Re-Accredited 'B++' 2.86 CGPA by NAAC
VEER NARMAD SOUTH GUJARAT UNIVERSITY
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વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી
યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
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–: પરિપત્ર :–

વાણિજય વિદ્યાશાખા હેઠળની સંલગ્ન તમામ કોમર્સ કોલેજોનાં આચાર્યશ્રીઓને જણાવવાનું કે,શૈક્ષણિક વર્ષ ૨૦૨૪–૨૫ થી અમલમાં આવનાર B.Com. Data Science વિષયનો નિમેલ પેટાસમિતિએ તૈયાર કરેલ Sem-3 & 4 નો અભ્યાસક્રમ કોમર્સ ઈન્કલુડીંગ બી.એ. વિષયની અભ્યાસ સમિતિનાં ચેરમેનશ્રીએ બોર્ડવતી મંજૂર કરી વાણિજય વિદ્યાશાખાને કરેલ ભલામણ વાણિજય વિદ્યાશાખાના અધરધેન ડીનશ્રીએ વાણિજય વિદ્યાશાખાની મંજુરીની અપેક્ષાએ વાણિજય વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને કરેલ ભલામણને એકેડેમિક કાઉન્સિલની તા.૦૧/૦૩/૨૦૨૪ની સભાનાં ઠરાવ ક્રમાંકઃ ૧૦૪ અન્વયે માનનીય કુલપતિશ્રીને આપેલ સત્તા અંતર્ગત માનનીય ઈ.ચા.કુલપતિશ્રી ધ્વારા મંજૂર કરેલ છે. જેની આથી જાણ કરવામાં આવે છે.

(બિડાણઃ ઉપર મુજબ)

ક્રમાંક : એસ./પરિપત્ર/૧૩૧૯૪/૨૦૨૪
તા. ૦૩/૦૭/૨૦૨૪

કુલસચિવ

પ્રતિ,
૧) વાણિજય વિદ્યાશાખા હેઠળની સંલગ્ન તમામ કોમર્સ કોલેજોના આચાર્યશ્રીઓ,
..... આપશ્રીની કોલેજના સંબંધિત શિક્ષકોને જાણ કરી અમલ કરવા સારૂ.
૨) અધરધેન ડીનશ્રી, વાણિજય વિદ્યાશાખા,
૩)પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ.ગુ. યુનિવર્સિટી, સુરત.
૪)એકેડેમિક વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.
૫) જોડાણ વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.
.....તરફ જાણ તેમજ અમલ સારૂ.

B. Com Data Science
Structure
Semester-3

No	COURSE TYPE	NAME OF THE COURSE	CREDIT	LECTURE / WEEK
1	Major (Credits)	1. Statistical Inference	4th = 4cr	4 th per week
2	Major (4 Credits)	2. Python libraries for Data science: Num Py, Pandas	2th+4Pr = 4cr	2 th + 4 pr per week
3	Major (4 Credits)	3. SPSS for Data Science	2th+4Pr = 4cr	2 th + 4 pr per week
4	Minor	--	--	--
5	MD / ID (4 Credits)	Econometrics For Data Science	4Cr	4 th per week
6	AEC (2 Credits)	Digital Marketing / Soft Skills	2Cr	2th per week
7	SEC/ Internship (2 Credits)	Corporate Finance	2Cr	2th per week
8	VAC / BKS (2 Credits)	BKS	2Cr	2th per week
		Total	22Cr	18th+8Pr

Practical: Practical based on courses Statistical Inference -1, Python libraries for Data science, and SPSS for Data Science

Semester-4

NO	COURSE TYPE	NAME OF THE COURSE	CREDIT	LECTURE/ WEEK
1	MAJOR (4 Credit)	1. SPSS for Data Science	3th+2Pr=4cr	3th+2Pr Per week
2	MAJOR (4 Credit)	2. Database Management System (DBMS)	2th+4Pr=4cr	2th+4Pr Per Week
3	MAJOR (4 Credit)	3. Business Intelligence	4th = 4cr	4th per week
4	MINOR (4 Credit)	Managerial Economics	4 Cr	4th per week
5	MD / ID	--	--	--
6	AEC (2 Credit)	Risk Management	2 Cr	2th per week
7	SEC / Internship (2 Credit)	Financial Accounting Software (Tally)	1th + 2 pr = 2cr	1th + 2 Pr per week
8.	VAC / BKS (2 Credit)	E-Commerce	2Cr	2th
		Total	22Cr	18th + 8 Pr

Practical: Practical of course SPSS for Data Science in SPSS and for course DBMS in SQL.

Subject Code [2408000603010002]

B. Com with Data Science

(SEMESTER - III)

Course Code:	
Course Title:	**STATISTICAL INFERENCE**
Course Category:	MAJOR
CREDIT:	**4**
Lecture per week	4 Hours
Implementation year:	A. Y. 2024-25

Course Outcomes (COs)

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

CO1	Understand the basic concept of estimation.
CO2	Understand the properties of good estimators.
CO3	Understand the methods of estimation.
CO4	Understand the concept of interval estimation.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of estimation, methods of estimation and interval estimation. The purpose is to make students aware about the application of estimation to find interval of a population parameter.

Teaching Methodology:	Class work, discussion, self study, seminars/ presentations and assignments.
Evaluation method:	50% Internal Assessment and 50% External Assessment.

Course Contents

Sr.No.		Weightage	Marks
UNIT-I	**Testing of Hypothesis - Part 1** • Testing of Hypothesis • Statistical Hypothesis • Simple and Composite Hypothesis, Null and Alternative Hypothesis • two kinds of errors, level of significance, size, and power of a test, most powerful test, Neyman Pearson lemma without proof.	20%	10
Unit- II	**Test of Significance for Large Samples:** • Test of significance for mean(s), variance(s), proportion(s), correlation coefficient(s) based on Normal distribution.	20%	10
Unit- III	**Test of Significance for Small Samples:** • Test of significance for the mean(s), variance(s), proportion(s), correlation coefficient(s), and regression coefficient based on t, chi-square, and F-distributions. Applications of Chi-square in test of significance (independent of attributes, goodness of fit).	30%	15
Unit- IV	**Interval Estimation:** • Definition of 100 (1-α)% confidence intervals, of the parameter of the parameter of normal distribution. • Construction of confidence interval for mean and variance of normal distribution. • Construction of confidence interval for large sample. • Examples.	30%	15
	TOTAL	100%	50

Reference Books:	
Gupta, S.S. and Kapoor, V.K.	"Fundamentals of Mathematical Statistics", Sultan & Chand & Sons, New Delhi, 11th Edition, 2002.
Rohatgi, V.K	"Statistical Inference", John Wiley and sons, 1984.
Hogg, R.V, Craig. A.T. and Tannis:	"Introduction to mathematical statistics", Prentice Hall, England, 1995.
Dudewicz. E.J and Mishra. S.N.:	"Modern Mathematical statistics", John Wiley and sons, 1988.

Subject Code for theory [2408000603020117]

Subject Code for practical [2408000603020118]

Veer Narmad South Gujarat University, Surat.

B.Com. Data Science (Semester 3)

Course Title:	Python Libraries for Data Science: NumPy, Pandas
Course Category:	Major
Credit:	4 Credits
Nature of Subject:	Theory and Practical
Teaching per Week	4 Hours (2-hours Theory and 4-hours Practical)
Minimum weeks per Semester:	15 (Including Class work, examination, preparation etc.)
Implementation Year:	A.Y. 2024-25
Course Objective:	▪ Enhancing the advance programming skills using interpreter-based programming language Python. ▪ Understand the concept of Statistical functions. ▪ Understand the concepts of Data Science and Analysis tools-NumPy and Pandas
Pre-requisite:	Fundamental knowledge of computer programming using Python language. Knowledge of Python and Python IDE installation is recommended.
Course Outcome:	CO1: Students will be able to learn array and operations on it. CO2: Students will be proficient working on data using statistical methods. CO3: Students will be able to represent compound data using dictionaries in Python programs. CO4: Design applications applying various operations for data cleaning and transformation. CO5: Students will be able to develop real world application. CO6: Students will learn important libraries like NumPy, Pandas which are useful in Data analysis, Machine Learning.
Course Content:	**UNIT-1: Fundamentals of NumPy** 1.1. Introduction to NumPy Library 1.2. Define single and multi-dimensional NumPy array 1.3. Creating NumPy array using list and tuple. 1.4. Creating array NumPy array using zeros(), ones(), arange() and linspace() methods 1.5. NumPy basic operations (arithmetic, indexing, slicing, sorting, concatenating) 1.6. NumPy ndarray and its attributes 1.7. Difference between array and list **UNIT-2: Advanced Numpy array** 2.1. Creating matrix using Numpy 2.2. Matrix manipulation 2.2.1. Addition Subtraction and multiplication of matrix 2.2.2. Transpose of matrix 2.3. Reshaping array, splitting array and flatten() method 2.4. NumPy statistical methods (Mean, Median, Mode, Standard Deviation and Variance) 2.5. Implementation of NumPy methods on numeric data set created using list. 2.6. Loading Arrays from Files 2.7. Saving NumPy Arrays in Files on Disk

	UNIT-3: Introduction to dictionary and Pandas 3.1. Python Collection : Dictionary 3.1.1. Creating Dictionary, Adding, Accessing and Removing element 3.1.2. Dictionary methods: get(), pop(), popitem(), clear(), copy() 3.2. Overview of Pandas library and basic features of Pandas 3.3. Data Structures in Pandas 3.3.1. Series 3.3.1.1. Creation of series from scalar values, NumPy arrays and Dictionary 3.3.1.2. Accessing elements of a Series using indexing and Slicing 3.3.1.3. Attributes of Series 3.3.1.4. Methods of Series: head(), tail() and count() 3.3.1.5. Mathematical operations on series 3.3.2. DataFrame 3.3.2.1. Creating DataFrame from NumPy ndarrays, list of Dictionaries, Dictionary of Lists, Series and Dictionary of Series 3.3.2.2. Operations on rows and columns in DataFrame 3.3.2.3. Accessing DataFrame element through Indexing and slicing 3.3.2.4. Retrieving rows and columns using loc() and iloc() functions. 3.3.2.5. Attributes of DataFrame **UNIT-4: Advanced Data Handling using Pandas** 4.1. Creating DataFrame from .CSV file and Excel spreadsheet 4.2. Reading and writing data using CSV file and Excel spreadsheet 4.3. Retrieving data from DataFrame and perform basic operations 4.4. Operations on DataFrame 4.4.1. Joining, Merging and Concatenation of DataFrames 4.4.2. Data Aggregations 4.4.3. Sorting DataFrames 4.4.4. Group By functions 4.4.5. Altering the Index 4.5. Other DataFrame operations 4.5.1. Reshaping data 4.5.2. Handling missing values 4.5.3. Importing and Exporting Data between CSV Files and DataFrames 4.5.4. Import and Export of data between Pandas and MySQL 4.6. Descriptive Statistics on DataFrames 4.6.1. Calculating min, max, sum, mean, mode quartile, variance and standard deviation
References:	1. Python for Data Analysis-by Wes Mckinney, O'Reilly 2. Learning Python-MarkLutz : O'Reilly Media 3. Core Python Programming –by Wesley J Chun ISBN-13:978-0132269933 4. Python for Everybody: Exploring Data in Python3, by Charles Severance (Author), Aimee Andrion (Illustrator), Elliott Hauser (Editor), Sue Blumen berg (Editor) 5. An Introduction to Python-by van Rossum Guido ISBN:9780954161767, 0954161769

	6. Python Data Analytics: With Pandas, NumPy, and Matplotlib - second Edition. By Fabio Nelli, Apress, ISBN-13(pbk):978-1-4842-3913-1. 7. Pandas for Everyone: Python Data Analysis, First Edition, by Daniel Y. Chen, December 2017, Publisher(s): Addison-Wesley Professional, ISBN: 9780134547046 8. Hands-On Data Analysis with NumPy and pandas: Implement Python packages from data manipulation to processing, Curtis Miller, ISBN: 1789534240, 9781789534245, Packt Publishing Ltd, 2018 9. Learning the Pandas Library: Python Tools for Data Munging, Analysis, and Visual, by Matt Harrison, CreateSpace Independent Publishing Platform, 2016, ISBN: 153359824X, 9781533598240 10. Python: The Complete Reference, by Martin C. Brown, McGraw Hill Education, ISBN-10 9789387572942 , ISBN-13 978-9387572942 11. Python: Data Analytics And Visualization- by Phuong Vo.T.H , Martin Czygan , Ashish Kumar , Kirthi Raman, Packt Publishing Limited, ISBN 9781788290098
Teaching Methodology:	Class Work, Discussion, Self-Study, Seminars or Presentation and Assignments
Evaluation Method:	50% Internal Assessment and 50% External Assessment

Subject Code for theory [2408000603020115]

Subject Code for practical[2408000603020116]

B. Com with Data Science

(SEMESTER - III)

Course Code:	
Course Title:	**SPSS FOR DATA SCIENCE**
Course Category:	MAJOR
CREDIT:	2th +4pr= **4credit**
Lecture per week	2 Hours
Implementation year:	A. Y. 2024-25

Course Outcomes (COs)

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

CO1	Understand the basic concept of estimation.
CO2	Understand the properties of good estimators.
CO3	Understand the methods of estimation.
CO4	Understand the concept of interval estimation.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of SPSS and its use to analyze the data using different statistical techniques. The purpose is to make students aware about SPSS software so that they can use it for analysis work.

Teaching Methodology:	Class work, discussion, self study, seminars/ presentations and assignments.
Evaluation method:	50% Internal Assessment and 50% External Assessment.

Course Contents

Sr.No.		Weightage	Marks
UNIT-I	SPSS: ➢ SPSS Introduction ➢ Starting SPSS ➢ Types of Data ➢ Levels of Management ➢ Missing Values ➢ Important Files// database files Data Management: ➢ Selecting Cases ➢ Standardizing of Data ➢ Transformation of Data ➢ Split File ➢ Variable and Value Labels ➢ Recode Variables/Visual Binning ➢ Random Sample of the Data ➢ Creating a Population Variable ➢ Multi Response ➢ Time Saving Features/ SPSS MACRO	**60%**	**15**
Unit- II	Basic Data Analysis: ➢ Descriptive Statistics ➢ Frequency Tables/Cross Tabs ➢ Correlation / Regression Interpret the Results: ➢ Presentation with live data	**40%**	**10**
		100%	**25**

Reference Books:	
IBM 2016, IBM Knowledge Center:	SPSS Statistics, IBM, viewed 18 May 2016, https://www.ibm.com/support/knowledgecenter/SSLVMB/ welcome /
HOW TO USE SPSS ®	A Step-By-Step Guide to Analysis and Interpretation, Brian C. Cronk, Tenth edition published in 2018 by Routledge.
SPSS for Intermediate Statistics:	Use and Interpretation, Nancy L. Leech et. al., Second edition published in 2005 by Lawrence Erlbaum Associates, Inc..
William E. Wagner	Using IBM SPSS statistics for research methods and social science statistics,Fifth edition published in 2015 by SAGE Publications, Inc.

Subject Code [2408000603030011]

B. Com with Data Science

(SEMESTER - III)

Course Code:	
Course Title:	**Econometrics For Data Science**
Course Category:	MD
CREDIT:	4
Lecture per week	4 Hours
Implementation year:	A. Y. 2024-25

Course Outcomes (COs)

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

CO1	Understand the basic concept of mathematical economics.
CO2	Understand the concept of multiple and partial correlation.
CO3	Understand the concept of multiple regression for three variables.
CO4	Understand about the properties of correlation and regression.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of mathematical economics, multiple and partial correlation and multiple regression. The purpose is to make students aware about utility of the statistical concepts for real life problems.

Teaching Methodology:	Class work, discussion, self study, seminars/ presentations and assignments.
Evaluation method:	50% Internal Assessment and 50% External Assessment.

Course Contents

Sr.No.		Weightage	Marks
UNIT-I	**Mathematical Economics:** • Statistical laws of demand and Supply • Price Equilibrium • Price elasticity of demand & Price elasticity of Supply • Profit maximization under monopoly and Duopoly • Utility Function, Cob-Douglas Production function	30%	15
Unit- II	**Multiple regression (For Three Variables):** • Equation of Regression Plane • Properties of residual Coefficient of multiple regression, derivation of their formula and properties with proof and related results	20%	10
Unit- III	**Multiple and partial correlation:** • Concept of partial Correlation Correlation Coefficient for three variables, derivation of their formula and properties with proof and related results (For Three Variable)	20%	10
Unit- IV	**Analysis of Time series:** • Concept of time series • Causes of variation in time series data • Components of a time series • Determination of trend-moving averages method and method of least squares {including linear, second degree (parabolic trend)}, • Computation of seasonal indices by simple averages, moving average method.	30%	15
	TOTAL	100%	50

Reference Books:	
Hooda, R.P	Statistics for business and economics; Macmillan. New Delhi.
Kendall M.G.(1976)	Time series, Charles Griffin
Goon A.M., Gupta M.K. and Dasgupta B. (2000):	Fundamentals of Statistics, Vol. I & II, 8thEdn. The World Press, Kolkata.
Mood, A.M. Graybill, F.A. And Boes , D.C. (2007)	Introduction to the theory of Statistics, 3rdEdn.,(Reprint), Tata McGraw –Hill Pub. Co. Ltd.
Gun. A.M.Gupta, M.k. and Dasgupta.B.(2008)	Fundamental of Statistics, Vol. II, 9th Edition World press.
YaLun Chou	Statical analysis with business and economics application, Holl; Rinehart &Winster. New York.
Hole & Jessen	Basic Statistics for business and economics: John Wiley and Sons, New York

Subject Code [2408000603040005]

B.Com.Data Science
Semester-3

Ability Enhancement Course

Digital Marketing 2 Credit

Unit-1	**Introduction to Digital Marketing**
1.1	Types of Digital Marketing
1.2	Trends & Scenarios of the Digital Marketing Industry
1.3	Importance of digital marketing
1.4	How to conduct a competitive analysis?
Unit-2	**Email Marketing**
2.1	Importance of Email Marketing
2.2	Email-Marketing Platforms
2.3	Creating & Tracking e-Mailers
Unit-3	**Internet Marketing**
3.1	Introduction & Advantages of Internet Marketing in Business
3.2	How to Optimize your Business Site and Market your Featured Products
3.3	AdWords, SEO & Keyword Research
Unit-4	**Case study of digital marketing**

Total Theory Lectures: 30

Practical demonstration for explaining theory

Subject Code [2408000603040003]

B. Com with Data Science

(SEMESTER - III)

Course Code:	
Course Title:	**Soft Skill**
Course Category:	AEC
CREDIT:	**2**
Lecture per week	2 Hours
Implementation year:	A. Y. 2024-25

Course Outcomes (COs)

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

CO1	Student will be understand the importance of effective communication skills in personal and professional Life
CO2	Students will be able to work efficiently as an individual as well as in a team.

OBJECTIVE

The main objective of this course is to empower with the tools and knowledge necessary to cultivate and enhance these invaluable skills. Through interactive and practical modules, and gain insight into effective communication, problem-solving, team work, adaptability, leadership , time management and much more.

Teaching Methodology:	Class work, discussion, self study, seminars/ presentations and assignments.
Evaluation method:	50% Internal Assessment and 50% External Assessment.

Course Contents

Sr.No.		Weightage	Marks
UNIT-I	**Introducation** • What are soft skills ? • Soft Skills vs Hard Skills • Types of Soft Skills • Importance of Soft Skills.	10%	**2.5**
Unit- II	**Time Management :** • What is Time Management • Importance of Prioritization • Time Management Matrix • What to do vs What not to do	**20%**	**5**
Unit- III	**Building Relationship:** • Group Dynamics • Conflicts and their Resolutions • Negotiation skills • Social Network, Media and Extending our Indentities	**20%**	**5**
Unit- IV	**Thinking Development:** • Critical Thinking • Ceative Thiking • Problme Solving	**20%**	**5**
Unit- V	**Emotional Intelligence :** • What is Emotional Intelligence • EQ, EI and IQ • Enhance your emotions • Stress Management	**20%**	**5**
Unit- VI	**Presentation Skills**	**10%**	**2.5**
	TOTAL	**100%**	**25**

Reference Books:	
Dorch, Patricia	What are the Soft Skills ? New york : Execu Dress Publisher, 2013
Kamin, Maxine	Soft Skill Revolutions : A Guide for Connecting with Compassion for Trainies, and Leaders. Washington, Dc : Pfeiffer & Company, 2013
Klaus, Peggy, Jane Rohman & Molly	The Hard Truth about Soft Skills London : Harper Collins E-book 2007
Stein, Steven J. & Howard E-Book	The EQ Edge : Emotional Intelligence and your Success Canada : Wiley & Sons, 2006

Subject Code [2408000603050007]

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

CLASS : Data Science **SEM : III**

SUBJECT : Corporate Finance **PAPER NO :_____**

COURSE TYPE: SEC **TOTAL CREDIT : 02**

TEACHING HOUR PER WEEK : 2 Hours

EFFECTIVE FROM ACADEMIC YEAR 2024-25 ONWARDS

OBJECTIVES :

(1) To provide an understanding of the essential elements of the financial environment in which the business firm operates
(2) To acquaint students with the techniques of financial management and their applications for business decision making
(3) To give the basic concept about financial Security Market
(4) To clear the concept of cost of capital and calculations about it
(5) To give basic understand of types of leverages and relationship between them
(6) To provide conceptual knowledge about computer accounting

OUTCOMES :

- on successful completion of the Course, Students will be able to:

(1) gain basic concepts of financial management
(2) understand how to coordinate various decisions to maximize wealth of an organization in today's financial environment
(3) aware about the concepts of present value and future value of money
(4) aware knowledge of cost of capital (debt, equity, preference share, retained earning...)
(5) aware and discuss interpret the types of leverages
(6) aware of basics of computer accounting (Tally)

COURSE CONTENT :

UNIT NO	CONTENT	WEIGHTAGE
1	**Time Value of Money** • Definition, Concepts, Application, Present Value, Future Value, Time Value of Money Example	20%
2	**Cost of Capital** • Meaning and Significance • Concepts (Classification) of cost of capital (Explicit & Implicit Cost, Average & Marginal Cost, Future & Historical Cost, Specific & Combined Cost) • Determination (Measurement) of the cost of capital (Cost of Debt, Preference Share, Equity Share and Retained Earning and Weighted Average cost of capital)	40%
3	**Leverage** • Concepts of Leverage, Types of leverage: Operating leverage, Financial Leverage and Combined Leverage	20%
4	**Computer Accounting** • Introduction and Framework of Computer Accounting • Accounting packages (Tally Only)	20%

REFERENCES :

(1) Corporate Finance Theory and Practice – A. Damodaran
(2) Money and Financial System – Sudhir Prakashan and Dr. D. D. Desai Uni 2008
(3) Investment Management – V. K. Bhalla
(4) Management Accounting & Financial Control - S. N. Maheshwari SultanChand & Co., New Delhi.
(5) Spreadsheet Skills for Finance Professionals ; Pitabas Mohanty, Taxmann's
(6) Prasanna Chandra, "Financial management: Theory and Practice", 9th Ed, Mc Graw Hill.
(7) Horne, James C V. and John M. Wachowiez, Jr. 'Fun`damentals of Financial Management. 13th ed; FT Prentice Hall, Pearson Education
(8) Advance Management Accounting - Ravi M. Kishore; Taxmann AllideService (P) Ltd., New Delhi.
(9) Management Accounting Tools & Techniques - N. Vinaykam & I. B. Sinha; Himalaya Publishication Hose, Mumbai.
(10) Multinational Financial Management - Alan C. Shapiro, Prentice - Hall ofIndia, New Delhi.
(11) International Financial Management - P. G. Apte; Tata MC Graw, Hill Publishing Company Ltd., New Delhi.
(12) Mastering Tally: Dinesh Maidasani, Firewal Media
(13) Implementing Tally ERP 9 : A. K. Nadhani and K. K. Nadhani, BPB publications
(14) Manuals of Respective Accounting Packages

SUB COMMITTEE CHAIRMAN SIGN

BOS CHAIRMAN SIGN

B. Com with Data Science

(SEMESTER - IV)

Course Code:	
Course Title:	**SPSS FOR DATA SCIENCE**
Course Category:	MAJOR
CREDIT:	2th +4pr= **4credit**
Lecture per week	2 Hours
Implementation year:	A. Y. 2024-25

Course Outcomes (COs)

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

CO1	Understand the basic concept of estimation.
CO2	Understand the properties of good estimators.
CO3	Understand the methods of estimation.
CO4	Understand the concept of interval estimation.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of SPSS and its use to analyze the data using different statistical techniques. The purpose is to make students aware about SPSS software so that they can use it for analysis work.

Teaching Methodology:	Class work, discussion, self study, seminars/ presentations and assignments.
Evaluation method:	50% Internal Assessment and 50% External Assessment.

Course Contents

Sr.No.		Weightage	Marks
UNIT-I	Exploring Data: ➢ Descriptive Statistics for Continuous Variables ➢ The Explore procedure ➢ Frequencies Procedure ➢ Descriptives ➢ Compare mean Frequencies for Categorical Data	**40%**	**10**
Unit- II	Analyzing Data : ➢ Inferential Statistics for Association: Pearson Correlation ➢ Chi-sqaure Test of Independence ➢ Inferential Statistics for comparing Means ➢ One sample t Test ➢ Paired Samples t Test ➢ Independent Samples t Test ➢ Time series analysis	**60%**	**15**
		100%	**25**

Reference Books:	
IBM 2016, IBM Knowledge Center:	SPSS Statistics, IBM, viewed 18 May 2016, https://www.ibm.com/support/knowledgecenter/SSLVMB/ welcome /
HOW TO USE SPSS ®	A Step-By-Step Guide to Analysis and Interpretation, Brian C. Cronk, Tenth edition published in 2018 by Routledge.
SPSS for Intermediate Statistics:	Use and Interpretation, Nancy L. Leech et. al., Second edition published in 2005 by Lawrence Erlbaum Associates, Inc..
William E. Wagner	Using IBM SPSS statistics for research methods and social science statistics,Fifth edition published in 2015 by SAGE Publications, Inc.

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B.Com. Data Science (Semester 4)

Course Title:	Database Management System
Course Category:	Major
Credit:	4 Credits
Nature of Subject:	Theory and Practical
Teaching per Week	4 Hours (2-hours Theory and 4-hours Practical)
Minimum weeks per Semester:	15 (Including Class work, examination, preparation etc.)
Implementation Year:	A.Y. 2024-25
Course Objective:	▪ To make student aware of basic concepts of DBMS and its use. ▪ Understanding the concept of normalization to improve database design. ▪ To learn the basics of SQL and construct queries using SQL.
Pre-requisite:	Basic understanding of data handling.
Course Outcome:	CO1: Students will be able to learn concepts of DBMS. CO2: Students will be able to design good quality of database. CO3: Students will be able to learn data manipulation in DBMS through SQL. CO4: Students will be able to learn faster and efficient access of data from database.
Course Content:	**UNIT-1: Introduction to DBMS** 1.1. Basics of data and databases 1.2. Introduction to DBMS 1.3. Database Management System – meaning, objective, components, advantages and disadvantages 1.4. Tables, fields, records **UNIT-2: Concepts of Database** 2.1. Attribute, Key attribute, derived attribute, multi-valued attribute 2.2. Super key, Candidate key, Primary key, Composite key, Foreign key, Unique key 2.3. Functional Dependencies and its types 2.4. Normalization 2.4.1 Use of Normalization 2.4.2 1st Normal Form, 2nd Normal Form, 3rd Normal Form **UNIT-3: Concepts of Structure Query Language (SQL)** 3.1. Types of SQL Statements: DDL, DML, DCL. 3.2. Data types. 3.3. Basic SQL statements 3.3.1. Creating table and inserting data: CREATE TABLE, INSERT 3.3.2. Retrieving data using query: SELECT, SELECT DISTINCT, SORTING data in a table 3.3.3. Creating a table from another table, Inserting a data into a table from another table 3.3.4. Manipulating data: DELETE, TRUNCATE TABLE, UPDATE

	3.3.5. Modifying and removing table: ALTER TABLE, RENAME, DROP 3.4. Working with Data Constraints 3.4.1. Primary key, Foreign key, Unique key 3.4.2. CHECK constraint 3.4.3. Dropping constraints 3.5. Logical operators, Range searching with AND and BETWEEN, Pattern matching, IN and NOT IN predicates **UNIT-4: Functions and Advanced SQL** 4.1. Functions 4.1.1. Aggregate functions 4.1.2. String Functions 4.1.3. Conversion Functions 4.1.4. Date Functions 4.2. Grouping data from tables in SQL: GROUP BY clause, HAVING clause 4.3. Sub-queries, Correlated sub-queries 4.4. Joins 4.5. View 4.5.1. Use of View 4.5.2. CREATE VIEW 4.6. Index 4.6.1. Implicit Index 4.6.2. Need of Index 4.6.3. CREATE INDEX
References:	1. Database System Concepts: – Henry F. Korth & Abrahim Silberschatz – McGraw Hill Education 2. Introduction to Database Management System– Bipin C. Desai – Galgotia Publication 3. Principles of database systems – Jeffery Ullman – Galgotia Publication 4. An introduction to Database Systems – C. J. Date – Addison Wesley 5. Ivan Bayross : SQL,PL/SQL The programming language of Oracle, BPB Publications 6. SQL/PLSQL for Oracle9i, P. S. Deshpande, dreamtech press
Teaching Methodology:	Class Work, Discussion, Self-Study, Seminars or Presentation and Assignments
Evaluation Method:	**50% Internal Assessment and 50% External Assessment**

Veer Narmad South Gujarat University, Surat.

B.Com. Data Science (Semester-4)

Major (4 Credits)

Course Name: Business Intelligence

Unit 1

Business intelligence: Effective and timely decisions, Data, informationand knowledge, The role of mathematical models, Business intelligencearchitectures, Ethics and business intelligenceDecision support systems: Definition of system, Representation of thedecision-making process, Evolution of information systems, Definitionof decision support system, Development of a decision support system

Unit 2

Mathematical models for decision making: Structure of mathematicalmodels, Development of a model, Classes of modelsData mining: Definition of data mining, Representation of input data ,Data mining process, Analysis methodologiesData preparation: Data validation, Data transformation, Data reduction

Unit 3

Business intelligence applications:Marketing models: Relational marketing, Sales force management,Logistic and production models: Supply chain optimization,Optimization models for logistics planning, Revenue managementsystems.
Data envelopment analysis: Efficiency measures, Efficient frontier,The CCR model, Identification of good operating practices

Unit 4

Knowledge Management: Introduction to Knowledge Management,Organizational Learning and Transformation, Knowledge ManagementActivities, Approaches to Knowledge Management, InformationTechnology (IT) In Knowledge Management, Knowledge ManagementSystems Implementation, Roles of People in Knowledge ManagementArtificial Intelligence and Expert Systems:Concepts and Definitions of Artificial Intelligence, Artificial Intelligence Versus Natural Intelligence, Basic Concepts of ExpertSystems, Applications of Expert Systems, Structure of Expert Systems,Knowledge Engineering, Development of Expert System

Books and References:

1. Business Intelligence: DataMining and Optimization forDecision MakingCarlo VercellisWiley First 2009
2. Decision support andBusiness IntelligenceSystemsEfraim Turban,Ramesh Sharda, Dursun DelenPearson Ninth 2011
3. Fundamental of BusinessIntelligenceGrossmann W,Rinderle-MaSpringer First 2015
4. Business Intelligence,Dr. S K Singh I Dr. R B Patil,staredu solutions

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT.
FACULTY OF COMMERCE
B.COM. DATA SCIENCE SOURSE
SEMESTER-4
SUBJECT: ECONOMICS
MINOR : MANAGERIAL ECONOMICS
SYLLABUS
(Effective from 2024-25 as per NEP-2020)
Credit: 4

Course Objectives:

This course aims to familiarize students with behaviour of firms under different markets, evaluate investment proposals and price their key inputs under prevailing economic scenarios.

Course Outcomes:

In the end of this course, students shall be able to take following economic decisions.

1. Output and pricing decisions under various types of market.
2. Evaluate and take right investment decisions from available alternatives.
3. Enable students to take decisions regarding factor pricing.

		Weightage
1.	**Market Structure – I** Perfect Competition: Meaning, Characteristics, Equilibrium of a firm & industry in short run and long run, Shut down point. Monopoly: Meaning, Characteristics, Equilibrium of a firm in short run and long run, Price Discrimination – its meaning, types, essential conditions, profitability and possibility of price discrimination.	25%
2.	**Market Structure – II** Monopolistic Competition: Meaning, Characteristics, Equilibrium of a firm & group in short run and long run, Excess capacity, Selling cost. Oligopoly: Meaning, Characteristics, Inter-dependence of firms, Kinked demand curve theory, Cartel, Price leadership – Meaning and types.	25%
3.	**Capital Budgeting :** Meaning, Importance, Steps, Sources of capital – Internal & External, Methods of evaluation of capital projects – Payback Period, Net Present Value, Internal Rate of Return, and Profitability Index.	25%
4.	**Factor Pricing :** Wages: Meaning, Nominal & real wages, Factors affecting real wages, Wage differential in same occupation. Profit: Meaning, Difference between Economic & Accounting profit, Theories of Profit – Prof. Clark's dynamic theory, Prof. Schumpeter's Innovation theory and Prof. Knight's Risk bearing and uncertainty theory.	25%

References:

1. Business Economics – H. L. Ahuja, S. Chand & Co., New Delhi.
2. Micro Economics: Theory and Applications – Dominick Salvatore, Oxford University Press, New York.
3. Managerial Economics – G. S. Gupta, Tata McGraw Hill
4. Managerial Economics – R. L. Varshney, Sultan Chand & Sons, New Delhi.

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B.Com. Data Science (Semester-4)

AEC (2 Credits)

RISK MANAGEMENT

Unit1

Market Risk Measurement: Risk management Principles; Sources of Market Risk; Derivatives and Risk Management; Risk Measurement before VaR; Measures of Financial Risk; VaR, CoherentRisk Measures; Estimating Market Risk; Estimating Liquidity Risk.

Unit 2

Credit Risk Measurement: Concept; Credit Analysis of Corporate Bonds; Agency Ratings; Modeling Credit Risk; Elements of Credit Risk; Default Risk; Measuring Default Probabilities; Loss given Default; Loan Portfolios, Expected Losses & Unexpected Losses; Credit Derivatives;
CLN; CDO; CDS.

Unit 3

Operational Risk Measurement: Concept; Identification; Drivers; Approaches; Managing operational risk; Insurance; Hedging using derivatives; Application of VaR; Risk Adjusted Performance Measurement; VaR Based; Earnings Based; SVA; Integrated Risk Management; Legal;Reputational; Accounting; Other types – Regulatory, Political; Firm wide performance; ControllingFirm Wide Risk; Model Risk.

Unit 4

Investment Risk Measurement: Investment companies & Evaluation Portfolio Performance; Hedge Fund Management; Hedge fund basics; Analysis of performance of Hedge funds; Risks inHedge Funds; Individual Hedge Fund Strategies; Style Drifts – Monitoring, detection and control.

Reference Books :

1. GARP – FRM Handbook, 4th Edition.
2. Philippe Jorion – Value at Risk, 3rd Edition.
3. Alexander J. McNeil, R' udiger Frey, Paul Embrechts – Quantitative Risk Management.
Reference Books:
1. Kevin Dowd – Measuring Market Risk, 2nd Edition.
2. Frank K Reilly, Keith C Brown - Investment Analysis and Portfolio Management- 5th Edition.

Veer Narmad South Gujarat University, Surat

B.Com. Data Science

Semester-4

Course Type:- SEC (Skill Enhancement Course) Total Credit: 2

Subject: Financial Accounting Software (Tally)

Effective from Academic Year 2024-25

Objectives:

The course is aimed at providing the knowledge of Practical Tally accounting with GST and developing basic soundness with building themselves in the field of accounting profession for the students.

Expected outcomes of the course:

- Develop skills in qualitative and quantitative financial data analysis and presentation.
- Became the Accountants for business entity
- Capable for solving the accounting problem of business organisation
- Develop advanced analytical thinking skills.
- Developing the skill for practically Tally accounting.
- They can work of basic GST work
- Serve better in the accounting job

Syllabus:

Unit: 1. Basic of computer & role of computer in commerce fields

1.1. Learning the Words in computer & their application in commerce

102. Learning of Basic excels in computer & their application in commerce

1.3. Learning of power point presentation & their application in commerce

1.4. Protection of documents & Files

1.5. Changing format / interchanging format of file

1.6. Writing Business / official emails

Unit: 2 about the business and form &

2.1. Learn various form of Business

2.2. Merits & Demerits of various form of business

2.3. Registration formats of various business

2.4. Documents learning for various form of business

2.5. Role of accounting in business

Unit:3 Tally accounting and their application in business

3.1. Meaning, Objective, important of Tally Accounting in business

3.2. Creation of company in Tally prime

3.3.Alter or edit and delete of company in Tally Prime
3.4.Create of Ledger in Tally Prime
3.5.Alter or Delete ledger in Tally Prime
3.6.Create the party leader – debtor or creditor ledger in Tally

3.7.Create the sales or purchase ledger in Tally

3.8.Learn to Pass the journal entry of purchase or sales

3.9.Learn to Pass the journal entry of Direct or Indirect Expenses

3.10. Learn to Pass the journal entry of capital assets

3.11. Learn to Pass the journal entry of Noncash expenditure

3.12. Learn to Pass the journal entry of bank passbook or bank statement

3.13. Create the proforma invoice in Tally Prime

3.14. Inventory /stock management in Tally prime

3.15. Pass the GST entry in Tally Prime

3.16. Preparation of cash book and Analysis of cash balance in Tally Prime

3.17. Preparation of profit and loss account in Tally

3.18. Preparation balance sheet in Tally

Unit:4 Taxation

4.1. Basic of Tax – what , why , who and how
4.2.What is direct tax & Indirect Tax - Difference of Direct Tax & Indirect tax
4.3.Overview of direct tax
4.4.Calculation of Income tax
4.5.Basic of GST
4.6.GST registration
4.7.GST return filling process

Reference Books:

1. Accounting Books of B COM course
2. Accounting Books of CA/CMA institute
3. GST Books of CA/CMA institute
4. Other reference books related to GST and Tally

Veer Narmad South Gujarat University, Surat

B.Com. Data Science

Semester-4

Course Type:- VAC Total Credit: 2

Subject : (E-Commerce)

Effective from Academic Year 2024-25

Objective of the Course/Program:	To provide understanding of the concepts and the application issues of e-Business like Internet infrastructure, payment systems and various online strategies for ecommerce.
Expected Outcomes of the Course/Program:	The students will be able to Understand importance of e-commerce and Technologies used in Expose with various Business model used in E-commerce Demonstrate various payments and security Mechanisms in E-Commerce.
Course / Program Syllabus(In Detail)	**unit:-I Fundamentals of E-Commerce** Commerce: Meaning & Nature, e-commerce, Origin, Definitions & Meaning, Scope & Goals, Feature Advantages & Disadvantages, Essentials of e-commerce, e-Commerce v/s Traditional Commerce, Technologies used in e-commerce. **Unit:-2 Business Models for E-Commerce** E-Business: Meaning, Definitions, Importance, E-Business Models based on the relationships of Transaction parties, B2C,B2B, C2C, C2G, G2G, B2G, G2B(To be taught in detail), **Unit:-3. SCM** E-supply chain management-Introduction and Process. **Reference book** 1."E-Coomrce 2019:Business, Technology, Society" by Kenneth C. Laudon and Carol Guercio Traver 2."E-commerce Get it Right!: Essential Step by Step Guide for Selling & Marketing Products Online" by Ian Daniel 3."The Long Tail: Why the Future of Business is Selling Less of More" by Chris Anderson 4. " Invisible Selling Machine " by Ryan Deiss
Evaluation Pattern: (MCQ/Witten/Practical/Blended)	**Total Score:-50** Internal/Assignment Score+ Out of 25 MCQ/Written Exam Score+ Out of 25 50% Internal Assessment and 50% External Assessment