, London (2010).
Conrad Carlberg, Predictive Analytics: Microsoft Excel, 2nd edition, Pearson Education, USA (2018).
Neil H. Spencer , Essentials of Multivariate Data Analysis, 1st Edition, CRC Press, USA (2014)

Webpages

www.real-statistics.com
https://qymatix.de/en/predictive-sales-analytics-excel-example/
http://cameron.econ.ucdavis.edu/excel/ex23normaltprobabilities.html.$$$
https://www.statisticshowto.com/probability-and-statistics/excel-statistics/
https://www.excel-easy.com/

Rationale for Nature of the course

This computer based course will help the students in developing the data format for spread sheet application and do the appropriate statistical analysis and interpret the outcome obtain in the excel.

Activities having direct bearing on Skill development / Employability / Entrepreneurship

Through this course student's data management in the spread sheet, selection and application of appropriate statistics data analysis will be amplified. Students will be employed in data analysis companies.

Pedagogy

Demonstration and Practical session in computer lab.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO's	Course Learning Outcomes	Knowledge Level
CLO1	Perform data calculation using basic statistical functions through Excel	Up to K2
CLO2	Calculate Probability distribution using excel in-build function.	Up to K3
CLO3	Analyze data and estimate optimal parameter using data analysis tools package Add-ins.	Up to K3
CLO4	Compute predictive analysis through excel and give inferences	Up to K4
CLO5	Conduct and interpret the outcome of multivariate analysis using excel – Add-ins.	Up to K4

Mapping close with PSOs

#	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CLO-1	2	1	2	1	3	1	3
CLO-2	2	1	2	2	3	1	3
CLO-3	2	3	3	3	3	2	3
CLO-4	2	3	3	3	3	2	3
CLO-5	2	3	3	3	3	2	3

Advance application – 3; Intermediate level – 2; Basic level – 1

Course Designer:

1. Dr. R. madhanagopal