

## UNDERGRADUATE PROGRAMMES OF STUDY

**DATA ANALYTICS**  
**School of Analytics**  
**Institution of Eminence, University of Delhi**

S.No.	Content	Page No.
1.	<b>Pool of Generic Electives</b>  1. Python and data fundamentals 2. Machine Learning and Applications 3. Deep Learning and Application 4. Natural Language Processing 5. Financial Analytics 6. Marketing Analytics 7. Accounting Analytics 8. Human Resource Analytics 9. Social Media Analytics	2-17

## GENERIC ELECTIVES (GE-1)

### Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Python and data fundamentals	4	3		1		Basic understanding of statistics

### Learning Objectives

The Learning Objectives of this course are as follows:

1. Understand the context of machine learning.
2. Know how to use python/R for machine learning

### Learning outcomes

The Learning Outcomes of this course are as follows:

1. Understand the data needs of generalised machine learning algorithms.
2. Have a working knowledge of machine learning algorithms.

## SYLLABUS OF GE-1

### Unit 1 ( 3 weeks)

**Fundamentals of python for machine learning:** Basic operations and functions, loops, assign variables, python data types, tuples, lists, dictionary, slicing, if statements, arrays, python libraries and their use- pandas, numpy, matplotlib, sci-kit learn, pyspark, reading and manipulating data -selecting rows/columns, merging data, OOPS in python

### Unit 2 (3Weeks)

**Machine Learning:** Introduction, Definitions and types of machine learning

**Foundation of Data Analytics:** – Introduction, Evolution, Concept and Scopes, Data, Big Data, Metrics and Data classification, Data Reliability & Validity, Introduction to Descriptive Analytics, Predictive Analytics and Prescriptive Analytics.

### Unit 3 (4 Weeks)

**Data pre-processing and cleaning:** data manipulation steps (sorting, filtering, duplicates, merging, appending, subsetting, derived variables, data type conversions, renaming, formatting, etc.), normalizing data, sampling, missing value treatment, outliers, coding nominal and ordinal variables.

#### **Unit 4 (4 weeks)**

**Exploratory data analysis:** Data visualization using matplotlib, seaborn libraries, creating graphs (bar/line/pie/boxplot/histogram, etc.), summarizing data, descriptive statistics, univariate analysis (distribution of data), bivariate analysis (cross tabs, distributions and relationships, graphical analysis)

**Practical component (if any)** - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

#### **Essential/recommended readings**

1. Machine Learning using Python, Manaranjan Pradhan, U Dinesh Kumar, ISBN: 9788126579907
2. Ethem Alpaydin, "Introduction to Machine Learning" 2nd Edition, The MIT Press, 2009.
3. Tom M. Mitchell, "Machine Learning", First Edition by Tata McGraw-Hill Education, 2013.
4. Christopher M. Bishop, "Pattern Recognition and Machine Learning" by Springer, 2007.
5. Mevin P. Murphy, "Machine Learning: A Probabilistic Perspective" by The MIT Press, 2012.

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

## GENERIC ELECTIVES (GE-2)

### Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Machine Learning and Applications	4	3		1		Basic understanding of statistics

### Learning Objectives

The Learning Objectives of this course are as follows:

1. Understand the various machine learning algorithms
2. Understand their applicability and context

### Learning outcomes

The Learning Outcomes of this course are as follows:

1. Have a working knowledge of machine learning algorithms.
2. Understand how to evaluate performance of the algorithms

## SYLLABUS OF GE-2

### Unit 1 ( 5 Weeks)

**Supervised Machine Learning:** Linear Regression, Multiple Linear Regression, Logistic Regression, Application to multi-class classification, Overfitting and Regularization. Classification using K-Nearest Neighbourhood algorithm, Naive Bayes classifier, Decision Trees (CHAID Analytics), Support Vector Machines. Handling class imbalance in classification problems, Performance metrics for classification and regression problems-their meaning, understanding and application

### Unit 2 (5 Weeks)

**Unsupervised Machine Learning:** Introduction, Clustering, K-Means algorithm, Affinity Propagation, Agglomerative Hierarchical, DBSCAN, Dimensionality Reduction using Principal Component Analysis. Detailed understanding of the performance metrics for these algorithms.

### Unit 3 (4 Weeks)

Handling standard datasets available at machine learning repositories for classification and regression problems. Handling unsupervised problems in real datasets

**Practical component (if any)** - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

**Essential/recommended readings**

1. Machine Learning using Python, Manaranjan Pradhan, U Dinesh Kumar, ISBN: 9788126579907
2. Ethem Alpaydin, "Introduction to Machine Learning" 2nd Edition, The MIT Press, 2009.
3. Tom M. Mitchell, "Machine Learning", First Edition by Tata McGraw-Hill Education, 2013.
4. Christopher M. Bishop, "Pattern Recognition and Machine Learning" by Springer, 2007.
5. Mevin P. Murphy, "Machine Learning: A Probabilistic Perspective" by The MIT Press, 2012.

**Practical:**

The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

**GENERIC ELECTIVES (GE-3)**

**Credit distribution, Eligibility and Pre-requisites of the Course**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Deep Learning and Application	4	3		1		Basic understanding of Statistics

**Learning Objectives**

This course focuses on the most recent advances in Deep Learning and Artificial Intelligence. In understandable steps, this course builds from a one node neural network to multiple features, multiple output neural networks.

**Learning outcomes**

- Understand the context of neural networks and deep learning.
- Know how to use a neural network.
- Understand the data needs of generalised deep learning algorithms.
- Have a working knowledge of neural networks and Reinforcement learning algorithms.
- Explore the parameters for neural networks.

## **SYLLABUS OF GE-3**

### **Unit 1 (4 Weeks)**

**An introduction to Neural Networks:** The basic architecture of neural network, single computational layer: the perceptron, objective function, choice of activation and loss function, choice of number of output nodes, some useful activation functions

**Multilayer Neural Networks: Basics,** computational graph, training a neural network with backpropagation, the problem of overfitting, difficulties in convergence

**Common Neural Architectures:** Radial Basis Function Network, Recurrent Neural Networks, Convolutional Neural Networks. (Theory Only) *Practical in Python on the following - Using SVM -Building a Perceptron , choosing loss functions*

### **Unit 2 Shallow Neural Networks (3 Weeks)**

**Neural Architecture for Binary Classification models:** Least square regression (Widrow- Hoff Learning), Logistic Regression, SVM

**Neural Architectures for Multiclass Models:** Multiclass Perceptron, Weston- Watkins SVM, SoftMax Classifier, Hierarchical SoftMax for many classes, backpropagated Saliency for feature selection. *Practical in Python on the following: - Multiclass Perceptron- Hierarchical SoftMax for many classes*

### **Unit 3 Autoencoders ( 3 Weeks)**

Principal Component Analysis and its interpretations, Singular Value Decomposition, Autoencoders with single hidden layer, sharing weights in encoder and decoder, Matrix factorization with Autoencoders, non-linear activation, application in outlier detection  
*Practical in Python on the following: -Matrix factorization with Autoencoders - Backpropagation*

### **Unit 4 (4 Weeks)**

#### **Generalised Deep Learning**

**Fundamentals:** Bias- Variance Trade-Off, Penalty based regularisation: L1, L2 Regularisation, Lasso Regression, Ridge regression

**Reinforcement Learning:** basic framework of Reinforcement learning, challenges in reinforcement learning, Naïve Algorithm, epsilon- greedy algorithm, upper bounding methods

**Practical component (if any)** - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

### Essential/recommended readings

Neural Networks and Deep Learning: A Textbook by Charu C Aggarwal, Springer (ISBN 978-3-319-94462-3)

### Suggestive readings

1. Deep Learning- Ian Goodfellow, Yoshua Benjio, Aaron Courville, The MIT Press
2. Pattern Classification- Richard O. Duda, Peter E. Hart, David G. Stork, John Wiley & Sons Inc.

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

## GENERIC ELECTIVES (GE-4)

### Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Natural Language Processing	4	3		1		Basic understanding of statistics

### Learning Objectives

Natural language processing deals with written text. Students will learn how to process written text from basic of fundamental knowledge starts with Finite automata, Regular expression and probabilistic model with n-grams. Recognizing Speech and parsing with grammar. We will focus on the computational properties of natural languages and of the algorithms used to process them, as well as the match between grammar formalisms and the linguistic data that needs to be covered.

### Learning outcomes

- Explain the advantages and disadvantages of different NLP technologies and their applicability in different business situations.

- Use NLP technologies to explore and gain a broad understanding of text data.
- Use NLP methods to analyse sentiment of a text document.
- Learn both a linguistic and an algorithmic perspective

## **SYLLABUS OF GE-4**

### **Unit 1 Introduction ( 3 Weeks)**

Introduction: What is NLP, Origins, Challenges, Language and Grammar, NLP Applications, some successful early NLP systems, Information retrieval Language Modelling: Introduction, Grammar based language models, statistical language models

### **Unit 2 Word Analysis (3 Weeks)**

Word Level Analysis : Regular Expressions, finite state automata, morphological parsing, spelling error detection and correction, words and word classes ,part of speech tagging  
Syntactic and Semantic Analysis : Context- free grammar, parsing, probabilistic parsing, lexical semantics, ambiguity, word sense disambiguation

### **Unit 3 Information Retrieval (4 Weeks)**

Information Retrieval: Design Features of Information Retrieval systems , information retrieval models, classical information retrieval models, natural language processing in IR, relational matching, knowledge-based approaches , conceptual graphs in IR.

### **Unit 4 Text Analysis- Practical Unit (4 Weeks)**

Overview, Sentiment Classification ( Loading, Exploring) Pre-processing of data: Bag-of-Words(BoW) Model, Creating Count Vectors, displaying document vectors, understanding and removing low-frequency words, understanding and removing stop words, creating count vectors, distribution of words across different sentiments Naive Bayes Model: Fundamentals of Naive Bayes, building the Naive Bayes model, making prediction on test case, model accuracy Using TF-IDF Vectorizer, n-grams, building model using n-grams.

### **Essential/recommended readings**

1. Natural Language Processing and Information Retrieval, by Tanveer Siddiqui and U.S Tiwary , Oxford Higher Education
2. Machine Learning using Python by Manaranjan Pradhan and U Dinesh Kumar , Wiley Publishing

### **Suggestive readings**

1. Natural Language Processing Crash Course for Beginners: Theory and Applications of NLP using TensorFlow 2.0 and Keras by AI Publishing
2. Practical Natural Language Processing: A Comprehensive Guide to Building Real-World NLP Systems (Greyscale Indian Edition)

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.



## GENERIC ELECTIVES (GE-5)

### Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Financial Analytics	4	3		1		Basic understanding of statistics

### Learning Objectives

Nearly every industry is generating a vast amount of data and nearly every business leader today understands the importance of making sense out of that data to drive business strategy. Companies need more from finance than just accurate financial statement analysis. They need predictive insights which can improve their real-time day to day decision making. Finance analytics enables to combine internal financial information with external information by using social media and big data to provide predictive insights. Whether it is with respect to stock market prediction or customer profitability, finance analytics enables to provide a direction in predicting all.

### Learning outcomes

1. Understand Importance of analysing data in designing business strategy
2. Apply the knowledge to perform the required financial analytics using powerful tools like R and/or python

### SYLLABUS OF GE-5

#### Unit – 1 (3 Weeks)

Introduction to R. Introduction to Finance. Accounting Data Analysis. Understanding data in finance, sources of data, cleaning and pre-processing data. Use of Machine Learning models in Finance.

#### Unit – 2 (4 Weeks)

Building Models Using Accounting Data, Modelling and forecasting of financial statements, Fraud Analytics, News Analytics, Sentiment Analysis.

#### Unit – 3 (4 Weeks)

Time Series Analysis in R/python, Understanding stock price behaviour, Introduction to Technical Analysis and Back-testing Trading Models.

#### Unit – 4 (3 Weeks)

Introduction to Algorithmic Trading and Building stock prices forecasting models using Machine Learning and Deep learning

**Practical component (if any)** - The entire syllabus is based on practical exercise i.e. learning through R /python software.

#### Essential/recommended readings

1. Financial Analytics with R: Building a Laptop Laboratory for Data Science Book by Dirk L. Hugen and Mark Joseph
2. Python for Finance: Mastering Data-Driven Finance by Yves Hilpisch.
3. Basic R for Finance by Diethelm Wurtz, Longhow Lam, Andrew Ellis and Yohan Chalabi

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

### GENERIC ELECTIVES (GE-6)

#### Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Marketing Analytics	4	3		1		Basic understanding of statistics

#### Learning Objectives

Marketing and Retail analytics is the process of measuring, managing, and analyzing marketing performance to maximize effectiveness and optimize investment return. This supports the business to improve its operations and customer experience by providing a 360-degree view of the customer's needs. The course focuses on the application of Analytics from a business perspective. It focuses on the concepts and the understanding of applications. .

#### Learning outcomes

- By the end of this course, participants will be able to:
  - Understand the “WHY”, “WHERE” and “HOW” of Analytics in Marketing and retail.
  - “Why” Analytics has now become imperative for businesses
  - “Where” you can apply Analytics
  - “How” you can apply Analytics
  - Learn how to plan and implement Analytics projects
  - Move beyond predictive analytics into prescriptive analytics
  - Choose the appropriate analytic technique to solve specific business problems

## **SYLLABUS OF GE-6**

### **Unit 1 Digital Analytics (3 Weeks)**

Introduction, Data collection, Key metrics, outcome analysis ( conversion rate, average order value, multi-channel funnel), experience analysis, making web analytics actionable, dashboard creation  
 Segmentation: fundamentals of PCA, Factor Analysis, choice modelling and classification, principal component analysis, cluster and conjoint analysis, K-means clustering, Hierarchical clustering, DBSCAN

### **Unit 2 Affiliates and Attribution Modelling (3 Weeks)**

what is Affiliate marketing, how affiliates get paid Multi-channel attribution , last interaction attribution model, first interaction attribution model, time decay attribution mode, position based attribution model, multi-channel funnel report  
 Marketing Mix: Introduction, Market Mix Modelling, Variables in Market Mix Modelling, Techniques of Market Mix Modelling *Practical- LTA model in R/Python-FTA model in R/Python*

### **Unit 3**

#### **Customer Analysis (4 Weeks)**

Customer Journey: Introduction, Importance of Customer Journey, What is Customer Journey Mapping?, Customer Journey Mapping and Use of Analytics, How to Map a Customer’s Journey?, What Does Analytics with Customer Journeys Involve?, Customer Journey Use Case for a Beverage Brand, Journey of a Loyal Customer, Applying Principal Components to Brand Nurturing Customers: Introduction, Metrics for Tracking Customer Experience

Upgrading Customers: Use Case of Upselling, Logistic Regression Analysis, Use of Logistic Regression as a Classification Technique Customer Analytics: Introduction, Customer Lifetime Value, Churn Analytics

## **Unit 4 Learning KNIME tool (4 Weeks)**

*This unit is primarily practical*

Installation and the KNIME Workspace, Virtual Tour Through KNIME Analytics Platform, Analytics Platform Welcome Page, Workbench, Node, Workflow, Workflows and Workflow Groups, The Node Repository, Importing and Exporting Workflows, Node Creation and Basic Commands, Data Table Structure, Annotations and Comments, Customizing KNIME Analytics Platform, Installing Extensions, Simple Metanodes and Wrapped Metanodes

Blending: Data Access with KNIME, The KNIME Protocol, The Excel Reader Node, The File Reader Node, The Table Reader Node, The Join Operation and Methods, The Joiner Node, What is Concatenation

Data Manipulation: Row Filtering Based on Pattern Matching, Row Filtering Based on Numerical Values, Row Filtering Based on Row ID, What is a Column Filter?, The Column Filter Node, Numbers, Strings, and Rules, What is Data Aggregation?, The Group By Node, Advanced Aggregation with the Group By Node, The Pivoting Node

**Practical component (if any)** - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

### **Essential/recommended readings**

1. Digital Marketing 2nd Edition by Seema Gupta, McGraw Hill
2. Marketing Analytics by Seema Gupta and Avadhoot Jathar, Wiley Analytics Series for Management
3. Learning Material :<https://www.knime.com/learning>

### **Suggestive readings**

1. Marketing Analytics - For Strategic Decision-Making by Moutusy Maity and Pavankumar Gurazada, Oxford Publishing

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

## GENERIC ELECTIVES (GE-7)

### Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Accounting Analytics	4	3		1		Basic understanding of statistics

### Learning Objectives

This course provides the analytics knowledge, skills, and competencies to address earnings management issues in organisations. It introduces the central concepts of accounting analytics and via hands-on exercises, builds skills and competencies around the management, analysis and representation of data.

### Learning outcomes

- Students are able to do a ratio analysis of a company to identify the sources of its competitive advantage (or red flags of potential trouble), and then use that information to forecast its future financial statements.
- How to spot earnings management and get a more accurate picture of earnings, so that students are able to catch some bad guys in finance reporting.
- Students will have a knowledge of a very strong tool kit that will help to detect financial statements that may have been manipulated by managers.
- How predictive analytics can be used to determine what you should be measuring, how to weigh very, very different performance measures when trying to analyse potential financial results, how to make trade-offs between short-term and long-term objectives, and how to set performance targets for optimal financial performance.

### SYLLABUS OF GE- 7

#### Unit 1 - Ratios and Forecasting (3 Weeks)

Review financial statements and sources of financial statement information. The company's strategy and business model and Du-pont analysis. Ratio analysis – short term solvency ratios, long term solvency ratios, turnover ratios and profitability ratios (Historical ratio analysis of real company using Excel). How to use all the ratios, to forecast future financial statements. Accounting based valuation.

## **Unit 2 - Earnings Management (4 Weeks)**

Overview of earnings management: Means, motive, opportunity, how managers actually make their earnings look better, their incentives for manipulating earnings, and how they get away with it. Revenue recognition red flags: revenue before cash collection. Revenue recognition red flags: revenue after cash collection. Expense recognition red flags: capitalizing vs. expensing. Expense recognition red flags: reserve Accounts and write-offs.

## **Unit 3 - Big Data and Prediction Models (4 Weeks)**

Overview big data and prediction models. Discretionary accruals models: model the non-cash portion of earnings or accruals. Discretionary expenditure Models: model the cash portion of earnings. Fraud prediction models and Benford's law.

## **Unit – 4 Non-financial Metrics and Financial Performance (3 Weeks)**

Introduction: Connecting numbers to non-financial performance measures. Linking non-financial metrics to financial performance: Overview and steps. Targets setting, incorporation of analysis results in financial models and how to use analytics to choose action plans.

## **Practical component (if any) - PYTHON/R**

### **Essential/recommended readings**

1. Introduction to Earnings Management by Malek El Diri
2. Data Analytics for Accounting by Vernon J. Richardson (Author), Ryan A. Teeter, Katie L. Terrell, Partha Sarathi Mohapatra.
3. Predictive Analytics for Business Strategy - Reasoning from Data to Actionable Knowledge by Jeffrey T. Prince, Amarnath Bose

**Practical component (if any)** - The entire syllabus is based on practical exercise or case studies i.e. learning through specified software's like Python, R and Stata

### **Essential/recommended readings:**

1. Introduction to Earnings Management by Malek El Diri
2. Data Analytics for Accounting by Vernon J. Richardson (Author), Ryan A. Teeter, Katie L. Terrell, Partha Sarathi Mohapatra.
3. Predictive Analytics for Business Strategy - Reasoning from Data to Actionable Knowledge by Jeffrey T. Prince, Amarnath Bose

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

## GENERIC ELECTIVES (GE-8)

### Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Human Resource Analytics	4	3		1		Basic understanding of statistics

### Learning Objectives

This course provides the analytics knowledge, skills, and competencies to address human resource issues in organisations. It introduces the central concepts of people orientated analytics and via hands-on exercises, builds skills and Competencies around the management, analysis and representation of data.

### Learning outcomes

- Understand and discuss the value of human capital analytics concepts
- Understand and discuss the value of methodological concepts relevant to analytics
- Demonstrate skills in implementing analytics to solve HR issues
- Persuasively communicate appropriate (i.e., theoretically sound and practical) recommendations

## SYLLABUS OF GE-8

### Unit 1

#### HR Analytics Using Basic Statistical Techniques ( 3 weeks)

Design Compensation and Benefit Plan Using Conjoint Analysis, Forecast HR Cost Using Time Series Modelling (ARIMA), Manpower Planning Using Monte Carlo Simulation and Markov Chain

### Unit 2

#### HR Analytics Using Unsupervised Machine Learning ( 3 weeks)

Identify Association of Employee Job Satisfaction Using Association Rule, Determine Factors of Performance Appraisal System Using Dimension Reduction Algorithms, Assess Employee Absenteeism Using Clustering Techniques

### Unit 3

#### HR Analytics Using Supervised Machine Learning (4 weeks)

Predict Employee Salary/Pay Rate Using Supervised Machine Learning Regression Techniques, Predict Employee Attrition Using Supervised Machine Learning Classification Techniques, Predict Employee Promotion Using Neural Network Model

HR Analytics: Practical Approach Using Python by Bharti Motwani, Wiley  
Chapter 12, Chapter 13, Chapter 14

#### Unit 4

##### HR Analytics for Text Data (4 weeks)

Review Resume Using Text Mining, Evaluate Employee Reviews Using Sentiment Analysis, Automate HR Help Desk Using Chatbots, Employee Recruitment and Selection Using Recommendation System

**Practical component (if any)** - The entire syllabus is based on practical exercise i.e. learning through specified software's like Python or R.

##### Essential/recommended readings

1. Motwani, B. (2021). HR Analytics: Practical Approach Using Python, Wiley. ISBN:9789354240027
2. Ng, M.S. (2019) Predictive HR Analytics, Text Mining & Organizational Network Analysis: with Excel, Amazon Digital Services LLC .ISBN: 9781077226906

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

### GENERIC ELECTIVES (GE-9)

#### Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Social Media Analytics	4	3		1		Basic understanding of statistics

#### Learning Objectives

Web Analytics, Social Media Analytics, Network Analytics, Mobile Analytics, Influencer Marketing. This course tries to address questions on how organisations can use the wealth of



available data to devise a more result-oriented marketing strategy and leverage digital marketing to enjoy greater ROI.

### **Learning outcomes**

- Understand the concept of digital marketing and its real-world iterations
- Articulate innovative insights of digital marketing enabling a competitive edge
- Understand how to create and run digital media based campaigns
- Identify and utilise various tools such as social media etc.

## **SYLLABUS OF GE- 9**

### **Unit 1 Social Media Marketing (4 Weeks)**

Social Media Marketing: Introduction, Process – Goals, Channels, Implementation, Analyze. Tools: Google and the Search Engine, Facebook, Twitter, YouTube and LinkedIn. Issues: Credibility, Fake News, Paid Influencers; social media and Hate/ Phobic campaigns. Analytics and linkage with social media. The Social Community.

### **Unit 2 Email Marketing (3 Weeks)**

Introduction, email marketing process, design and content, delivery, discovery. Mobile Marketing: Introduction and concept, Process of mobile marketing: goals, setup, monitor, analyse

### **Unit 3 Mobile Marketing (4 Weeks)**

Introduction and concept, Process of mobile marketing: goals, setup, monitor, analyze; Enhancing Digital Experiences with Mobile Apps. Pros and Cons; Targeted advertising. Issues: Data Collection, Privacy, Data Mining, Money and Apps, Security, Spam. Growth Areas.

### **Unit 4 Managing Digital Marketing (3 Weeks)**

Content Production; Video based marketing; Credibility and Digital Marketing; IoT; User Experience; Future of Digital Marketing.

### **Practical component (if any) - NIL**

### **Essential/recommended readings**

1. Dodson, Ian: The Art of Digital Marketing. Wiley
2. Ryan, Damien: Understanding Digital Marketing. Kogan Page Limited

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.