Re-Accredited 'B++' 2.86 CGPA by NAAC
VEER NARMAD SOUTH GUJARAT UNIVERSITY
University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી
યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
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–: પરિપત્ર :–

યુનિવર્સિટી સંલગ્ન વાણિજય વિદ્યાશાખા હેઠળની તમામ કોલેજોનાં આચાર્યશ્રીઓને જણાવવાનું કે, શૈક્ષણિક વર્ષ ૨૦૨૫–૨૬ થી અમલમાં આવનાર NEP-2020 અંતર્ગત B.Com. Data Science Sem-5 & 6 તથા B.Com. Data Analytics Sem-3 & 4 નો પેટાસમિતિ દ્વારા તૈયાર કરવામાં આવેલ અભ્યાસક્રમ વાણિજય વિદ્યાશાખાની તા.૦૧/૦૪/૨૦૨૫ની સભાનાં ઠરાવ ક્રમાંકઃ૩૩ થી કોમ્પ્યુટર સાયન્સ અભ્યાસ સમિતિને મંજૂર કરવા રીફર કરેલ છે જે અંગે કોમ્પ્યુટર સાયન્સ વિદ્યાશાખા તથા કોમ્પ્યુટર સાયન્સ વિષયની અભ્યાસ સમિતિની સંયુકત તા.૩૦/૦૪/૨૦૨૫ની સભાનાં ઠરાવ ક્રમાંકઃ ૧૪ થી સ્વીકારી મંજૂર કરેલ છે અને વાણિજય વિદ્યાશાખાનાં ડીનશ્રીએ વાણિજય વિદ્યાશાખાવતી મંજૂર કરેલ છે એકેડેમિક કાઉન્સિલની તા. ૦૫/૦૫/૨૦૨૫ ની સભાનાં ઠરાવ ક્રમાંકઃ ૧૫૯ થી મંજુર કરેલ છે. જેનો અમલ કરવા આથી જાણ કરવામાં આવે છે.

વધુમાં, પેટાસમિતિ દ્વારા તૈયાર કરવામાં આવેલ B. Com. Data Science Sem-1 to 6 નું Structure અને B.Com. Data Analytics Sem-1 to 6 નું Structure ને વાણિજય વિદ્યાશાખા વતી વાણિજય વિદ્યાશાખાનાં અધ્યક્ષશ્રીએ મંજુર કરેલ છે તથા એકેડમિક કાઉન્સિલની તા.૨૪/૧૨/૨૦૨૪ ની સભાનાં ઠરાવ ક્રમાંકઃ ૩૫૩ અન્વયે માનનીય કુલપતિશ્રીને આપેલ સત્તા અંતર્ગત એકેડમિક કાઉન્સિલ વતી માનનીય કુલપતિશ્રીએ મંજૂર કરેલ છે. જેનો અમલ કરવા આથી જાણ કરવામાં આવે છે.

બિડાણઃ ઉપર મુજબ

ક્રમાંકઃઓથો./પરિપત્ર/સિલેબસ/૧૨૬૦૭/૨૦૨૫
તા.૩૧–૦૫–૨૦૨૫

કુલસચિવ

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

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

Faculty of Commerce – B.Com. Data Analytics Course

Credit Structure

SEMESTER-III

SR NO	COURSE TYPE	NAME OF THE COURSE	CREDIT	LECTURE /WEEK
1.	Major (12 Credits)	1. Statistical Inference 2. Python libraries for Data Analytics: NumPy, Pandas 3. SPSS for Data Analytics-I	4th = 4cr 2th+4Pr = 4cr 2th+4Pr = 4cr	8th+8Pr
2.	Minor	--	--	--
3.	MD / ID (4 Credits)	Econometrics for Data Analytics	4Cr	4th
4.	AEC (2 Credits)	Digital Marketing / Soft Skills	2Cr	2th
5.	SEC / Internship (2 Credits)	Corporate Finance	2Cr	2th
6.	VAC / IKS (2 Credits)	BKS	2Cr	2th
Total			**22Cr**	**18th+8Pr**

Practical: Practical based on courses Statistical Inference, Python libraries for Data Analytics and SPSS for Data Analytics

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
S.Y.B.Com. Data Analytics SEM –III
STATISTICAL INFERENCE (MAJOR) (4 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	STATISTICAL INFERENCE		
credit	4		
Teaching per week	4 Hours		
Effective from	2025-2026		
Purpose of course	The purpose of this course is to provide students with a comprehensive understanding of statistical hypothesis testing and interval estimation.		
Objective of course	The main objective of this course is to develop the ability to formulate and test hypotheses using appropriate statistical methods for both large and small samples. The course also focuses on constructing and interpreting confidence intervals, enabling students to make data-driven decisions in various real-life and research scenarios. Emphasis is placed on both theoretical foundations and practical applications of statistical inference.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership		

	PSO3 : Nurture the students to investigate for the design and development of a workable solution for a real world problem **PSO4 :** Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Understand the key concepts of hypothesis testing. **CO2:** Apply large sample tests for means, variances, proportions, and correlations. **CO3:** Perform small sample tests using t, chi-square, and F distributions for various statistical parameters. **CO4:** Understand the concept of interval estimation. **CO5:** Apply the course content for the further study of statistics.		
Mapping between COs with PSOs			
Course content	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 Nomal 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:	30%	15

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

	• Definition of 100 (1-a)% 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.		
References	1. Gupta, S.S. and Kapoor,V.K.: "Fundanentals of Mathematical. Statistics", Sultan & Chand & Sons, New Delhi, llth Edition, 2002. 2. Rohatgi, V.K: "Statistical Inference", John Wiley and sons,1984. 3. Hogg, R.V, Craig. A.T. and Tannis: "Introduction to mathematical statistics", Prentice Hall, England, 1995. 4. Dudewicz. E.J and Mishra.S.N.: "Modern Mathematical statistics", John Wiley and sons, 1988.		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

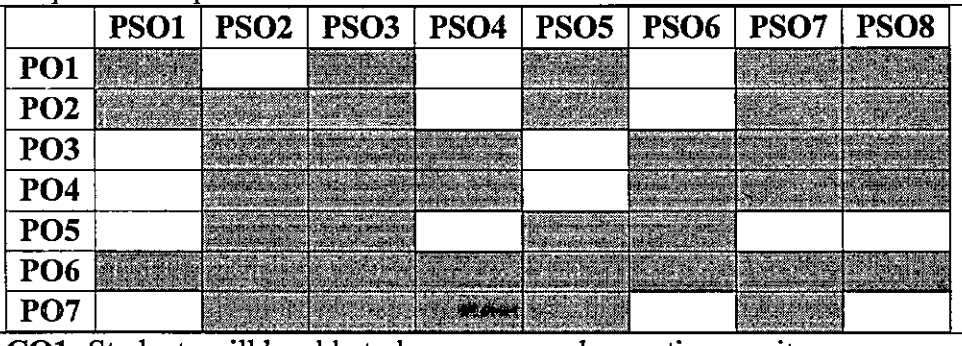
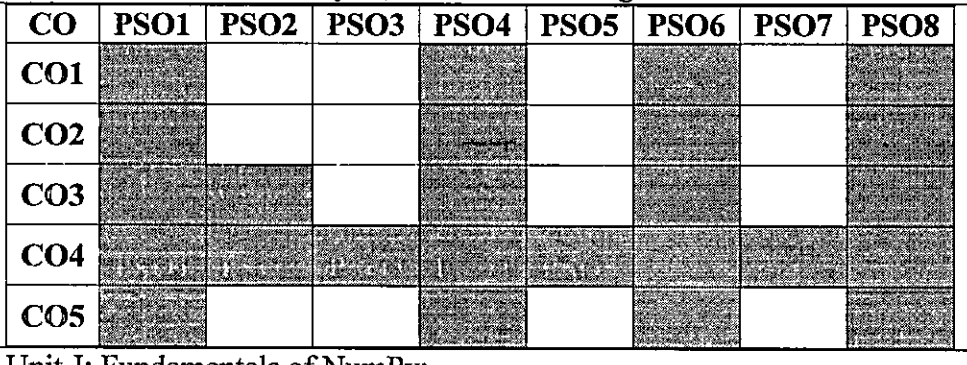
S.Y.B.Com. Data Analytics SEM –III

Python Libraries for Data Analytics: NumPy, Pansas (MAJOR) (2th+4pr=4 credit)

As per NEP 2020

To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Python Libraries for Data Analytics: NumPy, Pansas		
credit	2th+4pr =4 credit		
Teaching per week	4 Hours (2 Hours theory and 4 Hours practical)		
Effective from	2025-2026		
Purpose of course	The purpose of this course is to introduce students to powerful Python libraries—NumPy and Pandas—for efficient data handling and analysis.		
Objective of course	The main objective of this course is to build foundational skills in creating and manipulating arrays, performing statistical operations, working with real-world data using Series and Data Frames, and handling data input/output tasks. This course prepares students to work confidently with structured data for academic, research, and industry applications.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem		

	PSO4 : Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**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:** Students will be able to develop real world application. **CO5:** Students will learn important libraries like NumPy, Pandas which are useful in Data analysis, Machine Learning.		
Mapping between COs with PSOs			
Course content	Unit-I: 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(), arrange() 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	**20%**	**10**
	Unit-II: 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	**20%**	**10**

	2.7. Saving NumPy Arrays in Files on Disk		
	Unit-III: 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 operation s on series 3.3.2. Data Frame 3.3.2.1. Creating Data Frame from NumPy ndarrays, list of Dictionaries, Dictionary of Lists, Series and Dictionary of Series 3.3.2.2. Operations on rows and columns in Data Frame 3.3.2.3. Accessing Data Frame element through Indexing and slicing 3.3.2.4. Retrieving rows and columns using loc() and iloc() functions. 3.3.2.5. Attributes of Data Frame	**35%**	**18**
	Unit-IV: Advanced Data Handling using Pandas: 4.1. Creating Data Frame from CSV file and Excel spreadsheet 4.2. Reading and writing data using CSV file and Excel spreadsheet 4.3. Retrieving data from Data Frame and perform basic operations 4.4. Operations on Data Frame 4.4.1. Joining, Merging and Concatenation of Data Frames 4.4.2. Data Aggregation 4.4.3. Sorting Data Frames 4.4.4. Group By functions 4.4.5. Altering the Index 4.5. Other Data Frame operations 4.5.1. Reshaping data 4.5.2. Handling missing values 4.5.3. Importing and Exporting Data between CSV Files and Data Frames 4.5.4. Import and Export of data between Pandas and MySQL 4.6. Descriptive Statistics on Data Frames 4.6.1. Calculating min, max, sum, mean, mode, quartile, variance and standard deviation	**25%**	**12**
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 IBSN:9780954161767, 0954161769 6. Python Data Analytics: With Pandas, NumPy and Matplotlib-Second Edition. By Fabio Nelli, Apress, IBSN-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, IBSN:9780134547046 8. Hands-On Data Analysis with NumPy and pandas: Implement Python packages from data manipulation to processing, Curtis Miller, IBSN:1789534240, 9781789534245, Paekt Publishing Ltd. 2018		

	9. Learning the Pandas Library: Python Tools for Data Munging, Analysis, and Visual, by Harrison, Create Space Independent Publishing Platform, 2016, ISBN:153359824X. 9781533598240 10. Python: The Complete Reference. By Martin C. Brown, McGraw Hill Education, ISBN-10 9789387572942, ISBN-13 9789387572942 11. Python: Data Analytics and Visualization-by Phuong Vo.T.H, Martin Czygan, Ashish Kumar, Kirthi Raman, Packt Publishing Limited, ISBN 9781788290098		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

S.Y.B.Com. Data Analytics SEM –III

SPSS For Data Analytics-1 (MAJOR) (2th+4pr=4 credit)

As per NEP 2020

To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	SPSS For Data Analytics-1		
credit	2th+4pr=4 credit		
Teaching per week	2 Hours		
Effective from	2025-2026		
Purpose of course	The purpose is to make students aware about SPSS software so that they can use it for analysis work.		
Objective of course	The main objective of this course is to provide fundamental knowledge of SPSS and its use to analyse the data using different statistical techniques.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem **PSO4 :** Develop students for self-learning and practicing challenging problem solution		

	PSO5 : Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Understand the fundamentals of SPSS software. **CO2:** Demonstrate proficiency in managing and transforming data within SPSS. **CO3:** Apply statistical techniques using SPSS. **CO4:** Interpret SPSS outputs and statistical results accurately, making informed decisions based on analytical findings. **CO5:** Develop the ability to present statistical findings with live data, aligning with practical applications and real-world scenarios.		
Mapping between COs with PSOs			
Course content	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%**	**30**
	Unit-II: Basic Data Analysis:	**40%**	**20**

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

	• Descriptive Statistics • Frequency Tables/Cross Tabs • Correlation / Regression Interpret the Results: • Presentation with live data		
References	1. IBM 2016, IBM Knowledge Center: SPSS Statistics, IBM, viewed 18 May 2016, https://www.ibm.com/support/knowledgecenter/SSLVMB/welcome / 2. HOW TO USE SPSS ®: A Step-By-Step Guide to Analysis and Interpretation, Brian C. Cronk, Tenth edition published in 2018 by Routledge. 3. SPSS for Intermediate Statistics: Use and Interpretation, Nancy L. Leech et. al., Second edition published in 2005 by Lawrence Erlbaum Associates, Inc.. 4. William E. Wagner: Using IBM SPSS statistics for research methods and social science statistics,Fifth edition published in 2015 by SAGE Publications, Inc.		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

S.Y.B.Com. Data Analytics SEM –III

Econometrics For Data Analytics (MD) (4 credit)

As per NEP 2020

To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Econometrics For Data Analytics		
credit	4		
Teaching per week	4 Hours		
Effective from	2025-2026		
Purpose of course	The purpose is to make students aware about utility of the statistical concepts for real life problems.		
Objective of course	The main objective of this course is to provide fundamental knowledge of mathematical economics, multiple and partial correlation and multiple regression.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem **PSO4 :** Develop students for self-learning and practicing challenging problem solution		

	PSO5 : Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**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.		
Mapping between COs with PSOs			
Course content	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	**30%**	**15**

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

	• 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.		
References	1. Hooda, R.P.: Statistics for business and economics; Macmillan. New Delhi. 2. Kendall M.G.(1976) Time series, Charles Griffin 3. Goon A.M., Gupta M.K. and Dasgupta B. (2000): Fundamentals of Statistics, Vol. I & II, 8thEdn. The World Press, Kolkata. 4. 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. 5. Gun. A.M.Gupta, M.k. and Dasgupta.B.(2008):Fundamental of Statistics, Vol. II, 9th Edition World press. 6. YaLun Chou: Statical analysis with business and economics application, Holl; Rinehart &Winster. New York. 7. Hole & Jessen: Basic Statistics for business and economics: John Wiley and Sons, New York		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
S.Y.B.Com. Data Analytics SEM –III
Digital Marketing (AEC) (2 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Digital Marketing		
credit	2		
Teaching per week	2 Hours		
Effective from	2025-2026		
Purpose of course	The purpose of this course is to equip students with foundational knowledge and practical skills in digital marketing. It covers key areas such as types and importance of digital marketing, email marketing strategies, internet marketing tools like SEO and AdWords, and real-world case studies.		
Objective of course	The main objective of this course is to help students understand how to effectively promote products and services online and stay competitive in the digital marketplace.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem		

PSO4 : Develop students for self-learning and practicing challenging problem solution

PSO5 : Train students to apply managerial skills to develop business applications.

PSO6 : Train students to use Data Analytics and application domain specific knowledge

PSO7 : Train students to take-up the real world challenges to develop workable solution to a domain specific problem

PSO8 : Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.

Mapping between POs and PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

Course outcomes

CO1: Understand the different types of digital marketing, current industry Trends and their importance in the modern business landscape.

CO2: Analyse the role of competitive analysis in building effective digital marketing strategies.

CO3: Understand the importance of email marketing, explore various Platforms and learn how to create and track email campaigns.

CO4: Demonstrate the use of internet marketing tools like SEO, AdWords, and keyword research to improve online visibility and business growth.

CO5: Evaluate and present real-life digital marketing case studies to understand the practical application of digital strategies.

Mapping between COs with PSOs

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course content	Unit-I: 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 competitive analysis?	**25%**	**6**
	Unit-II: Email Marketing 2.1 Importance of Email Marketing 2.2 Email-Marketing Platforms 2.3 Creating & Tracking e-Mailers	**20%**	**5**
	Unit-III: 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	**30%**	**8**
	Unit-IV: Case study of digital marketing	**25%**	**6**
References	1. Jeff Larson & Stuart Draper: "Digital Marketing Essentials".		

	2. Chad S. White: "Email Marketing Rules: A Step-by-Step Guide". 3. Ryan Deiss & Russ Henneberry: "Digital Marketing for Dummies". 4. **Coursera – Digital Marketing Specialization (by Univ. of Illinois)** https://www.coursera.org/specializations/digital-marketing 5. **Google Digital Garage** https://learndigital.withgoogle.com		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

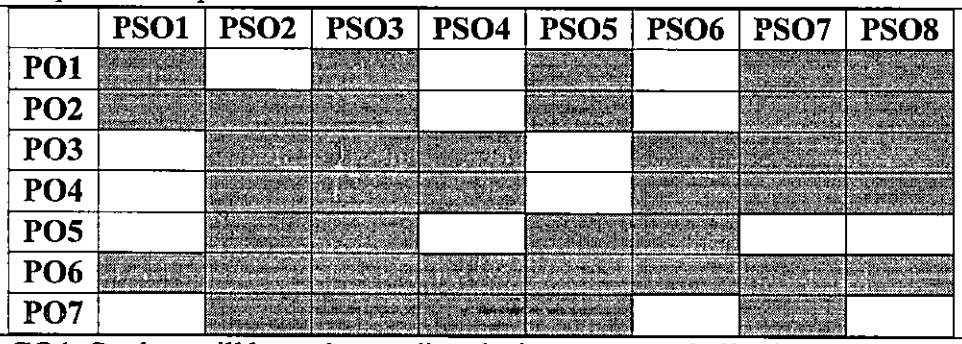
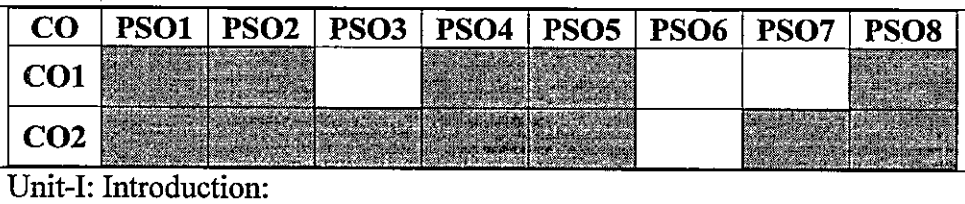
S.Y.B.Com. Data Analytics SEM –III

Soft Skills (AEC) (2 credit)

As per NEP 2020

To be implemented from the Academic year 2025-26

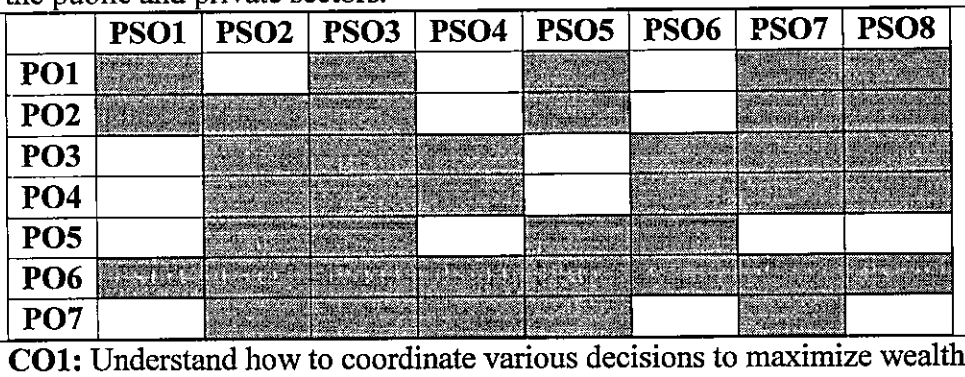
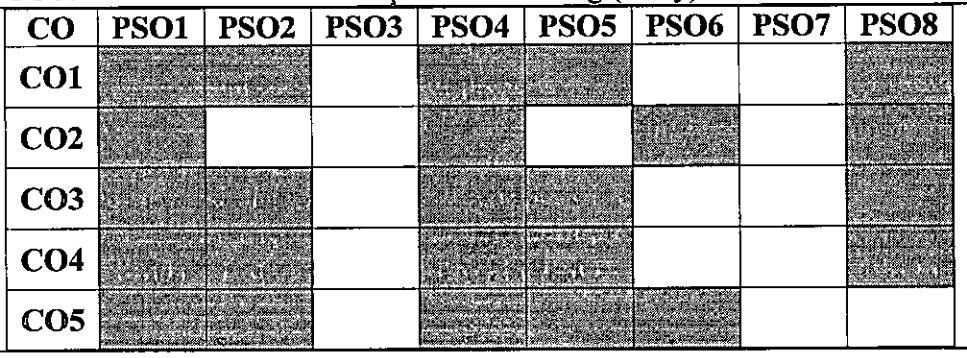
Course code		Weightage	Marks
Course title	Soft Skills		
credit	2		
Teaching per week	2 Hours		
Effective from	2025-2026		
Purpose of course	The purpose of this course is to develop essential soft skills in students for personal growth, academic success, and professional excellence in today's competitive world.		
Objective of course	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.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem		

	PSO4 : Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Student will be understanding 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.		
Mapping between COs with PSOs			
Course content	Unit-I: Introduction: • What are soft skills? • Soft Skills vs Hard Skills • Types of Soft Skills • Importance of Soft Skills.	**10%**	**3**
	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**
References	1. Dorch, Patricia: What are the Soft Skills ? New york : Execu Dress Publisher, 2013 2. Kamin, Maxine: Soft Skill Revolutions : A Guide for Connecting with Compassion for Trainies, and Leaders.Washington, Dc : Pfeiffer & Company, 2013 3. Klaus, Peggy, Jane Rohman & Molly: The Hard Truth about Soft Skills London : Harper Collins E-book 2007 4. Stein, Steven J. & Howard E-Book: The EQ Edge : Emotional Intelligence and your Success Canada : Wiley & Sons, 2006		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
S.Y.B.Com. Data Analytics SEM –III
Corporate Finance (SEC) (2 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Corporate Finance		
credit	2		
Teaching per week	2 Hours		
Effective from	2025-2026		
Purpose of course	The purpose of this course is to provide students with a strong foundation in financial management principles and practical skills in computerized accounting. It focuses on key financial concepts such as the time value of money, cost of capital, and leverage, while also equipping students with hands-on experience using Tally software to handle real-world accounting tasks efficiently.		
Objective of course	The main objective of this course is to develop students' understanding of core financial decision-making tools and to train them in the use of computer-based accounting systems, enabling them to apply financial theories in business scenarios and manage accounting processes digitally with accuracy and confidence.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems		

	PSO2 : Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem **PSO4 :** Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Understand how to coordinate various decisions to maximize wealth of an organization in today's financial environment. **CO2:** Aware about the concepts of present value and future value of money **CO3:** Aware knowledge of cost of capital (debt, equity. Preference share, retained earning…) **CO4:** Aware and discuss interpret the types of leverages. **CO5:** Aware of basics of computer accounting (Tally).		
Mapping between COs with PSOs			
Course content	Unit-I: Time Value of Money: • Definition, Concepts, Applications, Present Value, Future Value, Time Value of Money Examples	**20%**	**5**
	Unit-II: 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%**	**10**
	Unit-III: Leverage: • Concepts of Leverage, Types of leverage: Operating leverage, Financial Leverage and Combined Leverage	**20%**	**5**

	Unit-IV: Computer Accounting: • Introduction and Framework of Computer Accounting • Accounting packages (Tally Only)	**20%**	**5**
References	1. Corporate Finance Theory and Practice -A. Damodaran 2. Money and Flnanc]al`System -Sudhir Prakashan and Dr. D. D. Desal Uni 2008 3. Investment Management -V. K. Bhalla 4. Management Accountlng & Financial Control -S. N. Maheshwari Sultanchand & Co,, New Delhi. 5. Spreadsheet Sklls'for Finance Professionals ; Pitabas Mohanty, Taxmann's 6. Prasanna Chandra, "Financial management: Theory and Practice", 9th Ed, Mc Graw Hill. 7. Home, James C V. and John M. Wachowlez, Jr. 'Fun`damentals of Flnancial Management. 13'b ed; FT Prentlce Hall, Pearson Education 8. Advance Mariagement Accounting -Ravi M. Kishore; Taxmann Allideservice (P) Ltd., New Delhi. 9. Management Accounting Tools & Techniques -N. Vlnaykam & I. 8. Sinha; Himalaya Publishication Hose, Mumbai. 10. Multinational Financial Management -Alan C. Shapiro, Prentice -Hall oflndla, New Delhi. 11. lritemational 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		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

Faculty of Commerce – B.Com. Data Analytics Course

Credit Structure

SEMESTER-IV

SR NO	COURSE TYPE	NAME OF THE COURSE	CREDIT	LECTURE/WEEK
1.	MAJOR (12 Credit)	1. SPSS for Data Analytics-II 2. Database Management System (DBMS) 3. Business Intelligence	3th+2Pr=4cr 2th+4Pr=4cr 4th=4cr	9th+6Pr
2.	MINOR (4 Credit)	Managerial Economics.	4cr	4th
3.	MD / ID	--	--	--
4.	AEC (2 Credit)	Risk management & Analytics.	2cr	2th
5.	SEC / Internship (2 Credit)	Financial Accounting Software(Tally)	1th+ 2Pr=2cr	1th+ 2Pr
6.	VAC / IKS (2 Credit)	E-Commerce	2cr	2th
		Total	**22cr**	**19th+6Pr**

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

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
S.Y.B.Com. Data Analytics SEM –IV
SPSS For Data Analytics-2 (MAJOR) (3th+2pr=4 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	SPSS For Data Analytics-2		
credit	3th+2pr=4 credit		
Teaching per week	6 Hours (3Theory+ 3Practical)		
Effective from	2025-2026		
Purpose of course	The purpose is make students aware about SPSS software so that they can use it for analysis work.		
Objective of course	The main objective of this course is to provide fundamental knowledge of SPSS and its use to analyse the data using different statistical techniques.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem **PSO4 :** Develop students for self-learning and practicing challenging problem solution		

	PSO5 : Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Understand the fundamentals of SPSS software. **CO2:** Demonstrate proficiency in managing and transforming data within SPSS. **CO3:** Apply statistical techniques using SPSS. **CO4:** Interpret SPSS outputs and statistical results accurately, making informed decisions based on analytical findings. **CO5:** Develop the ability to present statistical findings with live data, aligning with practical applications and real-world scenarios.		
Mapping between COs with PSOs			
Course content	Unit-I: Exploring Data: ➢ Descriptive Statistics for Continuous Variables ➢ The Explore procedure ➢ Frequencies Procedure ➢ Descriptive ➢ Compare mean ➢ Frequencies for Categorical Data	**40%**	**10**
	Unit-II: Analyzing Data: ➢ Inferential Statistics for Association: Pearson Correlation ➢ Chi-square 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**

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

References	1. IBM 2016, IBM Knowledge Center: SPSS Statistics, IBM, viewed 18 May 2016, https://www.ibm.com/support/knowledgecenter/SSLVMB/welcome / 2. HOW TO USE SPSS ®: A Step-By-Step Guide to Analysis and Interpretation, Brian C. Cronk, Tenth edition published in 2018 by Routledge. 3. SPSS for Intermediate Statistics: Use and Interpretation, Nancy L. Leech et. al., Second edition published in 2005 by Lawrence Erlbaum Associates, Inc.. 4. William E. Wagner: Using IBM SPSS statistics for research methods and social science statistics, Fifth edition published in 2015 by SAGE Publications, Inc.		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

S.Y.B.Com. Data Analytics SEM –IV

Database Management System (DBMS) (MAJOR) (2th+4pr=4 credit)

As per NEP 2020

To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Database Management System (DBMS)		
credit	2th+4pr = 4 credit		
Teaching per week	6 Hours (2-hours Theory+ 4-hours Practical)		
Effective from	2025-2026		
Purpose of course	The purpose is to provide students with a comprehensive understanding of database management systems (DBMS), which are essential for efficient and secure data storage and retrieval in modern organizations.		
Objective of course	The main objective of this course is to make students 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.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem		

	PSO4 : Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**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.		
Mapping between COs with PSOs			
Course content	Unit-I: Introduction to DBMS: 1.1.Basics of data and database 1.2.Introduction to DBMS 1.3.Database Management System-meaning, objective, components, advantages and disadvantages 1.4.Tables, fields, records	**20%**	**10**
	Unit-II: 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	**25%**	**13**
	Unit-III: Concepts of Structure Query Language (SQL): 3.1. Types of SQL Statements: DDL, DML, DCL. 3.2. Data types. 3.3. Basic of SQL statements 3.3.1. Creating table and inserting data: CREATE TABLE, INSERT	**35%**	**19**

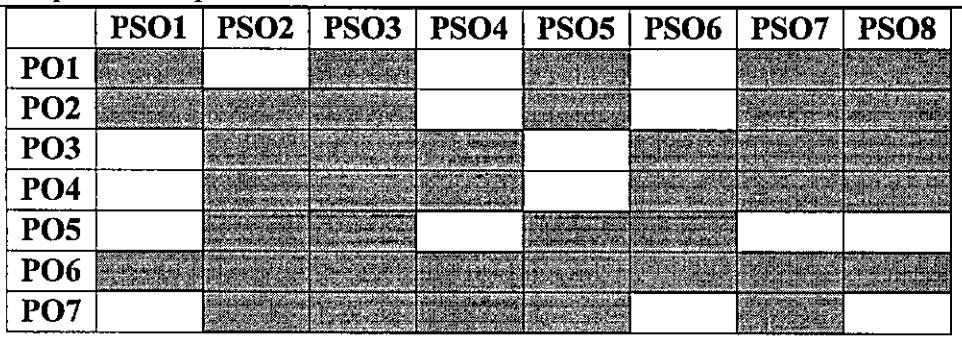
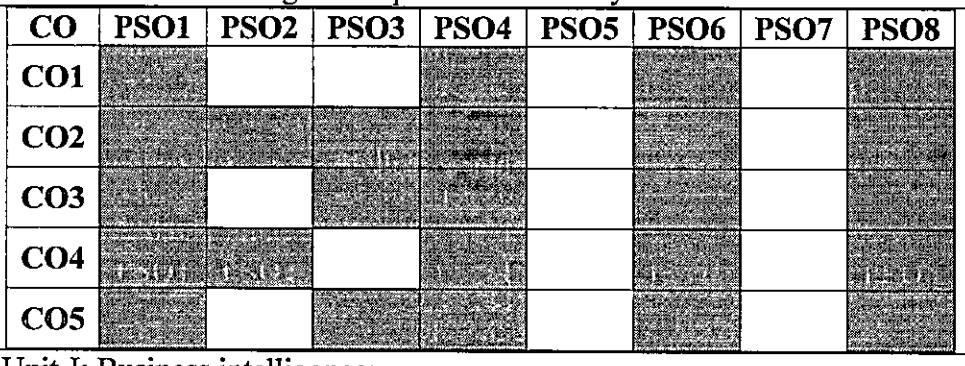
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								

	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 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 constraint 3.5. Logical operators, Range searching with AND and BETWEEN, pattern matching, IN and NOT IN predicates		
	Unit-IV: 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	**15%**	**8**
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 Ullamn- 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		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
S.Y.B.Com. Data Analytics SEM –IV
Business Intelligence (MAJOR) (4 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Business Intelligence		
credit	4		
Teaching per week	4 Hours		
Effective from	2025-2026		
Purpose of course	The purpose is to equip students with the knowledge and skills to support effective decision-making using Business Intelligence (BI), Data Mining, Decision Support Systems (DSS), and Knowledge Management tools.		
Objective of course	The main objective of this course is to help students understand how data can be transformed into meaningful insights through models, systems, and technologies.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem		

	PSO4 : Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Understand the fundamentals of Business Intelligence. **CO2:** Apply mathematical and analytical models to solve real-world business Problems. **CO3:** Analyse business intelligence applications. **CO4:** Understand the principles of Knowledge Management. **CO5:** Use data mining techniques for data analysis.		
Mapping between COs with PSOs			
Course content	Unit-I: Business intelligence: Effective and timely decisions, Data, information and knowledge, The role of mathematical models, Business intelligence architectures, Ethics and business intelligence Decision support systems: Definition of system, Representation of the decision making process, Evolution of information systems, Definition of decision support system, Development of a decision support system	**25%**	**12**
	Unit-II: Mathematical models for decision making: Structure of mathematical models, Development of a model, 'Classes of models Data mining: Definition of data mining, Representation of input data, Data mining process, Analysis methodologies Data preparation: Data validation, Data transformation, Data reduction	**25%**	**12**
	Unit-III: Business intelligence applications: Marketing models: Relational marketing, Sales force management, Logistic and production models: Supply chain optimization, Optimization models for logistics planning, Revenue management systems. Data envelopment analysis: Efficiency measures, Efficient frontier, The CCR model, Identification of good operating practices	**25%**	**13**

	Unit-IV: Knowledge Management: Introduction to Knowledge Management, Organizational Learning and Transformation, Knowledge Management Activities, Approaches to Knowledge Management, Information Technology (IT) In Knowledge Management, Knowledge Management systems Implementation, Roles of People in Knowledge Management Artificial Intelligence and Expert Systems: Concepts and Definitions of Artificial Intelligence, Artificial Intelligence Versus Natural Intelligence, Basic Concepts of Expert systems, Applications of Expert Systems, Structure of Expert Systems, Knowledge Engineering, Development of Expert System	**25%**	**13**
References	1. Business Intelligence: Data Mining and Optimization for Decision Making carlo Vercellis wiley First 2009 2. Decision support and Business Intelligence systems Efraim Turban, Ramesh Sharda, Dursun Delen pearson Ninth 2011 3. Fundamental of Business Intelligence Grossmann W, Rinderle-Maspringer First 2015 4. Business Intelligence, Dr. S K Singh l Dr. R B Patil, staredu solutions		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
S.Y.B.Com. Data Analytics SEM –IV
Managerial Economics (MINOR) (4 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Managerial Economics		
credit	4		
Teaching per week	4 Hours		
Effective from	2025-2026		
Purpose of course	The purpose is to equip students with foundational knowledge of microeconomic principles, enabling them to analyse market behaviour, make informed investment decisions, and understand the dynamics of factor pricing in real-world scenarios.		
Objective of course	The main objective of this course is to familiarize students with behavior of firms under different markets, evaluate investment proposals and price their key inputs under prevailing economic scenarios		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem		

	PSO4 : Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Students shall be able to take economic decision about output and pricing decisions under various types of market **CO2:** Students shall be able to Evaluate and take right Investment decisions from available alterative **CO3:** Students shall be able to take decisions regarding factor pricing		
Mapping between COs with PSOs			
Course content	Unit-I: 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%**	**13**
	Unit-II: Market Structure-II Monopolistic Competition: Meaning, Characteristics, Equilibrium of a firm & group in short run and long run, Excess capability, Selling cost. Oligopoly: Meaning, Characteristics, Inter-dependence of firms, Kinked demand curve theory, Cartel, Price leadership -Meaning and types.	**25%**	**13**
	Unit-III: 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%**	**12**
	Unit-IV: Factor Pricing: Wages: Meaning, Nominal & real wages, Factor 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%**	**12**

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								

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 Economic: G. S. Gupta, Tata MC Graw Hill. 4. Managerial Economics-R. L. Varshney, Sultan Chand & Sons, New Delhi.		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
S.Y.B.Com. Data Analytics SEM –IV
Risk management & Analytics (AEC) (2 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Risk management & Analytics		
credit	2		
Teaching per week	2 Hours		
Effective from	2025-2026		
Purpose of course	The purpose is to help students understand different types of financial risks—like market risk, credit risk, operational risk, and investment risk—and learn how to measure and manage them using practical tools and techniques.		
Objective of course	The main objective of this course is to develop students ability to apply risk measurement tools—like Value at Risk (VaR), credit risk models, and performance evaluation techniques—to real-world financial situations involving market, credit, operational, and investment risks.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership		

	PSO3 : Nurture the students to investigate for the design and development of a workable solution for a real world problem **PSO4 :** Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Understand key concepts and principles of financial risk management. **CO2:** To Measure market risk using tools like Value at Risk (VaR) and liquidity risk models. **CO3:** Analyse and assess credit risk through default models and credit derivatives. **CO4:** Identify and manage operational risk using qualitative and quantitative methods. **CO5:** Evaluate investment risk and hedge fund performance using risk-adjusted measures.		
Mapping between COs with PSOs			
Course content	Unit-I: Market Risk Measurement: Risk management Principles, Sources of Market Risk, Derivatives and Risk Management, Risk Measurement before VaR, Measures of Financial Risk, VaR, Coherent Risk Measures; Estimating Market Risk; Estimating Liquidity Risk.	**30%**	**7**
	Unit-II: Credit Risk Measurement: Concept, Credit Analysis of Corporate Bonds, Agency Ratings, Modelling Credit Risk, Elements of Credit Risk, Default Risk, Measuring Default Probabilities, Loss given Default, Loan Portfolios, Expected Lasses & unexpected Losses, Credit Derivatives, CIN; CDO; COS.	**30%**	**7**
	Unit-III: Operational Risk Measurement:	**20%**	**6**

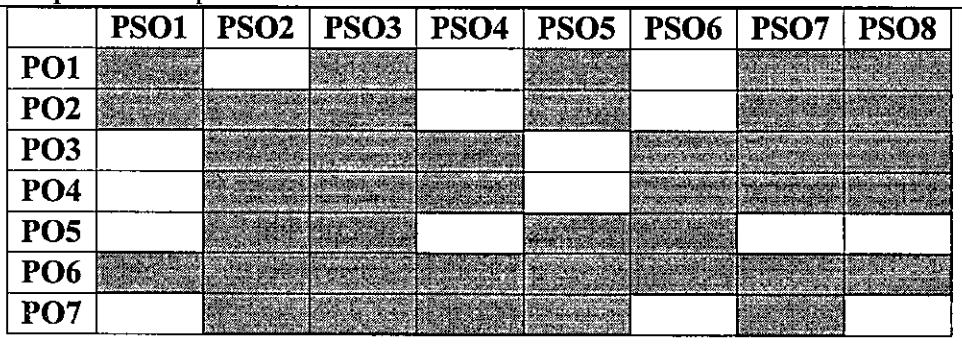
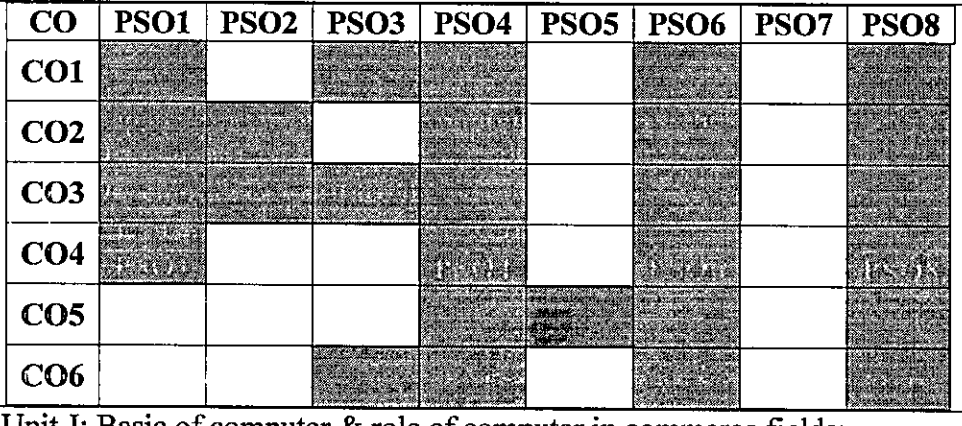
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

CO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

	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; Controlling Firm Wide Risk; Model Risk.		
	Unit-IV: Investment Risk Measurement: Investment companies & Evaluation Portfolio Performance; Hedge Fund Management; Hedge fund basics; Analysis of performance of Hedge funds; Risks In Hedge Funds; Individual Hedge Fund Strategies; Style Drifts - Monitoring, detection and control.	**20%**	**5**
References	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. 4. Kevln Dowd -Measuring Market Risk, 2nd Edition. 5. Frank K Reilly, Keith C Brown – Investment Analysis and Portfolio Management-5th Edition.		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT
S.Y.B.Com. Data Analytics SEM –IV
Financial Accounting Software (Tally) (SEC) (1th+2pr=2 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	Financial Accounting Software (Tally)		
credit	1th+2pr=2 credit		
Teaching per week	2 Hours		
Effective from	2025-2026		
Purpose of course	The purpose is to bridge the gap between theoretical understanding and hands-on application by introducing basic computer operations, business structures, accounting using Tally, and key taxation concepts.		
Objective of course	The main objective of this course is to 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.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem		

	PSO4 : Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs	 PSO1 PSO2 PSO3 PSO4 PSO5 PSO6 PSO7 PSO8 PO1 PO2 PO3 PO4 PO5 PO6 PO7		
Course outcomes	**CO1:** Develop skills in qualitative and quantitative financial data analysis and presentation. **CO2:** Became the Accountants for business entity. **CO3:** Capable for solving the accounting problem of business organisation. **CO4:** Develop advanced analytical thinking skills. **CO5:** Developing the skill for the practically Tally accounting. **CO6:** They can work of basic GST work.		
Mapping between COs with PSOs	 CO PSO1 PSO2 PSO3 PSO4 PSO5 PSO6 PSO7 PSO8 CO1 CO2 CO3 CO4 CO5 CO6		
Course content	Unit-I: Basic of computer & role of computer in commerce fields: 1.1. Learning the Words in computer & their application in commerce 1.2. 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	**20%**	**5**
	Unit-II: 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	**15%**	**4**
	Unit-III: Tally accounting and their application in business: 3.1. Meaning, Objective, important of Tally Accounting in business	**45%**	**11**

	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 Non cash 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-IV: 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	**20%**	**5**
References	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
S.Y.B.Com. Data Analytics SEM –IV
E-Commerce (VAC) (2 credit)
As per NEP 2020
To be implemented from the Academic year 2025-26

Course code		Weightage	Marks
Course title	E-Commerce		
credit	2		
Teaching per week	2 Hours		
Effective from	2025-2026		
Purpose of course	The purpose is to provide understanding of the concepts and the application issues of e-Business like internet infrastructure, payment systems and various online strategies for ecommerce.		
Objective of course	The main objective of this course is to introduce students to the fundamentals of E-Commerce and its role in the modern business world.		
Programme outcomes	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core Data Analytics, computer science and Statistics knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the Data architecture, planning and managing the product development process to analyze Data. It also makes students understand the decision making for selection of an appropriate data management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the data management team.		
Programme specific outcomes	**PSO1 :** Develop and strengthen the fundamental core concepts that are required to solve complex problems **PSO2 :** Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership **PSO3 :** Nurture the students to investigate for the design and development of a workable solution for a real world problem		

	PSO4 : Develop students for self-learning and practicing challenging problem solution **PSO5 :** Train students to apply managerial skills to develop business applications. **PSO6 :** Train students to use Data Analytics and application domain specific knowledge **PSO7 :** Train students to take-up the real world challenges to develop workable solution to a domain specific problem **PSO8 :** Graduates with a Bcom Data Analytics degree have a wide range of employment options available to them. It is possible for them to work in both the public and private sectors.		
Mapping between POs and PSOs			
Course outcomes	**CO1:** Understand the fundamentals of E-Commerce. **CO2:** To identify and Analyse E-Business Models. **CO3:** Apply Knowledge of E-Commerce Technologies. **CO4:** Understand the Process of E-Supply Chain Management. **CO5:** Evaluate the Role of E-Commerce in Business Strategy.		
Mapping between COs with PSOs			
Course content	Unit-I: Fundamentals of E-Commerce: Commerce: Meaning & Nature, e-commerce, Origin, Definitions & Meaning, Scope & Goals, Feature, Advantages & Disadvantages, Essentials of e-Commerce v/s Traditional Commerce, Technologies used in e-Commerce.	**40%**	**10**
	Unit-II: 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).	**40%**	**10**
	Unit-III: SCM: E-supply chain management-Introduction and Process.	**20%**	**5**
References	1. "E-Commerce 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		