

(Annexure H-4)

FACULTY OF COMPUTER SCIENCE & IT

SYLLABUS

of

DATA SCIENCE FOR ECONOMISTS

for

Master of Science (Economics) (Semester – III / IV)

Under Credit Based Continuous Evaluation Grading System

(CBCEGS)

Session: 2025-26



The Heritage Institution

**KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)**

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

**SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE
PROGRAMME**

MASTER OF SCIENCE (ECONOMICS) SEMESTER – III / IV

Credit Based Continuous Evaluation Grading System (CBCEGS)

(Session 2025-26)

MASTER OF SCIENCE (ECONOMICS)

MASTER OF SCIENCE (ECONOMICS)										
Course Code	Course Title	Course Type	Hours per week	Credit		Marks				Examination Time (in Hours)
			L-T-P	L-T-P	Total	Total	Ext.		CA	
							L	P		
	Data Science for Economists		2-0-4	2-0-2	4	100	40	30	30	3+3

Master of Science (Economics) Semester III / IV

Session 2025-26

DATA SCIENCE FOR ECONOMISTS

Course Outcome:

After passing this Course, the students will be able to:

1. To comprehend knowledge of the basic sources of data, its interpretation and report writing.
2. To get knowledge on Networks, search engines and measures to information security.
3. To comprehend concepts of big data and data analytics.
4. To comprehend how cloud computing and big data can be used for problem solving.

Master of Science (Economics) Semester III / IV

Session 2025-26

DATA SCIENCE FOR ECONOMISTS

Examination Time: 3 Hrs.

Max. Marks: 100

L-T-P: 2-0-2

Theory: 40

Credits: 4

Practical: 30

CA: 30

Instructions for Paper Setter -

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section

UNIT - I

Data Analysis: Sources, acquisition and interpretation of data, primary and secondary data.

Quantitative and qualitative data, graphical representation of data with histogram, line charts, pie chart, bar chart, column chart and box plot.

Data Visualization and Report Writing: Characteristics of effective graphical display, ideas and Tools for data visualization, different steps in report writing, layout of the research report, types of reports. APA, MLA and Chicago reference styles.

UNIT - II

Data Communication and Internet: Introduction to Data Communication, Types of Networks.

Transmission Media- wired and wireless, Internet and its applications, working knowledge of Search Engines. Threats to information and prevention mechanisms – Anti virus, Firewalls, Biometric controls.

UNIT - III

Introduction to Big Data: Structured and Unstructured data, Data Analytics, Big data management and big data analytics techniques of data management, storage and analysis of data, extraction of relevant information. Use of big data in networking – retail industry, healthcare industry.

UNIT - IV

Introduction to Cloud Computing: benefits, challenges and risks, different types of clouds. Overview of distributed computing: Trends of computing, introduction to parallel/distributed computing. Cloud Computing Architecture: Service Models, Deployment Models, Cloud Clients, Service Level Agreement (SLA) and Quality of Service (QoS) in Cloud Computing.

References / Textbooks:

1. Michael Minelli, Michele Chambers, AmbigaDhiraj, “Big Data. Big Analytics”, John Wiley.
2. Cathy O’Neil and Rachel Schutt. Doing Data Science, Straight Talk from TheFrontline, O’Reilly, 2017
3. Barrie Sosinsky, Cloud Computing Bible, Wiley India Pvt. Ltd., ISBN–13: 978–8–12–652980–3, New Delhi, India 2016
4. Dr. Saurabh Kumar, Cloud Computing: Insights into New–Era Infrastructure, WileyIndia Pvt. Ltd, ISBN–13: 978–8–12–652883–7, New Delhi, India, 2011.
5. Fern Halper, Hurwitz, Robin Bloor, Marcia Kaufman, Cloud Computing for dummies, Wiley India Pvt. Ltd, ISBN–13: 978–0–47–059742–2, New Delhi, India, 2011.
6. Cloud Computing: Principles and Paradigms – 2013 by Rajkumar Buyya, James Broberg, Andrzej Goscinski.
7. Gurvinder Singh and Rachhpal Singh Windows Based Computer System, Kalyani Publishers