UNIVERSAL
COLLEGE OF ENGINEERING &TECHNOLOGY
A U T O N O M O U S

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College Code **NF**

EAPCET, ECET PGECET, ICET **UNIV**

CELEBRATING **16 YEARS** EXCELLENCE

2024

UR24 Regulations

POSTGRADUATE CURRICULUM

Master of Business Administration-Regular

UR24 Regulation

Master of Business Administration-Regular

(Effective for the students admitted into I Year from the Academic Year **2024-25** onwards)

I N D E X

UR24 Regulation
MASTER OF BUSINESS ADMINISTRATION
ACADEMIC REGULATIONS

I. UR24 Academic Regulations for MBA-Regular

(Applicable for the students of MBA from the Academic Year 2024-25)

1. **Duration of the Program**

   The duration of the program is two academic years consisting of four semesters. However, a student is permitted to complete the course work of MBA program in the stipulated time frame of **Two** years from the date of joining.

2. **Minimum Instruction Days**

   Each semester consists of a minimum of **90** instruction days.

3. **Program Credits**

   MBA program is designed to have a total of 104 credits and the student shall have to complete the two year course work and earn all 104 credits for the award of MBA Degree.

4. **Attendance Regulations**

   A student shall be eligible to write University examinations if he acquires a minimum of 75% of attendance in aggregate of all the subjects/courses, and with minimum 50% in each and every course including practicals.

   4.1 Condonation of shortage of attendance in aggregate up to 10% (65% and above and below 75%) in each semester shall be granted by the College Academic Committee.

   4.2 Shortage of Attendance **below** 65% in aggregate shall not be condoned and not eligible to write their end semester examination of that class.

   4.3 Students whose shortage of attendance is not condoned in any semester are not eligible to write their end semester examination of that class.

   4.4 A prescribed fee shall be payable towards condonation of shortage of attendance.

   4.5 A student shall not be promoted to the next semester unless, he satisfies the attendance requirement of the present semester, as applicable. They may seek re-admission into that semester when offered next. If any candidate fulfills the attendance requirement in the present semester, he shall not be eligible for re-admission into the same class.

5. **Examinations and Scheme of Evaluation**

   Theory Courses

   Each theory course shall be evaluated for a total of 100 marks, consisting of 25 marks for internal assessment and 75 marks for end semester examination.

   Internal Assessment

   i. 25 marks for internal assessment, 10 marks are for seminar/ presentation and 15 marks are based on **average** of two mid- term examinations.

   ii. 10 marks for presentation (5 marks are for report content and 5 marks are for presentation).

   iii. Each mid-term examination is conducted for 15 marks with one and half hours (90mins) duration. Each mid-term examination consists of three questions, each for 5 marks. All the questions need to be answered.

   iv. The final marks are the sum of average of two mid-term examinations for 15 marks and 10 Marks for presentation.

External Assessment

The semester end examination shall be conducted for a duration of three hours with 5 questions and one case study which is compulsory. All questions are to be answered and for each question has **"either or"** option except case study. All 5 questions carry 12 marks each and case study carries 15 marks, total becomes 75 marks.

Laboratory Course

i. For practical subjects the distribution shall be 20 marks for Internal Evaluation and 30 marks for the end semester examinations. There shall be continuous evaluation by the internal subject teacher during the semester for 20 internal marks. Out of 20 marks for internal, 10 marks shall be for day- to-day performance (5 marks for day-to-day evaluation and 5 marks for Record) and 10 marks shall be evaluated by conducting an internal test conducted at the end of semester.

ii. End semester laboratory examination shall be conducted for30 marks with two Examiners, one of them being the Laboratory Class Teacher or teacher of the respective college and the second examiner shall be appointed by the University from the panel of examiners submitted by the respective college, with a break-up marks of Procedure-5, Experimentation-15, Results-5, Viva-voce-5.

Comprehensive Viva-Voce

Comprehensive Viva-Voce examination is conducted in all the subjects of four semesters of the course for 50 marks (internal evaluation only) at the end of fourth semester by a committee consisting of **two** senior faculty members of the department along with HOD.

Project Work

i. Thefinalprojectworkshallbecarriedoutduringthe3rdsemester and will be evaluated for 100 marks.

ii. Out of 100 marks, 50 marks shall be for dissertation and 50 marks for the project Viva-Voce. Both are evaluated by the Board of Evaluators (BOE). BOE, which comprises of External Examiner appointed/nominated by the University, Head of the Department and Internal project guide.

iii. Each student shall give one internal seminar (pre talk) on the topicofhis/her project as a prerequisite for submission of the final project report. He needs to submit plagiarism report (not exceeding 30% similarity) along with the guide certificate in the final project report.

(a) **Eligibility for Award of MBA Degree**
A student will be declared eligible for the award of the MBA Degree if he fulfills the following academic regulations.

(b) Pursued a course of study for not less than two academic years and not more than four academic years.

(c) Registered for **104** credits and secured **104** credits.

(d) Students, who fail to complete their Two years Course of study within Four years or fail to acquire the **104** Credits for the award of the degree within four academic years from the year of their admission shall **forfeit** their seat in MBA course and their

admission shall stands cancelled.

6. **Criteria f or Passing a Course and Award of Grades**

A) Criteria for Passing a Course

i) A candidate shall be deemed to have secured the minimum academic requirement in a subject if he secures a minimum of 40% of marks in the End semester Examination and a minimum aggregate of 50% of the total marks in the End Semester Examination and Internal Evaluation taken together.

ii) A candidate shall be declared to have passed in comprehensive viva- voce, if he secures a minimum of 50% marks.

iii) In case the candidate does not secure the minimum academic requirement in any subject (as specified in i & ii above) he has to re-appear for the End semester Examination in that subject. A candidate shall be given **one** chance to re-register for each subject provided the internal marks secured by a candidate **are less than 50% and has failed in the end examination.** In such a case, the candidate must re-register for the subject(s) and secure the required minimum attendance. The candidate's attendance in the re-registered subject(s) shall be calculated separately to decide upon his eligibility for writing the end examination in those subject(s). In the event of the student taking another chance, his internal marks and end examination marks obtained in the previous attempt shall **stands cancelled**. For re-registration the candidates have to apply to the University through the college by paying the requisite fees and get approval from the University before the start of the semester in which the re-registration is required.

B) Method of Awarding Letter Grade and Grade Points for a Course

A letter grade and grade points will be awarded to a student in each course based on his performance as per the grading system given below.

7. **Cumulative Grade Point Average(CGPA)**

Marks Range Theory/ Project Work (Max–100)	Marks Range Laboratory/ Comprehensive Viva- Voce (Max–50)	Letter Grade	Level	Grade Point
≥ 90	≥ 45	O	Outstanding	10
≥ 80 to < 90	≥ 40 to < 45	S	Excellent	9
≥ 70 to < 80	≥ 35 to < 40	A	Very Good	8
≥ 60 to < 70	≥ 30 to < 35	B	Good	7
≥ 50 to < 60	≥ 25 to < 30	C	Fair	6
≥ 40 to < 50	≥ 20 to < 25	D	Satisfactory	5
< 40	< 20	F	Fail	0
			Absent	0

8. **Computation of SGPA**
   - The following procedure is to be adopted to compute the Semester Grade Point Average(SGPA) and Cumulative Grade Point Average(CGPA):
   - The **SGPA** is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e
   - **SGPA (Si) = $\sum$(Ci X Gi) / $\sum$ Ci**
   - Where Ci is the number of credits of the ith course and G^{i} is the grade point scored by the student in the ith course.

   Computation of CGPA
   - The **CGPA** is also calculated in the same manner taking into account all the courses undergone by a student overall the semester of a Programme, i.e.
   - **CGPA = $\sum$ (Ci X Si) / $\sum$ Ci**
   - Where Si is the SGPA of the ith semester and Ci is the total number of credits in that semester.
   - The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.
   - Equivalent Percentage=(CGPA – 0.75) x 10

9. **AWARD OF DEGREE AND CLASS**

   After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of MBA Degree he shall be placed in one of the following four classes:

Class Awarded	CGPA to be secured	
First Class with Distinction	≥ 7.75	**From the CGPA secured from 68 Credits.**
First Class	≥ 6.75	
Second Class	≥ 5.75 to < 6.75	
Pass Class	≥ 4.75 to < 5.75	

   The Grades secured, Grade points and Credits obtained will be shown separately in the memorandum of marks.

   1. **With Holding of Results**
      If the student is involved in indiscipline/malpractices/court cases, the result of the student will be withheld.

   2. **Supplementary Examinations**
      i) Supplementary examinations will be conducted twice in a year at the end of odd

and even semesters as per the University norms & Regulations.

ii) **Advanced Supplementary Examinations:** Candidate(s), who failed in theory/ comprehensive Viva-Voce /project work courses in 4th semester can appear for advanced supplementary examination may be conducted as per the University norms & Regulations.

3. Revaluation

As per the norms of the University.

10. TRANSITORY REGULATIONS (for R24)

10.1 Discontinued or detained candidates are eligible for re-admission into same or equivalent subjects at a time as and when offered.

10.2 The candidate who fails in any subject will be given two chances to pass the same subject; otherwise, he has to identify an equivalent subject as per R16 academic regulations.

11. GENERAL

11.1 Wherever the words "he", "him", "his", occur in the regulations, they include "she", "her", "hers".

11.2 The academic regulation should be read as a whole for the purpose of any interpretation.

11.3 In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.

11.4 The University may change or amend the academic regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the University.

12. MALPRACTICES RULES
DISCIPLINARY ACTION FOR/ IMPROPER CONDUCT IN EXAMINATIONS

S. No.	Nature of Malpractices/ Improper conduct	Punishment
1.(a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
1.(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. In case of an outsider, he will be handed over to the police and a case is registered against him.
2	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the candidate is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled and sent to the University.
3	Impersonates any other candidate in connection with the examination.	The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred and forfeits the seat. The performance of the original candidate who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.

4	Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6	Refuses to obey the orders of the Chief Superintendent/ Assistant Superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-incharge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them.
7	Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the

		academic regulations in connection with forfeiture of seat.
8	Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.
9	If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat. Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.
10	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/ year.
11	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/ year examinations.
12	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the candidates as per the above guidelines.
2. Punishment for institutions: (if the squad reports that the college is also involved in encouraging malpractices)
    i. A show cause notice shall be issued to the college.
    ii. Impose a suitable fine on the college.
    iii. Shifting the examination centre from the college to another college for a specific period of not less than one Year.

UR24 Regulation

MASTER OF BUSINESS ADMINISTRATION

COURSE STRUCTURE

II. UR24 MBA -Regular-Course Structure

I Year, I Semester

S. No.	Course Code	Courses	M	L	T	P	C
1	C-101	Management and Organizational Behavior	100	4	0	0	4
2	C-102	Managerial Economics	100	4	0	0	4
3	C-103	Accounting for Management	100	4	0	0	4
4	C-104	Quantitative Analysis for Business Decisions	100	4	0	0	4
5	C-105	Entrepreneurship Development	100	4	0	0	4
6	C-106	Business Environment	100	4	0	0	4
7	OE-101	A. Information Technology for Business B. Rural Development C. IPR & Patents D. MOOCs: SWAYAM/ NPTEL (Related to Management Courses other than listed courses in the syllabus)	100	3	0	0	3
8	SE-101	PACE-UP (Personality Assessment Centre, Enhancement and Upgradation Processes) Programme	30	0	0	2	1
9	SE-102	Tally Lab	30	0	0	2	1
10	VA-101	**Entrepreneur Project - I:** Identifying the area of interest, interacting with successful business and submission of ground report.	30	0	0	2	1
		Total	**790**	**27**	**0**	**6**	**30**

The Entrepreneur Project can be done either individually or forming a group (limited to maximum of 4 members)

I Year, II Semester

S. No.	Course Code	Courses	M	L	T	P	C
1	C-201	Financial Management	100	4	0	0	4
2	C-202	Human Resource Management	100	4	0	0	4
3	C-203	Operations Management	100	4	0	0	4
4	C-204	Marketing Management	100	4	0	0	4
5	C-205	Research Methods for Business Decisions	100	4	0	0	4
6	C-206	Business Analytics	100	4	0	0	4
7	OE-201	A.Cross Cultural Management B. Project Management C. Lean management D. Database Management System	100	3	0	0	3
8	SE-201	R-Programming Lab	30	0	0	2	1
9	SE-202	IT Lab (Spread sheet and SQL)	30	0	0	2	1
10	VA-201	**Entrepreneur Project–II:** Study on different loan approaches of State and Central Govt. Prepare the Business Development plan.	30	0	0	1	1
		Total	**790**	**27**	**0**	**5**	**30**

II Year, III Semester

S.No	Course Code	Courses	Marks	L	T	P	C
1	C-301	Strategic Management	100	4	0	0	4
2	C-302	Operations Research	100	4	0	0	4
3	E-301	Elective–1	100	4	0	0	3
4	E-302	Elective–2	100	4	0	0	3
5	E-303	Elective–3	100	4	0	0	3
6	E-304	Elective–4	100	4	0	0	3
7	VA-301	EntrepreneurProject-III Submission of project proposal report to Govt.bodies and applying the proposal to Govt.agencieslike(START-UPS/ MSME /NABARD /IDBI/ SISI)and the same may be submitted to the University with the acknowledgement.	30	0	0	2	1
		Total	**630**	**24**	**0**	**2**	**21**

II Year, IV Semester

S.No	Course Code	Courses	Mark s	L	T	P	C
1	C-401	Corporate Legal Framework	100	4	0	0	4
2	C-402	Supply Chain Management	100	4	0	0	4
3	E-401	Elective–5	100	3	0	0	3
4	E-402	Elective–6	100	3	0	0	3
5	E-403	Elective–7	100	3	0	0	3
6	E-404	Elective–8	100	3	0	0	3
7	SE- 401	Main project Submission and Viva-Voce	100	0	0	8	4
		Total Marks/ Credits	700	20	0	8	24
			2910				111

✓ **Note: The students opting for dual specialization must select Elective 1 and 2 from first specialization and 3 and 4 from second specialization in III semester.**

✓ **ThestudentsoptingfordualspecializationmustselectElective5and6fromfirst specialization and 7and 8 from second specialization in IV semester.**

*The project work documentation shall be checked with a nti-plagiarism software (Turnitin).The permissible similarity shall be less than 30%.

The project shall be done in achosen specialization (or) He/she can start his own business by showing the proofs such as GST certificate, owner of the firm etc...

UR24 Regulation
MASTER OF BUSINESS ADMINISTRATION
DETAILED SYLLABUS

III. UR24 MBA -Regular-I and II Semesters Detailed Syllabus

I Year I Semester	MANAGEMENT AND	L	T	P	C
C-101	ORGANIZATIONAL BEHAVIOR	4	0	0	4

Objective:
- Objective of the course is to give a basic perspective of Management.
- This will form foundation to study other functional areas of management and to provide the students with the conceptual framework and the theories underlying Organizational Behaviour.

UNIT–I
Definition, Nature, Functions and Importance of Management – Evolution of Management thought – Scientific management, administrative management, Haw throne experiments – systems approach –Levels of Management- Managerial Skills-Planning– Steps in Planning Process – importance and Limitations – Types of Plans - Characteristics of a sound Plan - Management By Objectives (MBO) - Techniques and Processes of Decision Making - Social Responsibilities of Business

UNIT-II
Organizing–Principles of organizing–Organization Structure and Design–Types of power - Delegation of Authority and factors affecting delegation – Span of control – Decentralization – Line and staff structure conflicts -Coordination definition and principles - Emerging Trends in Corporate Structure – Formal and Informal Organization- Nature and importance of Controlling, process of Controlling, Requirements of effective control and controlling techniques.

UNIT–III
Organizational behavior: Nature and scope–Linkages with other social sciences– Individual roles and organizational goals – perspectives of human behavior - Perception– perceptual process – Learning - Learning Process- Theories - Personality and Individual Differences - Determinants of Personality - Values, Attitudes and Beliefs - Creativity and Creative thinking.

UNIT–IV
Motivation and Job Performance–Content and process Theories of Motivation-Leadership - Styles - Approaches – Challenges of leaders in globalized era – Groups – stages formation of groups – Group Dynamics - Collaborative Processes in Work Groups - Johari Window- Transactional Analysis.

UNIT–V:
Organizational conflict-causes and consequences-conflict and Negotiation Team Building, Conflict Resolution in Groups and problem solving Techniques – Organizational change - change process - resistance to change - Creating an Ethical Organization.
Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:
1. Harold Koontz, Heinz Weihrich, A.R. Aryasri, Principles of Management, TMH, 2010.
2. Dilip Kumar Battacharya, Principles of Management, Pearson, 2012.
3. Kumar,Rao, Chhaalill―Introduction to Management Science‖ Cengage Publications, New Delhi
4. V. S. P. Rao, Management Text and Cases, Excel, Second Edition, 2012.
5. K. Anbuvelan, Principles of Management, University Science Press, 2013.
6. K. Aswathappa ― Organisational Behaviour-Text, Cases and Games, Himalaya Publishing House, New Delhi, 2008.

7. Steven L McShane, MaryAnn Von Glinow, Radha R Sharma:—Organisational Behaviour, TMH Education, New Delhi, 2008

I Year I Semester	MANAGERIAL ECONOMICS	L	T	P	C
C-102		4	0	0	4

Course Objective:
1. Objective of the course is to introduce basic concepts and techniques of Managerial Economics and comprehend student with vital decisions of business.
2. Assimilate and apply the laws of economics in the business.
3. Acquire the knowledge about the various types of market structure for strategizing and wise decision making.
4. Practice the pricing strategies in the business management policies.
5. Achieve the knowledge about macro economics to foresee the external forces to the effective decisions in organisation.

Learning Outcomes: Use supply and demand to explain various economic phenomena and principles.
1. Explain the economic meaning of price, elasticity, and production costs. Describe the cause and effect of changes in all of these variables.
2. Draw and analyze cost and revenue curves that maximize profit.
3. Discuss differences and critically analyze the pros and cons of different market structures, including competitive, monopolistic and oligopolistic markets.
4. Pricing strategies to achieve and applicability in the market conditions
5. Knowledge about macroeconomics conditions and learn to applicable in the present context.

UNIT-I:
Introduction to Managerial Economics: Nature and Scope- Fundamental Concepts: Incremental reasoning, Concept of Time Perspective, Discounting Principle, Opportunity Cost Principle, Equi -Marginal Concept,-Theory of Firm.

UNIT-II:
Demand Analysis and Forecasting: Concepts of Demand, Supply, Determinants of Demand and Supply, Elasticities of Demand and Supply- Methods of demand forecasting for established and new products.

UNIT-III:
Cost and Production Analysis: Cost: Concept and types, Cost-Output Relationships, Cost Estimation, Reduction and Control- Economies and Diseconomies of Scale- Law of Variable Proportions- Returns to Scale- Isoquants-Cobb- Douglas and CES Production functions.

UNIT-IV:
Theory of Pricing: Price determination under Perfect Competition, Monopoly, Oligopoly and Monopolistic Competitions- Methods of Pricing- Game Theory basics- Dominant Strategy-Nash Equilibrium and Prisoner's Dilemma.

UNIT-V:
Macro Economics and Business: Concept, Nature and Measurement of National Income- Inflation and Deflation: Inflation- Meaning and Kinds, Types, Causes and measurement of inflation Measuresto Control Inflation, Deflation- - Philips curve- Stagflation-Theory of Employment- Business cycles: Policies to counter Business Cycles.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. D.M. Mithani, Managerial Economics, Himalaya Publishing House
2. H.Craig Peterson, W.Cris Lewis, Managerial Economics, Pearson, 2005.
3. Gupta G.S., Managerial Economics, TMH, 1988.
4. P.L.Mehta, Managerial Economics, PHI, 2001.
5. K.KDawett, Modern Economic Theory, Sultan Chand& Sons.
6. D.N.Dwivedi, Managerial Economics, 7thEd, Vikas Publishing.
7. H.Craig Peterson, W. Cris Lewis, Managerial economics, Pearson, 2005.

I Year I Semester	ACCOUNTING FOR MANAGEMENT	L	T	P	C
C-103		4	0	0	4

Objective:
The objective of this course is to acquaint the students regarding various accounting concepts and its application in managerial decision making.

UNIT– I:
Financial Accounting-concept, Importance and scope, accounting principles, accounting cycle, journal ledger, trial balance, Preparation of final accounts with adjustments.

UNIT– II:
Analysis and interpretation of financial statements–meaning, importance and techniques, ratio analysis, Fund flow analysis, cash flow analysis (AS - 3).

UNIT– III:
Cost accounting–meaning, importance, methods, techniques; classification of costs and cost sheet; Inventory valuation methods- LIFO, FIFO, HIFO and weighted average method.

UNIT– IV:
Management accounting–concept, need, importance and scope; budgetary control-meaning, need, objectives, essentials of budgeting, different types of budgets and their preparation.

UNIT-V:
Standard costing and variance analysis (materials, labour)-Marginal costing and its application in managerial decision making.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:
1. Maheswari and Maheswari" Financial Accounting", Vikas Publishing House, New Delhi, 2013.
2. Pandey, I.M. Management Accounting, Vikas Publishing House, New Delhi.
3. Horngen, Sundem & Stratton, Introduction to Management Accounting, Pearson Education, New Delhi.
4. Hansen& Mowen, Cost Management, Thomson Learning.
5. Mittal, S.N. Management Accounting and Financial management, Shree Mahavir Book Depot, New Delhi.
6. Jain S.P. and Narang K.L. Advanced Cost Accounting, Kalyani Publishers Ludhiana.
7. Khan M.Y. and Jain, P.K. Management Accounting, TMH, N. Delhi.

I Year I Semester	QUANTITATIVE ANALYSIS FOR	L	T	P	C
C-104	BUSINESS DECISIONS	4	0	0	4

Course Objectives:
1. To develop a deeper understanding of meaning and importance of quantitative technique and its applications in managerial decisions.
2. Statistical tools like measures of central tendency & measures of variations and apply these tools to real life situations.
3. Students have more knowledge about the decision making concept, process of decision making and different environments like risk, uncertainty and certainty.
4. To have knowledge about Sampling and Sampling Distributions Interval Estimates, Concepts of Testing Hypothesis.
5. Students would able to understand the concept of ANOVA, Chi-square Test of Independence and Goodness of fitness.

Course Outcomes: At the end of the course students will be able to
1. Basic importance and applications of quantitative techniques.
2. Study the various measures and applicability of probability the statistics.
3. Justify the several decisions in decision theory.
4. Use and understand the different sampling distribution techniques.
5. Test the hypothesis for choosing best conclusion and inference.

UNIT I
Quantitative Techniques: Introduction-Meaning and Definition-Classification of QT -QT and other disciplines – Application of QT in business-Limitations.

UNIT II
Measures of Central Tendency – Measures of Dispersion –Simple Correlation and Regression Analysis Concept of Probability- Probability Rules – Joint and Marginal Probability – Baye's Theorem- Probability Distributions- Binomial, Poisson, Normal and Exponential Probability Distributions.

UNIT III
Introduction to Decision Theory: Steps involved in Decision Making, different environments in which decisions are made, Criteria for Decision Making, Decision making under uncertainty, Decision making under conditions of Risk-Utility as a decision criterion, Decision trees, Graphic displays of the decision making process, Decision making with an active opponent.

UNIT IV
Concept of Estimation and Sampling: Inferential Analysis-Point Estimates and Interval Estimates of Averages and Proportions of small and large samples. Sampling–Meaning, Steps in Sampling Process-Sample Size-Probability and non-probability sampling techniques, Errors in sampling.Tests of significance-Types- Hypothesis testing and Confidence Intervals. Parametric Tests for means, Proportions, Variance and Paired Observations.

UNIT V
Analysis of Variance (ANOVA): One-way and Tow way ANOVA, Non Parametric tests- Chi–Square- Test of Independence, Test of Goodness of Fit.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:
1. N. D. Vohra: Quantitative Techniques in Management, Tata-McGraw Hill Private Limited, New Delhi, 2011.
2. Gupta S.P:―Statistical Methods, S. Chand and Sons, New Delhi.
3. Anand Sharma:―Quantitative Techniques for Business decision Making, Himalaya Publishers, New Delhi, 2012.
4. D P Apte: Operation Research and Quantitative Techniques, Excel Publication, New Delhi, 2013.
5. Hamdy, A. Taha:Operations Research: An Introduction, Prentice-Hall of India, New Delhi 2003.
6. Anderson: Quantitative Methods for Business, Cengage Learning, New Delhi, 2013.

I Year I Semester	ENTREPRENEURSHIP DEVELOPMENT	L	T	P	C
C-105		**4**	**0**	**0**	**4**

UNIT-I:

Introduction: Definition of Entrepreneur, Entrepreneurial motivation and barriers; Internal and external factors Economic Barriers to Entrepreneurship- Non-Economic Barriers to Entrepreneurship- Theories of entrepreneurship; Classification of entrepreneurship- Entrepreneurship in Developing Economy - Entrepreneurial Values and Attitudes.

UNIT-II

Problems & Support: Incubation and Take-off, Problems encountered Structural, Financial and Managerial Problems, Types of Uncertainty. -Institutional support for new ventures: Supporting organizations; Incentives and facilities; Financial Institutions and Small-scale Industries, Govt. Policies for SSIs.- Role of SIDBI in Project Management.

UNIT-III

Types of Entrepreneurs: Family and non-family entrepreneurs- Role of Professionals. Professionalism vs. family entrepreneurs- Sick industries, Reasons for Sickness, Remedies for Sickness, Role of BIFR in revival, Bank Syndications

UNIT-IV

Project Analysis: Meaning and Definition of Project, Types & Characteristics- Project Phases – Project Life Cycle- Project Family Tree - Feasibility Analysis and Project Report.

UNIT-V

Development of Enterprise: Concept and development of Enterprise- Procedure of starting Enterprise – Vital Decision to make during start up: Project Report Preparation, Choice of Enterprise, and Market Assessment of Enterprise.

References:

1. Couger, C-Creativity and Innovation (IPP, 1999)
2. Nina Jacob, -Creativity in Organisations (Wheeler, 1998)
3. Jonne & Ceserani-Innovation & Creativity(Crest) 2001.
4. Bridge Setal-Understanding Enterprise: Entrepreneurship and Small Business (Palgrave,2003)
5. Holt-Entrepreneurship: New Venture Creation (Prentice-Hall) 1998.
6. Singh P&B handerkar A-Winning the Corporate Olympiad: The Renaissancearadigm(Vikas)
7. Dollinger M J-Entrepreneurship (Prentice-Hall), 1999.
8. Tushman, M.L. & Lawrence, P.R. (1997)-Manaing Strategic Innovation & Change Oxford.
9. Jones T. (2003)-Innovating at the Edge: How Organizations Evolve and Embed Innovation Capability.Butterwork Heinemann, U. K.
10. Amidon, D. M.(1997) Innovation Strategy for the Knowledge Economy:TheKanawakening. Butterwork- Heinemann, New Delhi, India

I Year I Semester	BUSINESS ENVIRONMENT	L	T	P	C
C-106		4	0	0	4

Objective:
The objective of this paper is to make the students more clear about the importance of business organisation wants to achieve, to earn profit for its growth and development, to provide quality goods to its customers, to protect the environment, etc.

UNIT-I
Introduction: The Concept of Business Environment-its Nature and Significance--Components of Business Environment-Imact of environment on business and strategic decisions.

UNIT-II
Social and Cultural Environment: Introduction-Social environment-Cultural environment - Impact of Foreign Culture on Business-Types of Social Organization-Social Responsibilities of Business.

UNIT-III
Economic Environment: Introduction-Economic environment of Business- Economic systems - Macroeconomic parameters and their impact of business - Economic policies - Five Year Plans in India.

UNIT-IV
Political and Legal Environment: Introduction-Plitical environment-Relationship between Government and Business in India- Role of Goverment in Business- Constitutional provisions regarding regulation of business in India. Legal Environment- Implementations of Business - Corporate Governance.

UNIT-V
Technological and Natural Environment: Features of Technological Environment-Factors and Impact of Technological Environment in India- Elements of Natural Environment - Environmental Pollution.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:
1. Shaikh Saleem: "Business Environment", Pearsons, New Delhi,
2. Veena Keshav Pailwar: "Economic Environment of Business", PHI Learning, New Delhi, 2012
3. Rosy Joshi, Sangam Kapoor: "Business Environment", Kalyani Publishers, New Delhi, 2011.
4. Aswathappa K: "Essentials of Business Environment", Himalaya Publishing House, New Delhi, 2011.
5. Vivek Mittal: "Business Environment Text and Cases", Excel Books New Delhi, 2011.
6. Sundaram and Black: "International Business Environment Text and Cases", PHI Limited, New Delhi.
7. Avid W Conklin: "Cases in Environment of Business", Sage Publication India Private Ltd, New Delhi.
8. Raj Kumar: "International Business Environment", Excel Publication, New Delhi, 2012.
9. Palle Krishna Rao: "WTO-Text and Cases", Excel Publication, New Delhi.
10. Government of India, Latest Economic Survey Report.

I Year I Semester	A.INFORMATION TECHNOLOGY	L	T	P	C
OE-101	FOR BUSINESS	3	0	0	3

CourseObjectives:
- To understand business processes and information technology in business.
- To manage and understand IT in business organizations.
- To build and develop technology trends.
- To understand the challenges on using Technology for business.
- To learn ethical issues in information technology.

CourseOutcomes: At the end of this course students will be able to:
1. Clear understanding of Information Technology in business scenarios.
2. Importance of Technology in business processes.
3. Significance of intelligent systems in business.
4. Usage of various digital platforms across the business.
5. Exploring e-commerce and ERP scenario.

UNIT-I

Business and Information Technology-Business in the Information Age, Information System, CBIS, Trends in IT Evolution and types of Information Systems, Managing IT in Organization.

UNIT-II

Information Technology Infrastructure-Computer Hardware, Software, Managing and Organization of Data and Information Telecommunication and Networks. The Internet and Intranet (I.O.T).

UNIT-III

Information Technology for Competitive advantage- Inter Organizational Information Systems, Global Information Systems, Electronic Data Interchange (EDI) and Electronic Funds Transfer (EFT). Enterprise Resource Planning, Data Knowledge, and Decision Support.

UNIT-IV

Intelligent Systems in Business- Artificial intelligence and Intelligent Systems- Expert Systems, Intelligent Agents, Virtual Reality, Ethical and global issues of Intelligent systems.

UNIT-V

Electronic Commerce - Foundation, Business to Consumer Applications, Business to Business Applications, Consumer Market Research and other Support, Legal and Ethical issues in E-commerce Strategy, Information Systems, Strategic Advantage, Porter's Competitive Forces model on IT, Business Proces Re-engineering, Virtual Corporation, E- Learning, CBI, Information Systems Development Life Cycle (SDLC), Building Internet and Intranet Applications.

Suggested Readings:
1. Turban Rainer and Potter: Introduction to Information Technology, John & Wiley Sons.
2. James O'Brien: Introduction to Information Systems, McGraw Hill Book Company.

I Year I Semester	B.RURAL DEVELOPMENT	L	T	P	C
OE-101		3	0	0	3

Course Objectives:

1. To facilitate the students to understand the basic nature of rural society in India
2. To appraise students about the Rural Local Administration
3. To provide insights on rural demography and rural economy in India
4. To provide insights on various processes and challenges of agriculture in India
5. To make students aware of the rural market structure in India

Outcomes of the course:

1. Describe the key aspects of rural society in India
2. Describe the rural local administration
3. Analyse the dynamics of local rural population and local rural economy
4. Explain the processes and challenges of agriculture in India
5. Summarise the components and implications of land tenure systems and land reforms in India.

UNIT-I

Rural Development: Concept, Importance, Nature and scope, Characteristics of rural economy, human capital of development-Distinction between development and growth, Indicators of rural development, problems & issues in rural development.

UNIT-II

Rural Management: Nature, Scope and challenges in marketing operations, human and financial resources in rural areas. Enterprenurship opportunities in rural areas, Agricultural production, productivity and backwardness, Social and Economic structure of rural India and its economic development.

UNIT-III

Rural Community Development: M.D.G- Concept of community, Functon of Community, PURA model, Community profile: Process and tools. Community development: Characteristics, Principle and scope, Panchayat Raj and community development in India; Zilla Parishad-Structure, powers, functon, working and problems in Rural Administration.

UNIT-IV

Sustainable Development: Biodiversity and its conservation, Environmental pollution, air, water and soil pollution., Rainwater harvesting Watershed management. Social security schemes in India-DDP-CRSP-NHRDP-DWACRA-DRDA-Health care programmes.

UNIT-V

Concept and Scope of Rural Market, Characteristics of rural markets, Environmental factors: Micro and Macro marketing environment, Marketing planning process, Introduction to services marketing. Fundamentals of Rural Demography and Economics: Rural population-process of development-GATT-WTO-SEZ-CSR-NAIS.

References:

1. Satya Sundram, I. "Rural Development" Himalaya Publishing House, New Delhi.
2. Venkatareddy-Agricultural and rural development-Himalaya Publishing House.

I Year I Semester	C.INTELLECTUAL PROPERTY RIGHTS & PATENTS	L	T	P	C
OE-101		3	0	0	3

Course Objective:
1. The main objective of the IPR is to make the students aware of their rights for the protection of their invention done in their project work.
2. To get registration in our country and foreign countries of their invention, designs and thesis or theory written by the students during their project work and for this they must have knowledge of patents, copy right, trademarks, designs and information Technology Act.
3. Further the teacher will have to demonstrate with products and ask the student to identify the different types of IPR's.

Course outcomes:
- The students once they complete their academic projects, they get awareness of acquiring the patent
- They also learn to have copyright for their innovative works.
- They also get the knowledge of plagiarism in their innovations which can be questioned legally.

UNIT-I
INTRODUCTION TO IPR: Meaning of property, Origin, Nature, Meaning of Intellectual Property Rights –Kinds of Intellectual property rights- Copy Right, Patent, Trademark, Trade Secret and trade dress, Design, Layout Design, Geographical Indication, Plant Varieties and Traditional Knowledge.

UNIT-II
PATENT RIGHTS AND COPY RIGHTS- Origin, Meaning of Patent, Types, Inventions which are not patentable, Registration Procedure, Rights and Duties of Patentee, Assignment and license, Restoration of lapsed Patents, Surrender and Revocation of Patents, Infringement, Remedies & Penalties. COPY RIGHT-Origin, Definition & Types of Copy Right, Registration procedure, Assignment & license, Terms of Copy Right, Piarcy, Infringement, Remedies, Copy rights with special reference to software.

UNIT-III
TRADEMARKS— Origin, Meaning & Nature of Trademarks, Types, Registration of Trade Marks, Infringement & Remedies, Offences relating to Trade Marks, Passing Off, Penalties.

UNIT-IV
DESIGN- Meaning, Definition, Object, Registration of Design, Cancellation of Registration, International convention on design, functions of Design. Semiconductor Integrated circuits and layout design Act-2000.

UNIT-V
BASIC TENENTS OF INFORMATION TECHNOLOGY ACT-2000-IT Act-Introduction E-Commerce and legal provisions E-Governance and legal provisions Digital signature and Electronic Signature, Cybercrimes.

TEXTBOOKS:
1. Intellectual Property Rights and the Law, Gogia Law Agency, by Dr. G.B. Reddy
2. Law relating to Intellectual Property, Universal Law Publishing Co, by Dr.B.L.Wadehra
3. IPR by P. Narayanan.
4. Law of Intellectual Property, Asian Law House, Dr.S.R.Myneni.

I Year I Semester	D. MOOCs: SWAYAM/ NPTEL	L	T	P	C
OE-101	Related to Management Courses other than listed courses in the syllabus	3	0	0	3

NOTE: Students opting for SWAYAM should register for 12 weeks course and need to produce the Pass certificate with minimum 40% (Percentage) for receiving the Academic Credits. The actual percentage mentioned on the certificate will be transferred to the marks memo.

I Year I Semester	PACE UP (Personality Assessment Centre, Enhancement and Upgradation Process)	L	T	P	C
SE-101		0	0	2	1

Course Objectives:

Business Etiquettes and Professionalism has been designed to meet the following objectives:
1. To learn the principles of business etiquettes and professional behaviour
2. To understand the etiquettes for making business correspondence effective
3. To be able to present yourself confidently at various business situations
4. Develop awareness of dining and multicultural etiquettes

Learning Outcome: After completion of course students will be able to:
1. Demonstrate an understanding of professionalism in terms of workplace behaviours and workplace relationships.
2. Adopt attitudes and behaviours consistent with standard workplace expectations.
3. Presenting oneself with finesse and making others comfortable in a business setting.
4. Developing basic life skills or etiquettes in order to succeed in corporate culture.

UNIT-I

Business Etiquettes- An Overview: Significance of Business Etiquettes in 21st Century Professional

Advantage; Need and Importance of Professionalism.

Workplace Etiquette: Etiquette for Personal Contact-Personal Appearance, Gestures, Postures, Facial Expressions, Eye-Contact, Space distancing.

E-Mail Etiquette: Significance of Netiquette, E-mail: Way of professional communication.

Basic Email Etiquettes: Proper Grammar, Spelling, Punctuation, Styling and Formatting, Body of Email, Response, Privacy

UNIT-II

Telephone Etiquettes: Telephone Communication Techniques-Placing Telephone calls, Answering Calls, Transferring Calls, Putting Calls on Hold, Taking Messages, Handling Rude Callers, Tactful Responses, Leaving Professional Messages; Developing Cell Phone Etiquettes; Voicemail Etiquette; Telephonic Courtesies.

Dining Etiquette: Basics of Dining Etiquettes: Basic essentials of dining table etiquettes- Napkin Etiquette, Seating arrangements, laying the table, how to use Cutlery, Posture &Behavior, Do's and Don'ts; International Dining Etiquettes.

Multi-Cultural Challenges: Cultural Differences and their Effects on Business Etiquette.

UNIT-III

Communication Skills: Understanding Human Communication, Constitutive Processes of Communication, Language as a tool of communication, Barriers to Effective communication, Strategies to Overcome the Barriers.

Emotional intelligence: Importance, concept, theory and measurements.

Stress Management: Strategies for preventing and relieving stress.

Time management: Meaning; Techniques and styles.

UNIT-IV

Interview Skills: Interview Skills: in-depth perspectives, Interviewer and Interviewee, Before, During and After the Interview, Tips for Success.

Meeting Etiquette: Managing a Meeting agenda Minute taking,; Duties of the chairperson and secretary; Effective Meeting Strategies -Preparing for the meeting, Conducting the meeting, Evaluating the meeting.

Presentation Etiquettes: Importance of Preparation and Practice; Effective Delivery Techniques, Audience Analysis, Handling Stage Fright.

UNIT-V

Teamwork and Leadership Skills: Concept of Teams; Building effective teams; Concept of Leadership and honing Leadership skills.

Personality: Meaning & Definition, Determinants of Personality, Personality Traits, Personality and Organisational Behaviour.

Motivation: Nature & Importance, Herzberg's Two Factor theory, Maslow's Need Hierarchy theory, Alderfer's ERG theory.

Decision-Making and Problem-Solving Skills: Meaning, Types and Models, Group and Ethical Decision-Making, Problems and Dilemmas in application of these skills.

Conflict Management: Conflict-Definition, Nature, Types and Causes; Methods of Conflict Resolution.

Human Resource Management: Introduction to HRM, Selection, Orientation, Training & Development, Performance Appraisal, Incentives.

Case Study Analysis

Suggested Readings:

- Barbara Pachter, Marjorie Brody. Complete Business Etiquette Handbook. Prentice Hall, 2015.
- Dhanavel, S.P. English and Soft Skills. Hyderabad: Orient BlackSwan, 2021.
- Koneru, Aruna. Professional Communication. Delhi: McGraw, 2008.
- Mahanand, Anand. English for Academic and Professional Skills. Delhi: McGraw, 2013. Print.
- Nancy Mitchell. Etiquette Rules : A Field Guide to Modern Manners. Wellfleet Press, 2015.
- Rani, D Sudha, TVS Reddy, D Ravi, and AS Jyotsna. A Workbook on Engl and Composition. Delhi: McGraw, 2016.
- Raghu Palat, Indian Business Etiquette, Jaico Books, 2015.
- Rizvi, M. Ashraf. Effective Technical Communication. Delhi: McGraw, 2018.
- Pease, Allan and Barbara Pease. The Definitive Book of Body Language, New-Delhi: Manjul Publishing House, 2005.
- Tengse, Ajay R. Soft Skills: A Textbook for undergraduates, Orient BlackSwan, 2015.

I Year I Semester	TALLY LAB	L	T	P	C
SE-102		0	0	2	1

Objective:
To Understand the students' basics of the Computers Knowledge with Financial Software Knowledge.

UNIT-I
Basic of Accounting: Type of Accounts, Rules of Accounting, Principles of concepts and conventions, double entry system, bookkeeping Mode of Accounting, Financial Statements, Transaction, Recording Transactions. Getting the functional with Tally, Creation and setting up of company in Tally.

UNIT- II
Accounting Masters in Tally- Features-Configurations-Settinp up Account Heads.

UNIT- III
Inventory in Tally- Stock – groups-Stock Categories-Godowns/ Location Units of Measure - Stock Items - Creating Inventory Masters for National Trader.

I Year I Semester	ENTREPRENEUR PROJECT-I	L	T	P	C
VA-101		0	0	2	1

Identifying the area of interest, interacting with successful business and submission of ground report.

The Entrepreneur Project can be done either individually or forming a group (limited to maximum of 4 members)

I Year II Semester	FINANCIAL MANAGEMENT	L	T	P	C
C-201		4	0	0	4

Objective:

The Course is designed for the students to understand the Financial Management concepts and to identify, enrich and fulfill the needs of Financial Markets.

UNIT-I

Financial Management: Concept -Nature and Scope - Evolution of financial Management - The new role in the contemporary scenario – Goals and objectives of financial Management - Firm's mission and objectives - Profit maximization Vs. Wealth maximization – Maximization Vs Satisfying - Major decisions of financial manager.

UNIT-II

Financing Decision: Sources of finance - Concept and financial effects of leverage – EBIT – EPS analysis. Cost of Capital: Weighted Average Cost of Capital– Theories of Capital Structure.

UNIT-III

Investment Decision: Concept and Techniques of Time Value of Money – Nature and Significance of Investment Decision – Estimation of Cash flows – Capital Budgeting Process – Techniques of Investment Appraisal – Discounting and Non Discounting Methods.

UNIT-IV

Dividend Decision: Meaning and Significance– Major forms of dividends –Theories of Dividends – Determinants of Dividend – Dividends Policy and Dividend valuation – Bonus Shares –Stock Splits – Dividend policies of Indian Corporate.

UNIT-V

Liquidity Decision: Meaning - Classification and Significance of Working Capital – Components of Working Capital – Factors determining the Working Capital –Estimating Working Capital requirement – Cash Management Models – Accounts Receivables –Credit Policies – Inventory Management.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. I. M. Pandey: **Financial Management",** Vikas Publishers, New Delhi, 2013.
2. Khan and Jain: Financial Management, Tata McGraw Hill, New Delhi,
3. Prasanna Chandra: **Financial Management Theory and Practice**, Tata McGraw Hill 2011.
4. P. Vijaya Kumar, M. Madana Mohan, G. Syamala Rao: **Financial Management",** Himalaya Publishing House, New Delhi, 2013.
5. Brigham, E.F: **Financial Management Theory and Practice**, Cengae Learning, New Delhi, 2013
6. R M Srivastava, Financial Management, Himalaya Publishing house, 4th edition.

I Year II Semester	HUMAN RESOURC EMANAGEMENT	L	T	P	C
C-202		4	0	0	4

Objective:

To equip the students with basic concepts of Human Resource Management and the various functions of HRM including Industrial Relations in the liberalized, socialism environment.

UNIT-I

HRM: Significance - Definition and Functions – evolution ofHRM-Principles -Ethical Aspects of HRM- - HR policies, Strategies to increase firm performance - Role and position of HR department –aligning HR strategy with organizational strategy - HRM – changing , global perspective challenges, environment – cross- cultural problems – emerging trends in HRM.

UNIT-II

Investment perspectives of HRM: HR Planning – Demand and Supply forecasting - Recruitment and Selection- Sources of recruitment - Tests and Interview Techniques - Training and Development – Methods and techniques– Job design , evaluation and Analysis - Management development - HRD concepts.

UNIT-III

Performance Appraisal: Importance – Methods – Traditional and Modern methods – Latest trends in performance appraisal - Career Development and Counseling- Compensation - Concepts and Principles- Influencing Factors- Current Trends in Compensation- Methods of Payments in detail - Incentives rewards compensation mechanisms.

UNIT-IV

Wage and Salary Administration: Concept- Wage Structure- Wage and Salary Policies- Legal Frame Work- Determinants of Payment of Wages- Wage Differentials - Incentive Payment Systems. Welfare management: Nature and concepts – statutory and non- statutory welfare measures.

UNIT-V

Managing Industrial Relations: Trade Unions - Employee Participation Schemes- Collective Bargaining– Grievances and disputes resolution mechanisms – Safety at work – nature and importance – work hazards – safety mechanisms - Managing work place stress.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. K A Swathappa: Human Resource and Personnel Management‖, Tata McGraw Hill, New Delhi, 2013.
2. N. Sambasiva Rao and Dr. Nirmal Kumar: Human Resource Management and Industrial Relations, Himalaya Publishing House, Mumbai.
3. Mathis, Jackson, Tripathy: Human Resource Management: Asouth-Asin Perspective, Cengage Learning, New Delhi, 2013.
4. Subba Rao P: Personnel and Human Resource Management- Text and Cases, Himalaya Publications, Mumbai, 2013.
5. Madhurima Lall, Sakina Qasim Zasidi: ―Human Resource Management, Excel Books, New Delhi, 2010.

I Year II Semester	OPERATIONS MANAGEMENT	L	T	P	C
C-203		4	0	0	4

Objective:

This Course is designed to make student understand the strategic significance of Operation management, to acquaint them with application of discipline to deal with real life business problem.

UNIT-I:

Introduction to Operation Management: Nature & Scope of Operation/ Production Management, Relationship with other functional areas, Recent trend in Operation Management, Manufacturing & Theory of Constraint, Types of Production System, Just in Time (JIT) & lean system.

UNIT-II:

Product Design & Process Selection: Stages in Product Design process, Value Analysis, Facility location & Layout: Types, Characteristics, Advantages and Disadvantages, Work measurement, Job design.

UNIT-III:

Forecasting & Capacity Planning: Methods of Forecasting, Overview of Operation Planning, Aggregate Production Planning, Production strategies, Capacity Requirement Planning, MRP, Scheduling, Supply Chain Management, Purchase Management, Inventory Management.

UNIT-IV:

Productivity: Factors, Affecting Productivity – Job Design – Process Flow Charts – Methods Study – Work Measurement – Engineering and Behavioral Approaches.

UNIT-V:

Quality Management: Quality- Definition, Dimension, Cost of Quality, Quality Circles-Continuous improvement (Kaizen), ISO (9000& 14000 Series), Statistical Quality Control: Variable & Attribute, Process Control, Control Charts -Acceptance Sampling Operating Characteristic Curve (AQL , LTPD, Alpha & Beta risk), Total Quality Management (TQM).

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Krajewski & Ritzman(2004). Operation Management- Strategy and Analysis. Prentice Hall of India.
2. Panner Selvem, Production and Operation Management, Prentice Hall of India.
3. Chunnawals, Production& Operation Management Himalaya, Mumbai
4. Charry, S.N(2005). Production and Operation Management- Concepts, Methods Strategy. John Willy& Sons Asia Pvt Limited.
5. K A Swathappa & Sridhar Bhatt, Production& Operations Management, Himalaya, Mumbai.

I Year II Semester	MARKETING MANAGEMENT	L	T	P	C
C-204		4	0	0	4

Objective:

The Course is designed for the students to understand the Marketing concepts and to identify, enrich and fulfill the needs of customers and markets.

UNIT-I

Introduction to Marketing: Needs - Wants – Demands - Products - Exchange - Transactions - Concept of Market and Marketing and Marketing Mix - Production Concept-Product Concept-Sales and Marketing Concept- Societal Marketing Concept- Green Marketing concept – Indian Marketing Environment.

UNIT-II

Market Segmentation, Targeting and Positioning: Identification of Market Segments-Consumer and Institutional/ corporate Clientele - Segmenting Consumer Markets - Segmentation Basis – Evaluation and Selection of Target Markets – Positioning significance - Developing and Communicating a Positioning Strategy.

UNIT-III

Product and Pricing Aspects: Product – Product Mix - Product Life cycle - Obsolescence-Pricing- Objectives of Pricing - Methods of Pricing - Selecting the Final price - Adopting price - Initiating the price cuts - Imitating price increases-Responding to Competitor's price changes.

UNIT-IV

Marketing Communication: Communication Process – Communication Mix – Integrated Marketing Communication - Managing Advertising Sales Promotion - Public relations and Direct Marketing – Sales force –Determining the Sales Force Size – Sales force Compensation.

UNIT-V

Distribution, Marketing Organization and Control: Channels of Distribution- Intensive, Selective and Exclusive Distribution- Organizing the Marketing Department - Marketing Implementation - Control of Marketing Performance - Annual Plan Control - Profitability Control - Efficiency Control - Strategic Control.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Phillip Kotler: Marketing Management―,Pearson Publishers, New Delhi, 2013.
2. Rajan Saxena: Marketing Management, Tata McGraw Hill, New Delhi, 2012.
3. V S Ramaswamy & S Nama kumari, Marketing Management Global Perspective Indian Context, 4thEdition, MacMillan Publishers 2009.
4. Tapan K Panda: "Marketing Management, Excel Books, New Delhi, 2012.
5. Paul Baines, Chris Fill, Kelly Page Adapted by Sinha K: Marketing, Oxford University Press, Chennai, 2013.

I Year II Semester	RESEARCH METHODS FOR	L	T	P	C
C-205	BUSINESS DECISIONS	4	0	0	4

Course Objective:
- To develop understanding of the basic framework of research process. Developing the students in Research orientation and to acquaint them with fundamental of research methods
- To identify various sources of information for literature review and data collection.
- To understand the data analysis and presentation.
- To understand various statistical tools and their applicability in research.
- To enable them to write a research report and thesis.

Course Outcomes:
1. Understand advanced design, methodologies and analysis in business research methods, including key terms, classifications and systematic applications to the research data and design of a research project.
2. Apply knowledge in collecting data from various sources.
3. Demonstrate knowledge in data analysis and interpretation.
4. Applying appropriate statistical techniques in the analysis of data.
5. Demonstrate the abilities in preparing research reports.

UNIT-I

Introduction : Nature and Importance of Research, The role of Business Research, Aims of social research, Types of Research- Pure research vs. Applied research, Qualitative research vs. Quantitative research, Exploratory research, Descriptive research and Experimental research, ethical issues in business research- Defining Research Problem, Steps in Research process.

UNIT-II

Data Base: Discussion on primary data and secondary data, tools and techniques of collecting data. Methods of collecting data. Sampling design and sampling procedures. Random vs. Non-random sampling techniques, determination of sample size and an appropriate sampling design. Designing of Questionnaire –Measurement and Scaling – Nominal Scale – Ordinal Scale – Interval Scale – Ratio Scale – Guttmann Scale – Likert Scale – Schematic Differential Scale.

UNIT-III

Survey Research and data analysis: Selection of an appropriate survey research design, the nature of field work and Field work management. Media used to communicate with Respondents, Personal Interviews, Telephone interviews, Self- administered Questionnaires- Editing – Coding – Classification of Data – Tables and Graphic Presentation –Preparation and Presentation of Research Report.

UNIT-IV

Statistical Inference: Formulation of Hypothesis –Tests of Hypothesis - Introduction to Null hypothesis vs. alternative hypothesis, parametric vs. non-parametric tests, procedure for testing of hypothesis, tests of significance for small samples, application, t-test, Chi Square test.

UNIT-V

Multivariate Analysis: Nature of multivariate analysis, classifying multivariate techniques, analysis of dependence, analysis of interdependence. Bi-Variate analysis- tests of differences-t

test for comparing two means and z-test for comparing two proportions and ANOVA for complex experimental designs.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. C.R. Kothari: Research Methodology, methods and Techniques New Age International Publisher.
2. Navdeep and Guptha: Statistical Techniques& Research Methodology, Kalyani Publishers.
3. Willam G. Zikmund, Adhkari: *Business Research Methods*, Learning, New Delhi, 2013.
4. A. N. Sadhu, Amarjit Singh, Research methodology in social sciences, 7th Edition Himalaya Publications.
5. A Bhujangarao, Research methodology, Excel Books, 2008.

I Year II Semester	BUSINESS ANALYTICS	L	T	P	C
C-206		4	0	0	4

Course Objectives:
- To understand the importance, difference and practices of analytics in business.
- Understand business communication through data-driven information.
- Apply knowledge and explain natural processes by relating them to a certain distribution of data
- To understand the data visualization tools, application and statistical methods.
- To learn the measure of variability in decision making.
- Evaluate and compare descriptive and predictive analytics with use case scenarios.

UNIT-I
Introduction to Data Analytics: Introduction to Data analytics - Role of Data in Organization, Data lifecycle. (Data source, data changes, processes, usage) Various Data Types - Significance of Analytics- Role of Data Analyst- Difference between Data analytics and Business Analytics – real-world data analytics examples.

UNIT-II
Tools & Techniques: Typical Data Analysis Process- Data analytics techniques: Regression analysis, Factor analysis, Cohort analysis, Cluster analysis -Time-series analysis. Data analytics tools -Microsoft Excel, Tableau, SAS, RapidMiner, Power BI.

UNIT-III
Concepts of data cleaning- Data Visualization: Over view of Data visualization- Data Visualization tools, Statistical methods for summarizing data- How to create pivotal tables using excel - Exploring data using pivot table- Cross Tabulation _ Creating Charts:- 1.Scatter charts, 2.Line charts, 3. Bar charts and column, 4. Pie Charts and 3-D Charts, 4. Bubble charts, - Effective use of Dashboards, Power BI and Tableau.

UNIT-IV
Descriptive Analytics: Concept of Descriptive Analytics –Measures of central Tendency – Measuring and calculation of Arithmetic Mean, Mode, Median- Calculation of application of Weighted Arithmetic Mean, Geometric and Harmonic mean using MS Excel- Measures of Variability-Range, Variance, Standard Deviation, Coefficient of Variation using MS Excel.

UNIT-V
Predictive Analytics: Karl Pearson Correlation Techniques - Spearman's Rank correlation - Simple and Multiple regression- Regression by the method of least squares- Building good regression models- Regression with categorical independent variables.

Suggested Readings:
1. R for Data Science: Import, Tidy, Transform, Visualize, and Model Data,Hadley Wickham & Garrett Grolemund.O'REILLY.
2. Mohiuddin Ahmed, Al-Sakib Khan Pathan, Data Analytics: Concepts, Techniques, and Applications, Taylor & Francis Group, 2020
3. James Evans, Business Analytics, 2e, Pearson, 2017.
4. Camm, Cochran, Fry, Ohlmann, Anderson, Sweeney, Williams Essential of Business Analytics, Cengage Learning, 2020.
5. Thomas Eri, Wajid Khattack & Paul Buhler: Big Data Fundamentals, Concepts, drVers and Techniques by Prentice Hall of India, New Delhi, 2015.
6. Akil Maheswari, Big Data, Upskill ahead by Tata McGraw Hill, New Delhi, 2016.

I Year II Semester	A. CROSS CULTURAL MANAGEMENT	L	T	P	C
OE-201		3	0	0	3

Objective:
The objective of this course is to enhance the ability of class members to interact effectively with people from cultures other than their own, specifically in the context of international business. The course is aimed at significantly improving the ability of practicing managers to be effective global managers.

Unit– I
Introduction – Concept of Culture for a Business Context; Brief wrap up of organizational culture & its dimensions; Cultural Background of business stakeholders [managers, employees, shareholders, suppliers, customers and others] – An Analytical framework.

Unit– II
Culture and Global Management – Global Business Scenario and Role of Culture. Framework for Analysis; Elements & Processes of Communication across Cultures; Communication Strategy for/ ofan Indian MNC and Foreign MNC & High-Performance Winning Teams and Cultures; Culture Implications for Team Building.

Unit– III
Cross Culture – Negotiation & Decision Making – Process of Negotiation and Needed Skills & Knowledge Base – Overview with two illustrations from multicultural contexts [India – Europe/ India – US settings, for instance]; International and Global Business Operations- Strategy Formulation & Implementation; Aligning Strategy, Structure & Culture in an organizational Context.

Unit– IV
Global Human Resources Management – Staffing and Training for Global Operations – Expatriate – Developing a Global Management Cadre.. Motivating and Leading; Developing the values and behaviours necessary to build high-performance organization personnel [individuals and teams included] – Retention strategies.

Unit– V
Corporate Culture – The Nature of Organizational Cultures Diagnosing the As is Condition; Designing the Strategy for a Culture Change Building; Successful Implementation of Culture Change Phase; Measurement of ongoing Improvement.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Cash by Franklin, Revitalize your corporate culture: PHI, Delhi
2. Deresky Helen, International Management: Managing Across Borders and Cultures,PHI, Delhi
3. Esenn Dr larry, Rchildress John,The Secretofa Winning Culture: PHI, Delhi

I Year II Semester	B.PROJECT MANAGEMENT	L	T	P	C
OE-201		3	0	0	3

Objective:

The objective of this course is to enable the students to gain basic knowledge about the concept of project, project management, project life-cycle, project appraisal; to acquaint the students about various issues of project management.

UNIT-I:

Basics of Project Management –Concept– Project environment – Types of Projects – Project life cycle – Project proposals – Monitoring project progress – Project appraisal and Project selection – Causes of delay in Project commissioning– Remedies to avoid overruns. Identification of Investment opportunities – Sources of new project ideas, preliminary screening of projects – Components for project feasibility studies.

UNIT-II:

Market feasibility -Market survey – Categories of Market survey – steps involved in conducting market survey –Demand forecasting techniques, sales projections.

UNIT-III:

Technical and Legal feasibility: Production technology, materials and inputs, plant capacity, site selection, plant layout, Managerial Feasibility Project organization and responsibilities. Legalities – Basic legal provisions. Development of Programme Evaluation & Review Technique (PERT) –Construction of PERT (Project duration and valuation, slack and critical activities, critical path interpretation) – Critical Path Method (CPM)

UNIT-IV:

Financial feasibility – Capital Expenditure – Criteria and Investment strategies – Capital Investment Appraisal Techniques (Non DCF and DCF) – Risk analysis – Cost and financial feasibility – Cost of project and means of financing —– Estimation of cashflows – Estimation of Capital costs and operating costs; Revenue estimation – Income – Determinants – Forecasting income –Operational feasibility - Breakeven point – Economics of working.

UNIT-V:

Project Implementation and Review: Forms of project organization – project planning – project control – human aspects of project management – prerequisites for successful project implementation – project review – performance evaluation – abandonment analysis.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Prasanna Chandra, Projects, Planning, Analysis, Selection, Financing, Implementation and Review, Tata McGraw Hill Company Pvt. Ltd., New Delhi 1998.
2. Gido: Effective Project Management,2e,Thomson,2007.
3. Singh M.K, Project Evaluation and Management.
4. Vasanth Desai, Project Management,4th edition, Himalaya Publications 2018.
5. Clifford F.Gray, Erik W. Larson, Project Management, the Managerial Emphasis, McGraw Hill, 2000.

Subject Code	C.LEAN MANAGEMENT	L	T	P	C
OE-201		3	0	0	3

Objective:

To understand issues and challenges in implementing and development in lean manufacturing techniques from TPS and its contribution for improving organizational performance.

UNIT-I

Introduction: Mass production system, Craft Production, Origin of Lean production system , Why Lean production , Lean revolution in Toyota , Systems and systems thinking , Basic image of lean production , Customer focus , Waste Management.

UNIT-II

Just In Time: Why JIT , Basic Principles of JIT, JIT system, Kanban, Six Kanban rules, Expanded role of conveyance, Production leveling, Three types of Pull systems, Value stream mapping. JIDOKA, Development of Jidoka concept, Why Jidoka, Poka, Yoke systems, Inspection systems and zone control – Types and use of Poka-Yoke systems, Implementation of Jidoka.

UNIT-III

Kaizen: Six – Sigma philosophy and Methodologies ,QFD, FMEA Robust Design concepts; SPC, QC circles standardized work in lean system , Standards in the lean system, 5S system.

UNIT-IV

Total Productive Maintenance: Why Standardized work, Elements of standardized work, Charts to define standardized work, Kaizen and Standardized work Common layouts.

UNIT-V

Hoshin Planning & Lean Culture: Involvement, Activities supporting involvement, Quality circle activity, Kaizen training, Key factors of PKT success, Hoshin Planning System, Four Phases of Hoshin Planning, Why Lean culture – How lean culture feels.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Jeffrey Liker, The Toyota Way: Fourteen Management Principles from the World's Greatest Manufacturer, McGraw Hill, 2004.
2. Debashish Sarkar, Lessons in Lean Management, Dale H., Besterfield, Carol, Besterfield, etal, Total Quality Management(TQM) 5e by Pearson 2018.

Subject Code	D.DATA BASE MANAGEMENT SYSTEM	L	T	P	C
OE-201		3	0	0	3

Objective:

The course is to present an introduction to data base management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively- information from a DBMS.

UNIT-I

Introduction to Database Systems: Data- Data base Applications – Evolution of Database- Need for Database Management – Data models - Database Architecture - Key Issues and Challenges in Database Systems.

UNIT-II

ER and Relational Models: ER Models – ER to Relational Mapping – Object Relational Mapping - Relational Model Constraints - Keys - Dependencies - Relational Algebra - Normalization - First, Second, Third & Fourth Normal Forms - BCNF – Join Dependencies.

UNIT-III

Data Definition and Querying: Basic DDL- Introduction to SQL-Data Constraints-Advanced SQL – Views Triggers- Data base Security– Embedded& Dynamic SQL.

UNIT-IV

Transactions and Concurrency: Introduction to Transactions - Transaction Systems - ACID Properties - System & Media Recovery - Need for Concurrency - Locking Protocols–SQL for Concurrency– Log Based Recovery –Two Phase Commit Protocol Recovery with SQL- Deadlocks & Managing Deadlocks.

UNIT-V

Advanced Topics in Databases: Indexing & Hashing Techniques - Query Processing & Optimization - Sorting & Joins – Database Tuning - Introduction to Special Topics - Spatial & Temporal Databases – Data Mining and Warehousing.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Abraham Silberschatz, Henry F.Korth, S. Sudharshan,―Database System Concepts, Sixth Edition, Tata McGraw Hill, 2010.
2. Ramez Elmasri, Shamkant B.Navathe,―Fundamentals of Data base Systems‖, Sixth Edition, Pearson/Addison - Wesley, 2010.
3. C. J. Date, A. Kannanand S. Swamynathan,― An Introduction to Database Systems‖, Pearson Education, Eighth Edition, 2006.
4. Raghu Rama krishnan,―Database Management Systems, Fourth Edition, McGraw Hill, 2015.

I Year II Semester	R-PROGRAMMING LAB	L	T	P	C
SE-201		0	0	2	1

Objective: After taking the course, students will be able to
- Use R for statistical programming, computation, graphics, and modeling,
- Write functions and use R in an efficient way,
- Fit some basic types of statistical models
- Use R in their own research,
- Be able to expand their knowledge of R on their own.

UNIT-I: All the theory content here below shall be executed with examples.
Introduction, How to run R, R Sessions and Functions, Basic Math, Variables, Data Types, Vectors, Conclusion, Advanced Data Structures, Data Frames, Lists, Matrices, Arrays, Classes**.**

UNIT-II: All the theory content here below shall be executed with examples.
R Programming Structures, Control Statements, Loops, - Looping Over Non vector Sets,- If-Else, Arithmetic and Boolean Operators and values, Default Values for Argument, Return Values, Deciding Whether to explicitly call return- Returning Complex Objects, Functions are Objective, No Pointers in R, Recursion, A Quick sort Implementation-Extended Extended Example: A Binary Search Tree.

UNIT-III: All the theory content here below shall be executed with examples.
Doing Math and Simulation in R, Math Function, Extended Example Calculating Probability-Cumulative Sums and Products-Minima and Maxima- Calculus, Functions Fir Statistical Distribution, Sorting, Linear Algebra Operation on Vectors and Matrices, Extended Example: Vector cross Product- Extended Example: Finding Stationary Distribution of Markov Chains, Set Operation, Input /output, Accessing the Keyboard and Monitor, Reading and writer Files,

UNIT-IV: All the theory content here below shall be executed with examples.
Graphics, Creating Graphs, The Workhorse of R Base Graphics, the plot() Function – Customizing Graphs, Saving Graphs to Files-

UNIT-V: All the theory content here below shall be executed with examples.
Probability Distributions, Normal Distribution- Binomial Distribution- Poisson Distributions Other Distribution, Basic Statistics, Correlation and Covariance, T-Tests,- ANOVA.

References:
1. The Art of R Programming, Norman Matloff, Cengage Learning
2. R for Everyone, Lander, Pearson
3. R Cook book, Paul Teetor, Oreilly
4. R in Action, Rob Kabacoff, Manning.
5. Garrett Grolemund, Handson Programming with R, Oreilly

I Year II Semester	IT LAB	**L**	**T**	**P**	**C**
SE-202	(Spreadsheet and Tally)	**0**	**0**	**2**	**1**

UNIT-1

Introducing spreadsheet: Choosing the correct tool; Creating and Saving; Spreadsheet workspace; Managing the workspace; Entering and editing data; Data entry; Selecting cells; Saving time when entering data. Presenting a spreadsheet; Number and date/time format tools; Percentages; Dates and Times; Currency; Text; Performing calculations; Basic arithmetic; Using functions; Replicating formulae; Absolute cell addressing; References between worksheets.

UNIT-II

Ranges and functions: Creating named ranges; Using named ranges; Finding and inserting functions; Excel – Functions: what if, Conditional count, sum and average, Multiple criteria with count, sum and if. Time and date calculations.

UNIT-III

Basic of Accounting: Type of Accounts, Rules of Accounting, Principles of concepts and conventions, double entry system, book keeping Mode of Accounting, Financial Statements, Transaction, Recording Transactions. Getting the functional with Tally, Creation and setting up of company in Tally.

UNIT-IV

Accounting Masters in Tally- Features- Configurations- Setting up Account Heads.

UNIT-V

Inventory in Tally- Stock – groups – Stock Categories - Godowns / Location Units of Measure **-** Stock Items **-** Creating Inventor y Masters for National Traders

I Year II Semester	ENTREPRENEUR PROJECT-II	L	T	P	C
VA-201		0	0	2	1

Study on different loan approaches of State and Central Govt. Prepare the Business Development plan.

III and IV Semesters List of Courses				
1	List of Courses			
2	Specialization wise subjects			
3	**1. Human Resource Management**			
	HRM	III Sem	EHR-301	LearningandDevelopment
			EHR-302	PerformanceandCompensationManagement
			EHR-303	StrategicHumanResourceManagement
			EHR-304	TalentAcquisitionandManagement
		IV Sem	EHR-401	LaborWelfareandEmploymentlaws
			EHR-402	InternationalHRM
			EHR-403	EmployeeRelationsandWorkplaceCulture
			EHR-404	HumanCapitalManagement
	2. Finance			
	FINANCE	III Sem	EFM-301	InvestmentandPortfolioManagement
			EFM-302	FinancialMarketsandServices
			EFM-303	TaxationManagement
			EFM-304	Bankinginstitutionsandfinancialreforms
		IV Sem	EFM-401	CorporateStrategicFinance
			EFM-402	RiskManagement
			EFM-403	GlobalFinancialManagement
			EFM-404	FinancialDerivatives
	3. Marketing			
	MARKETING	III Sem	EMM-301	ConsumerBehavior
			EMM-302	RetailManagement
			EMM-303	CustomerRelationshipManagement
			EMM-304	AdvertisingandBrandManagement
		IV Sem	EMM-401	GreenMarketing
			EMM-402	MarketingResearch
			EMM-403	ServicesMarketing
			EMM-404	SalesandDistributionManagement
	4. Systems			
	SYSTEMS	III Sem	ESY-301	DataMining&DataWarehousing
			ESY-302	SoftwareProjectManagement
			ESY-303	PythonforDataScience
			ESY-304	BlockchaininBusinessandManagement
		IV Sem	ESY-401	IntroductiontoArtificialIntelligence
			ESY-402	EnterpriseResourcePlanning
			ESY-403	InternetofThings(IOT)
			ESY-404	DataAnalytics
	5. Artificial Intelligence			
	ARTIFICIAL INTELLIGENCE	III Sem	EAI-301	Introduction to Artificial Intelligence
			EAI-302	Python Programming
			EAI-303	Block chain Technology
			EAI-304	Machine Learning
		IV Sem	EAI-401	Natural Language Processing
			EAI-402	Augmented Reality & Virtual Reality
			EAI-403	Deep Learning
			EAI-404	Data Visualization

IV. UR24 MBA -Regular III and IV Semesters Detailed Syllabus

II Year III Semester	STRATEGIC MANAGEMENT	L	T	P	C
C-301		4	0	0	4

Course Objectives:
- Equip students with foundational and advanced knowledge of strategic management processes.
- Develop skills for analyzing competitive environments and formulating strategies.
- Provide insights into the relationship between strategy, structure, culture, and leadership.
- Train students in the evaluation and control of strategies to achieve organizational goals.

Course Outcomes:
- **CO1:** Demonstrate an understanding of strategic management principles
- **CO2:** Design and articulate a company's vision and mission
- **CO3:** Conduct industry and competitive analysis
- **CO4:** Apply strategic analysis tools effectively
- **CO5:** Formulate strategies at various organizational levels

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	1	0	0	0	0	1	2	0	0	3	0	0
CO2	3	3	3	2	2	0	0	0	2	2	0	0	3	2	0
CO3	3	3	3	2	2	0	0	0	2	2	0	0	3	3	0
CO4	3	2	3	3	2	1	0	0	3	3	1	0	3	3	2
CO5	3	2	3	3	2	0	0	0	2	2	2	2	3	3	2

UNIT-I

Introduction: Concepts in Strategic Management, Strategic Management as a process – Developing a strategic vision, Mission, Objectives, Policies – Factors that shape a company's strategy – Crafting a strategy.

UNIT-II

Environmental Scanning: Industry and Competitive Analysis -Evaluating company resources and competitive capabilities – SWOT Analysis – Strategies and competitive advantages in diversified companies and its evaluation. Tools and techniques- Porter's Five Force Model, BCG Matrix, GE Model,

UNIT-III

Strategy Formulation : Strategy Framework For Analyzing Competition, Porter's Value Chain Analysis, Competitive Advantage of a Firm, Exit and Entry Barriers - Formulation of strategy at corporate, business and functional levels. Types of Strategies

UNIT-IV

Strategy Implementation : Strategy and Structure, Strategy and Leadership, Strategy and culture connection - Operationalising and institutionalizing strategy- Organizational Values and Their Impact on Strategy – Resource Allocation – Planning systems for implementation.

UNIT-V

Strategy Evaluation and control – Establishing strategic controls - Measuring performance – appropriate measures- Role of the strategist – using qualitative and quantitative benchmarking to evaluate performance - strategic information systems – problems in measuring performance – Strategic surveillance -strategic audit

References

1. P.Subba Rao: Business Policy and Strategic Management, Himalaya Publishing House, New Delhi, 2010

2. Kazmi: Strategic Management and Business Policy, Tata McGraw Hill, 2009

3. R.Srinivasn: Strategic Management, PHI Learning, New Delhi, 2009

4. Adrian Haberberg & Alison: Strategic Management, Oxford University Press, New Delhi, 2009

II Year III Semester	**OPERATIONS RESEARCH**	L	T	P	C
C-302		4	0	0	4

Course objectives:
- To introduce the fundamental concepts, scope, and history of Operations Research and it
- importance in
- decision-making and optimization.
- To familiarize students with Linear Programming (LP) models, including mathematical formulation, graphical solutions, and the Simplex method, along with artificial variable techniques.
- To develop problem-solving skills using optimization models such as Transportation, Assignment, and Travelling Salesman Problems, and understand methods for finding optimal solutions.
- To apply advanced techniques such as Dynamic Programming and Integer Programming to practical problems in capital budgeting, production planning, and resource allocation.

Course Outcomes:
- **CO1:** Understand the fundamentals, history, scope, and applications of Operations Research and Linear Programming, including graphical and simplex methods.
- **CO2:** Formulate and solve optimization problems using Transportation, Assignment, and Travelling Salesman models.
- **CO3:** Apply Dynamic Programming and Integer Programming (including Branch and Bound) in business decision-making.
- **CO4:** Analyze strategic problems using Game Theory models (pure, mixed strategies, dominance, etc.).
- **CO5:** Apply CPM, PERT techniques, and Replacement Models to project scheduling and equipment maintenance planning.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	1	0	-	-	2	1	-	-	3	2	0
CO2	3	3	3	2	2	0	-	-	2	2	-	-	3	3	1
CO3	3	3	3	3	2	0	-	-	2	2	-	-	3	3	2
CO4	3	3	2	2	1	0	-	-	2	2	-	-	3	2	1
CO5	3	3	3	2	2	1	-	-	2	2	-	1	3	3	2

Unit – I:

Importance-The History of OR-Definition-Features-Scope of Operations Research –Linear Programming: Introduction-Advantages of using LP-Application areas of LP- Formation of Mathematical modelling, Graphical method, the Simplex Method; Justification, interpretation of Significance of All Elements in the Simplex Tableau, Artificial variable techniques: Big M Method.

UNIT II:

Transportation, Assignment Models: Definition and application of the transportation model, Methods for finding initial solution-tests for optimality-variations in transportation problem, the assignment Model, Travelling Salesman Problem.

Unit – III:
Dynamic Programming – Applications of D.P. (Capital Budgeting, Production Planning, Solving Linear Programming Problem) – Integer Programming – Branch and Bound Method.

Unit – IV:
Game Theory: Introduction – Two Person Zero-Sum Games, Pure Strategies, Games with Saddle Point, Mixed strategies, Rules of Dominance, Solution Methods of Games without Saddle point – Algebraic, matrix and arithmetic methods.

Unit – V:
CPM & PERT and Replacement Model: Drawing networks – identifying critical path – probability of completing the project within given time- project crashing – optimum cost and optimum Duration. Replacement models comprising single replacement and group replacement.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any Unit.

References:
1. Winston, Operations Research, Cengage, ND
2. Anand Sharma, Operations Research, Himalaya Publishing House,
3. Kalavarthy, S.Operations Research, Vikas Publishers House Pvt Ltd.,
4. Mcleavey & Mojena, Principles of Operations Research for Management, AITBS publishers,
5. V.K.Kapoor, Operation Research Techniques for Management, Sultan Chand & Sons,
6. Richard Bronson & Govindasami Naadimuthu, SCHAUM'S OUTLINE OF THEORY & PROBLEMS OF Operations Research, 2nd Ed., Tata Mc Graw-Hill Edition,
7. JK Sharma Operation Research – Theory and Applications, MacMillan.

III SEMESTER ELECTIVES: HUMAN RESOURCE MANAGEMENT

II Year III Semester	LEARNING AND DVELOPMENT	L	T	P	C
EHR-301		4	0	0	4

Course Objectives: To understand the fundamental concepts of Learning and Development (L&D)
- To explore the evolution and strategic significance of L&D
- To examine key learning theories and instructional design models
- To develop skills in Training Needs Assessment (TNA)

Course Outcomes:
- **CO1:** Explain the concept, scope, and importance of Learning and Development in the context of organizational growth.
- **CO2:** Analyze the evolution of training and evaluate the role of L&D as a strategic business partner using concepts like Peter Senge's Learning Organization.
- **CO3:** Apply adult learning theories and instructional design models (ADDIE, SAM) to develop effective learning objectives and training content.
- **CO4:** Conduct a comprehensive Training Needs Assessment (TNA) using suitable methods and align it with organizational goals and competency mapping.
- **CO5:** Examine contemporary issues in L&D including digital transformation, gamification, mobile learning, and ethical considerations in designing inclusive training programs.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	0	1	0	-	-	-	-	-	3	2	-
CO2	3	3	2	2	2	0	1	-	-	-	-	-	3	3	-
CO3	3	2	0	2	0	2	0	-	-	-	-	-	3	2	-
CO4	3	3	1	3	2	1	1	-	-	-	-	-	3	3	-
CO5	3	3	0	2	2	2	0	-	-	-	-	-	3	3	-

Unit I:
Introduction to Learning and Development Definition, Scope and Importance of Learning and Development in Organisational growth- Evolution of Training and Development- L&D as a Strategic Business Partner- The Learning Organisation (Peter Senge's Principles)-Learning Styles.

Unit II:
Theories of Learning and Instructional Design Adult learning theories(Andragogy)- Principles of Instructional Design (ADDIE Model, SAM)-Learning Objectives (Bloom's Taxonomy)-Designing Training Content-Selecting Delivery Methods (classroom, e-learning, blended)-Role of Learning Management System(LMS).

Unit III:
Training Needs Assessment (TNA) Purpose and Importance of TNA-Process of Training Needs Identification-Organizational, Task and Person Analysis- Methods for conducting TNA (Surveys, Interviews, Focus Groups and Job Analysis)- Identifying skill gaps and competency Mapping-Aligning TNA with Business Goals.

Unit IV:
 Designing training and Evaluation of Training Effectiveness Setting training objectives-Developing training content and Materials-Selecting training methodsImportance of evaluating training programs- Methods of training evaluation- Feedback mechanisms and continuous improvement.

Unit V:

Career and Leadership Development Career Planning and development initiatives- Succession Planning and talent managementLeadership development programs-Coaching and mentoring in organizations- Contemporary issues in Learning and Development-Digital transformation, Gamification, Mobile learning, Diversity and inclusion in training programs- Ethical considerations in L&D.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

Reference Books:

1.Raymond A. Noe, Employee Training and Development, 2024, 9th Edition, McGraw-Hill Education

2. Rosemary Harrison, Learning and Development, Latest CIPD Edition (2023), Chartered Institute of Personnel and Development (CIPD), UK

3. Kathy Beevers & Andrew Rea, Learning and Development Practice in the Workplace,4th Edition (2022),Kogan Page / CIPD Publishing

4. B. Janakiram & D. Ravindra, Training and Development: Text, Research and Cases, 2nd Edition (2023), Biztantra / Dreamtech Press

II Year III Semester	PERFORMANCE AND COMPENSATION MANAGEMENT	L	T	P	C
EHR-302		4	0	0	4

Course Objectives:

- To introduce the fundamental concepts and significance of Performance Management Systems (PMS)
- To equip students with knowledge of the performance management cycle
- To develop skills in performance monitoring, coaching, and counseling
- To provide an in-depth understanding of Compensation Management
- To analyze and design effective compensation structures

Course OutComes:

- CO1: Explain the core concepts, significance, and objectives of Performance Management Systems (PMS), and differentiate between performance appraisal and performance management.
- CO2: Analyze the components of the performance management cycle including planning, monitoring, feedback, appraisal, and their strategic linkages.
- CO3: Demonstrate skills in performance monitoring, supervision, counseling, and coaching for improving individual and team performance.
- CO4: Understand the fundamentals of Compensation Management and evaluate its role as a strategic tool for employee motivation and organizational performance.
- CO5: Design and recommend compensation structures that ensure fairness, market competitiveness, and long-term employee engagement and retention.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	0	1	1	-	-	-	-	-	3	2	-
CO2	3	3	2	3	2	2	1	-	-	-	-	-	3	3	-
CO3	2	2	3	1	2	2	1	-	-	-	-	-	2	2	-
CO4	3	3	2	3	3	2	2	-	-	-	-	-	3	3	-
CO5	3	3	3	3	3	2	2	-	-	-	-	-	3	3	-

Unit- I:

Introduction to Performance Management- Definition-Significance-Objectives-Evaluation of Performance Management Systems (PMS)-Distinction between performance appraisal and performance management- Key Performance Areas(KPAs) and Key Result Areas(KRAs)-
Performance Standards and goal setting-Competency Mapping and assessment- strategies for Effective performance management.

Unit- II:

Performance Management Cycle: Performance Planning –Performance monitoring and feedback- Performance Appraisal and Evaluation- Performance review and DevelopmentTools and Techniques of Performance Appraisal. Planning Individual Performance- Strategic Planning –Linkages to strategic planning- Barriers to performance planning.

Unit-III:

Performance Monitoring and Counseling: Supervision- Objectives and Principles of

Monitoring- Monitoring Process- Periodic reviews- Problem solving- engendering trust -Role efficiency- Coaching- Counseling and Monitoring- Concepts and Skills.

UNIT -IV:

Compensation Management: Concept and definition – objectives and dimensions of Compensation Management-Components of Compensation – factors influencing compensation –Role of compensation and Reward in Modern Organizations Compensation as a Retention strategy- aligning compensation strategy with business strategy -Theoretical Foundations of Compensation.

UNIT V:

Compensation Structure: Developing salary structures and pay grades- Market based pay structuresInternal equity and external competitiveness- Executive Compensation- Components and design of executive pay packages- long – term incentives and executive compensation. Incentive plans and benefits- Employee benefits and services. Linking compensation to employee engagement and retention.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References

1. Prem Chadha: ―Performance Management‖, Macmillan India, New Delhi, 2008.

2. Michael Armstrong & Angela Baron, ―Performance Management‖: The New Realities, Jaico Publishing House, New Delhi, 2010.

3. T.V.Rao, ―Appraising and Developing Managerial Performance‖, Excel Books, 2003.

4. David Wade and Ronad Recardo, ―Corporate Performance Management‖, Butter Heinemann, New Delhi, 2002.

5. Dewakar Goel: ―Performance Appraisal and Compensation Management‖, PHI Leaarning, New Delhi, 2009

6. A.M. Sarma ―Performance Management Systems‖ Himalaya Publishing House, New Delhi, 2010.

II Year III Semester	STRATEGIC HUMAN RESOURCE MANAGEMENT	L	T	P	C
EHR-303		4	0	0	4

CourseObjectives:

- UnderstandtheconceptandsignificanceofSHRM.
- ApplySHRMprinciplestoalignHRstrategywithbusinessgoals.
- EvaluatetheroleofHRanalyticsinstrategicdecision-making.
- FormulateHRstrategiesfortalentmanagement,performancemanagement,andorganizational development.
- Assess the impact of global trends and challenges on SHRM practices.

Course outcomes:

- **CO1:** Explain the principles, importance, and theoretical approaches to Strategic Human Resource Management (SHRM), including the concept of strategicfit. AligningHRstrategywithbusinessstrategy.
- **CO2:** Analyze the components and models of Strategic Human Resource Planning and evaluate their relevance at various organizational levels.
- **CO3:** Apply strategic implementation concepts by assessing HR's role in workforce utilization, retention, and performance strategies.
- **CO4:** Evaluate Strategic Human Resource Development (SHRD) plans and propose effective training and development strategies for HRD effectiveness.
- **CO5:** Examine methods for evaluating traditional and emerging HR functions, and critically assess HR's strategic contributions including HR as a profit center and outsourcing strategy.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P-08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	3	1	1	1	-	-	-	-	-	3	2	-
CO2	3	3	2	3	2	2	1	-	-	-	-	-	3	3	-
CO3	3	2	3	3	2	2	2	-	-	-	-	-	3	3	-
CO4	3	3	2	3	2	2	2	-	-	-	-	-	3	3	-
CO5	3	3	2	3	3	2	3	-	-	-	-	-	3	3	-

UNIT-I

Human Resource Strategy: Introduction to Strategic Human Resource Management - Evaluation objectives and Importance of Human Resources Strategy- Strategic fit – A conceptual framework - Human Resources contribution to strategy - Strategy driven role behaviors and practices – Theoretical Perspectives on SHRM approaches.

UNIT-II

Strategic Human Resource Planning: Objectives, benefits, levels of strategic planning -Activities related to strategic HR Planning-Basic overview of various strategic planning models-Strategic HR Planning model-Components of the strategic plan.

UNIT-III

strategy Implementation: Strategy implementation as a social issue-The role of Human ResourceWork force utilization and employment practices-Resourcing and Retention strategies-Reward and Performance management strategies.

UNIT-IV

Strategic Human Resource Development: Concept of Strategic Planning for HRD Levels in Strategic HRD planning-Training and Development Strategies-HRD effectiveness.

UNIT-V

Human Resource Evaluation: Overview of evaluation - Approaches to evaluation, Evaluation Strategic contributions of Traditional Areas - Evaluating Strategic Contribution of Emerging Areas-HR as a Profit centre and HR outsourcing strategy.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:

1. Charles R. Greer: "Strategic Human Resource Management" - A General Manager Approach - pearson Education, Asia

2. Fombrum Charles & Tichy: "Strategic Human Resource Management" - John Wiley Sons, 1984

3. Dr. Anjali Ghanekar "Strategic Human Resource Management" Everest Publishing House, Pune 2009

4. Tanuja Agarwala "Strategic Human Resource Management" Oxford University Press, New Delhi   2014   www.universityupdates.in ||www.android.universityupdates.inwww.ios.universityupdates.in   www.universityupdates.in || www.android.universityupdates.in ||
www.ios.universityupdates.in University Updates

5. Srinivas R Kandula "Strategic Human Resource Development" PHI Learning PVT Limited, New Delhi 2009

6. Dreher, Dougherty "Human Resource Strategy" Tata Mc Graw Hill Publishing Company Limited, New Delhi 2008

II Year III Semester	TALENT ACQUISITION AND MANAGEMENT	L	T	P	C
EHR-304		4	0	0	4

CourseObjective:

- To facilitate students in developingin sights and understanding of effective management and development of talent in teams and organizations.

Course Outcomes:

- **CO1:** Explain the concepts, scope, and importance of Talent Management and Talent Acquisition, including workforce planning and global challenges.
- **CO2:** Analyze job analysis methods, competency-based profiling, and employer branding strategies including Employee Value Proposition (EVP).
- **CO3:** Compare and apply various sourcing and recruitment strategies including social media, AI-based recruitment, talent pools, and RPO.
- **CO4:** Evaluate selection tools and onboarding practices while understanding legal, ethical, and diversity considerations in hiring.
- **CO5:** Use recruitment metrics and analytics tools to assess the effectiveness of talent acquisition processes and future trends like AI, automation, and DEI.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P-08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	1	1	-	-	-	-	-	3	2	-
CO2	3	3	2	3	2	2	1	-	-	-	-	-	3	3	-
CO3	3	2	3	3	2	2	2	-	-	-	-	-	3	3	-
CO4	3	3	3	3	3	2	3	-	-	-	-	-	3	3	-
CO5	3	3	3	3	3	3	3	-	-	-	-	-	3	3	-

Unit I:

Introduction to Talent Acquisition: Definition and Scope of Talent and Talent Management, Importance of Talent Management, historical context of talent management, Challenges and Dilemmas, Workforce Planning and forecasting. Talent acquisition in the context of globalization and gig economy.

Unit II:

Job Analysis and Employer Branding: Job Analysis-Process-Methods. Job description and Job Specification. Competency based job profiling- Employer Branding-Concepts, strategies and best practices. Employee Value Proposition(EVP).

Unit III:

Sourcing and Recruitment Strategies: Internal Vs External Sourcing-Recruitment MethodsSocial media recruitment –Use of AI and HR analytics in sourcing- Talent pools and PipelinesRecruitment Process Outsourcing (RPO).

Unit IV:

Selection and Onboarding: Selection tools-Resumes, Application forms, Interviews (Types), Psychometric Tests-Assessment Centers, Group Discussions, Case Interviews-Reference & background checks-Legal and ethical issues in selection-Effective onboarding practices – strategic importance and design. Diversity and Talent. Talent management and future directions

Unit V:

Metrics and Evaluation in Talent Acquisition: Key Recruitment Metrics-Cost per hire, Time to fill, Quality of hire, Offer acceptance rate. Recruitment Analytics and Dashboards. Retention vs Acquisition. Future of Talent Acquisition – AI, Automation, Remote hiring, DEI in hiring

Suggested Readings:

1. Collings, D.G., Mellahi, K. &Cascio, W.F. (2017). The Oxford Handbook of Talent Management: Oxford University Press.
2. Wilcox, M. (2016). Effective Talent Management: Aligning Strategy, People and Performance. Routledge.
3. Sparrow, P., Scullion, H. &Tarique, I. (eds) (2014) Strategic Talent Management: Contemporary Issues in Global Context. Cambridge: Cambridge University Press.
4. Sparrow, P., Hird, M., and Cooper, C.L. (2015).

II Year III Semester	INVESTMENT AND PORT FOLIO MANAGEMENT	L	T	P	C
EFM-301		4	0	0	3

CourseObjective:
- Provides a broad overview of investment management, focusing on the application of Finance theory to the issue faced by portfolio managers and investors in general and
- To provide conceptual foundation for the purpose of undertaking Investment analysis for securities as well as portfolios.

CourseOutcomes:
- **CO1:** Distinguish between various forms of investment and understand the investment environment and process in India, including primary and secondary markets.
- **CO2:** Calculate and interpret returns and risks of securities, and apply valuation techniques for bonds, preference shares, and equity shares.
- **CO3:** Conduct fundamental and technical analysis and evaluate their relevance, including an understanding of Efficient Market Hypothesis.
- **CO4:** Apply key portfolio models such as Markowitz, Sharpe Single Index, CAPM, and APT to construct and optimize investment portfolios.
- **CO5:** Evaluate the performance of investment portfolios and mutual funds using models such as Sharpe, Treynor, Jensen's, and Fama Decomposition.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P-08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	1	1	-	-	-	-	-	3	2	-
CO2	3	3	2	3	3	2	1	-	-	-	-	-	3	3	-
CO3	3	3	2	3	3	2	1	-	-	-	-	-	3	3	-
CO4	3	3	2	3	3	2	2	-	-	-	-	-	3	3	-
CO5	3	3	2	3	3	2	2	-	-	-	-	-	3	3	-

Unit-I:

Concept of Investment: Investment Vs Speculation, and Security Investment Vs Non- Security Forms of Investment-Investment Environment in India. Investment Process - Sources of Investment Information, Security Markets – Primary and Secondary – Types of securities in Indian Capital Market, Market Indices. Calculation of SENSEX and NIFTY.

Unit-II:

Return and Risk: Meaning and Measurement of Security Returns. Meaning and Types of Security Risks: Systematic Vs Non-systematic Risk. Measurement of Total Risk - Intrinsic Value Approach To Valuation of Bonds - Preference Shares and Equity Shares.

Unit-III:

Fundamental Analysis: – Economy, Industry and Company Analysis, Technical Analysis – Concept and Tools and Techniques Analysis – Technical Analysis Vs Fundamental Analysis - Efficient Market Hypothesis; Concept and Forms of Market Efficiency.

Unit-IV:

Elements of Portfolio Management: - Portfolio Models – Markowitz Model, Efficient Frontier and Selection of Optimal Portfolio. Sharpe Single Index Model and Capital Asset Pricing Model, Arbitrage Pricing Theory.

Unit-V:

Performance Evaluation of Portfolios: - Sharpe Model –Treynor -Jensen's Model- Fama Decomposition - Evaluation of Mutual Fund.

Suggested Readings:

1. Fisher DE and Jordon RJ, Security Analysis and Portfolio Management, PHI, New Delhi
2. Ambika Prsasad Dash, Security Analysis and Portfolio Management, IK Int Pub House, New Delhi (Established by Govt. of A.P., ACT No.30 of 2008)
3. Satyanarayana, Security Analysis and Portfolio Management, Discovery Publishing House, New Delhi
4. Hirt and Block, Fundamentals of Investment Management, Tata Mc Graw Hill, New Delhi
5. Reily Frank K, Investment Analysis and Portfolio Management, Cengage, New Delhi
6. Bodie,Kane,Marcus and Mohanty, Investments, TataMcGraw Hill, New Delhi
7. Peter Lynch, One Up on Wall Street, Simon & Schuster Paperbacks, New York
8. Sharppe W, Alexander,GJ., & Baily JV., Investments, TMH, New Delhi
9. Avadhani, VA, SAPM, Himalaya Publishers.
10. Bhalla, VK Investment Management, S.Chand., New Delhi
11. Preeti Singh, Investment Management, Himalaya Publishers.
12. Timothy Vick, How to Pick Stocks like Warren Buffett, TMH, New Delhi

II Year III Semester	FINANCIAL MARKETS AND SERVICES	L	T	P	C
EFM-302		4	0	0	3

CourseObjectives:
- Evaluate empirical evidence of market performance, and contrast it with theories of market performance.
- Researchandanalyzespecificproblemsorissuesrelatedtofinancialmarketsand institutions.
- Exploringtheinternationalintegrationofinternationalfinancialmarketsandanalyzesthe implications for financial managers.

CourseOutcomes:
- **CO1:** To familiarize with the Indian financial system through knowing the types of various financial institutions, instruments and financial markets.
- **CO2:** To understand the various constituents of capital markets,functioning of capital markets and regulatory mechanisms associated with capital markets.
- **CO3:** To understand the various types of Financial Services and to appreciate the role of financial services in economic development.
- **CO4:** To understand the various types of Non-Banking Financial Companies(NBFCs) and to appreciate the role of financial services in economic development.
- **CO5:** To know various legislations relating with financial sector and there commendations of various committees suggesting finical reforms.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	1	1	1	-	-	-	-	-	3	2	-
CO2	3	3	2	2	2	2	1	-	-	-	-	-	3	3	-
CO3	2	3	3	2	2	2	1	-	-	-	-	-	3	3	-
CO4	2	2	3	3	2	2	1	-	-	-	-	-	3	3	-
CO5	3	3	3	3	3	2	2	-	-	-	-	-	3	3	-

UNIT 1
Structure of Financial System: Role of Financial System in Economic Development –
Financial Markets and Financial Instruments – Capital Markets – Money Markets –
Primary Market Operations – Role of SEBI – Secondary Market Operations –
Regulation Functions of Stock Exchanges – Listing – Formalities – Financial Services Sector
Problems and Reforms.

UNIT 2
Financial Services: Concept, Nature and Scope of Financial Services – Regulatory Frame
Work of Financial Services – Growth of Financial Services in India – Merchant Banking –
Meaning- Types – Responsibilities of Merchant Bankers – Role of Merchant Bankers in
Issue Management – Regulation of Merchant Banking in India.
UNIT 3
Venture Capital: Growth of Venture Capital in India – Financing Pattern under Venture
Capital – Legal Aspects and Guidelines for Venture Capital, Leasing – types of Leases –

Microfinance models: Generic models viz. SHG, Grameen, and Co- operative, variants SHG   NABARD model, SIDBI model, SGSY model, Grameen Bangladesh model, credit unions.

UNIT 4

Credit Rating: Meaning, Functions – Debt Rating System of CRISIL, ICRA and CARE.

Factoring, Forfeiting and Bill Discounting – Types of Factoring Arrangements – Factoring

in the Indian Context;

UNIT 5

Mutual Funds: Concept and Objectives, Functions and Portfolio Classification,

Organization and Management, Guidelines for Mutual Funds, Working of Public and

Private Mutual Funds in India. Debt Securitization – Concept and Application – De-mat

Services-need and Operations- role of NSDL and CSDL.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

Suggested Readings:

1) Bhole & Mahakud, Financial Institutions and Market, TMH, New Delhi

2) Satyanarayana, Financial Markets and Services Discovery Publishing House, New Delhi

3) V.A.Avadhani, Marketing of Financial Services, Himalayas Publishers, Mumbai

4) DK Murthy, and Venugopal, Indian Financial System, IK Int Pub House

5) Anthony Saunders and MM Cornett, Fin Markets & Institutions,TMH,

6) Edminister R.D., Financial Institution, Markets and Management.

7) Punithavathy Pandian, Financial Markets and Services, Vikas, New Delhi

8) Vasanth Desai, Financial Markets & Financial Services, Himalaya, Mumbai

II Year III Semester	TAXATION MANAGEMENT	L	T	P	C
EFM-303		4	0	0	3

CourseObjective:

- This course aims atteaching Indian tax system, various heads of in come and tax planning with reference to salaried persons.
- Students will also get an overview of income tax department's website and how to file a return.
- Students will learn legal ways of minimizing tax liability by making use of various tax exemptions and deductions.

CourseOutcomes:

- CO1: Understand the fundamental principles of taxation, distinguish between direct and indirect taxes, and explain the provisions of the Income Tax Act, 1961.
- CO2: Apply provisions related to income tax deductions, rebates, reliefs, and compute taxable income and tax liability for individuals.
- CO3: Analyze tax planning provisions for firms, Hindu Undivided Families (HUFs), and Associations of Persons (AOPs), including deductions, partner remuneration, and loss carry-forwards.
- CO4: Compute corporate tax liability, apply MAT provisions, and evaluate tax implications of business restructuring such as amalgamations and demergers.
- CO5: Demonstrate knowledge of tax audit requirements, qualifications of tax auditors, and understand tax reporting and disclosures in financial statements.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P-08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	0	1	0	1	-	-	-	-	-	2	1	-
CO2	2	3	2	1	2	1	1	-	-	-	-	-	2	2	-
CO3	2	3	3	2	2	1	1	-	-	-	-	-	3	2	-
CO4	3	2	3	3	2	2	1	-	-	-	-	-	2	3	-
CO5	3	2	2	1	2	3	2	-	-	-	-	-	3	2	-

Unit –I:
General Principles of Tax – Direct and Indirect Taxes – State Power to Levy Tax – Tax System – Provisions of Income Tax Act 1961 – Finance Act – Basic Concepts.

Unit- II:
Direct tax system:-Income Tax – Deductions, Computation, Payment and Accounting-deductions from Gross Total Income, Rebates and Reliefs and Computation of Taxable Income and Tax Payable, Filing of Income Tax Returns – Provisions, Forms and Due

Dates, Notices and Assessments.

Unit III:
Tax Planning for Firms, HUFs and AOPs- partnership firm under Income Tax Law, tax deductions available to firms, Provisions relating to interest and remuneration paid to partner, Computation of partnership firms 'book profit, Set-off and carry-forward of losses of Firms and taxation of HUFs and Associations of Persons (AOPs).

Unit IV:

Corporate Taxation- Computation of taxable income, Carry-forward and set-off of losses for companies, Minimum Alternative Tax (MAT), Set-off and Carry-forward of Amalgamation Losses, Tax Planning for Amalgamation, Merger and Demerger of Companies, Tax Provisions for Venture Capital Funds

Unit V:

Tax Audit and Accounting for Income Tax - Tax Audit, Qualities and Qualifications Required in Tax Auditors, Forms, Reports and Returns and Tax Reporting and Disclosure in Financial Statements

Suggested Readings:

1. Dr. V.K. Singhania & Dr. Kapil Singhania, Direct Taxes Law and Practice,
Taxman Publications Pvt. Ltd., New Delhi.
2. Bhagavati Prasad, Direct Taxes Law and Practice, Wishwa Prakashan, New Delhi.
3. Dinkar Pagare, Income Tax and Practice, Sultan Chand and Sons, New Delhi.

II Year III Semester	BANKING INSTITUTIONS AND FINANCIAL REFORMS	L	T	P	C
EFM-304		4	0	0	3

CourseObjectives:

- TointroducestudentstotheIndianfinancialsystem&Bankingsystem
- Toenrichstudent'sunderstandingofthefundamentalconceptsandbankingreforms
- Toequipstudentswiththeknowledgeandskillsnecessarytobecomeemployableinthe   Banking sector.

Courseoutcomes:

- **CO1:** Understand the structure, components, and evolution of the Indian financial system and evaluate the role of RBI in financial regulation.
- **CO2:** Explain the organizational structure and functions of RBI, commercial banks, and NBFCs, and interpret relevant banking laws and policies.
- **CO3:** Analyze the role and functions of development financial institutions like IDBI, IFCI, SIDBI, LIC, and their contribution to capital markets.
- **CO4:** Examine the role and operations of new-generation private and foreign banks, depositories, and instruments like equity, debt, and their regulatory framework.
- **CO5:** Evaluate the recent financial sector reforms including those in banking, foreign exchange, debt markets, monetary policy, and emerging regulations on crypto currencies.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P-08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	0	0	0	0	1	-	2	0	-	-	3	2	-
CO2	3	2	1	0	0	0	1	-	2	1	-	-	3	2	-
CO3	2	2	2	0	1	0	0	-	2	1	-	-	2	2	-
CO4	2	3	2	1	1	0	0	-	3	1	-	-	3	3	-
CO5	2	3	3	1	2	1	0	-	3	2	1	-	3	3	-

Unit – I:

Financial System in India: Introduction - Evolution of Banking - Phases of development - RBI and the Financial System - Committees on Banking Sector Reforms - Prudential Banking -- RBI Guidelines and directions- financial sector reforms.

Unit – II:

 Banking system:- Organization, Structure and Functions of RBI and Commercial
Banks: Introduction - Origination, Structure and Functions of RBI and Commercial Banks - Role of RBI and Commercial Banks - Lending and Operation policies - Banks as Intermediaries - NBFCs - Growth of NBFCs - FDI in Banking Sector - Banking Regulations - Law and Practice.

Unit – III:

Financial Institutions and Development Banking : Introduction - Origin, Growth
and Lending Policies of Terms lending Institutions - Working of IDBI - IFCI - STCs - SIDBI - LIC - GIC - UTI - Role of Financial Institutions in Capital Market.

Unit – IV:

New Financial Instruments and Institutions: Private Banks - Old generation and New generation private banks - Foreign Banks - NSE - Depositories - DFHI - New Equity and Debt Instruments - SEBI and RBI guidelines.

Unit – V:

Financial sector reforms: Reforms in banking sectors – Reforms in Debt market – reforms in foreign exchange market –Monetary reform- currency reforms – crypto currency regulations

Suggested Readings:

1. Koch W Timothy and Scott S Macdonald, "Bank Management" Thomson (South Western), Bangalore 2005 (Text Book)
2.Khan M Y., "Indian Financial System", Tata Mc Graw Hill, New Delhi, 2004
3. Srivastava, RM ., "Management of Indian Financial Institutions", Himalaya Publishing House, Mumbai, 2005
4. Avadhani V A., "Investments and Securities Markets in India", Himalaya Publishing House, Mumbai, 2004
5. Srinivasan NP and Saravanavel, P., "Development Banking in India and Abroad", Kalyani Publications, Ludhiyana, 2001

II Year III Semester	CONSUMER BEHAVIOR	L	T	P	C
EMM-301		4	0	0	3

CourseObjective:

- Thiscourseisaimedatunderstandingtheconsumerbehaviorunder different circumstances and its implications on marketers to achieveorganizational success.

Course Outcomes:

- **CO1:** Understand the evolution, scope, and models of consumer behavior including black box and decision-making models.
- **CO2:** Analyze the psychological factors affecting consumer behavior such as motivation, perception, personality, learning, and attitude.
- **CO3:** Evaluate the influence of social, cultural, demographic, and reference groups on consumer decision-making.
- **CO4:** Interpret various stages of the consumer decision-making process and examine factors like involvement, loyalty, and innovation adoption.
- **CO5:** Demonstrate awareness of consumer rights and responsibilities, and explain the legal and institutional framework for consumer protection in India.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	3	1	2	1	3	2	3	-	3	2	-
CO2	2	3	2	2	1	2	2	3	2	2	3	-	2	3	-
CO3	2	3	2	1	2	2	1	2	2	3	1	-	2	3	-
CO4	3	3	2	2	3	1	2	3	2	3	2	-	3	3	-
CO5	3	2	3	2	3	3	2	2	2	3	3	-	3	2	-

UNIT I –

Introduction to Consumer Behavior: Understanding consumers and market segments, Evolution of consumer behavior, Models of Buyer Behavior, Consumer Black box model – Howard Model, Howard- Sheth Model, Webster and Wind Model.

UNIT II –

Consumer as an individual - Psychological Foundations of Consumer Behavior: Consumer Motivation, Perception, Personality and Behavior, Learning and Behavior Modification, Information Processing, Memory Organization and Function, Attitude Formation and Attitude Change.

UNIT III –

Consumer in social context: Social and Cultural Environment, Economic,Demographic, Cross Cultural and Socio–Cultural Influences, Social Stratification, Reference Groups and Family influences.

UNIT IV –

Consumer as decision maker: Consumer decision making process - High and Low Involvement - Pre-purchase Processes, Post Purchase processes, Consumption and

evaluation, Brand Loyalty and Repeat Purchase Behavior - Diffusion of innovation - Communication and Consumer Behavior –Designing persuasive communication.

UNIT V –

Consumerism: The roots of consumerism – Consumer safety – consumer privacy –- consumer information, legislative responses to consumerism and marketer responses to consumer issues – consumer protection act, 1986 – Central consumer protection council – state consumer protection councils, consumer disputes redressal agencies, consumer disputes redressal forum, National Consumer Disputes Redressal Commission.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

REFERENCES:

1. Leon G. Schiffman, Joseph Wisenblit, S. Ramesh Kumar, Pearson India, 2016

2. Ramneek Kapoor, Nnamdi O Madichie: "Consumer Behavior" Text and Cases", TMH, NewDelhi, 2012.

3. Ramanuj Majumdar: "Consumer Behavior insight from Indian Market", PHI Learning, New Delhi, 2011

4. David L Loudon and Albert J Della Bitta, "Consumer Behavior" 4/e, TMH, New Delhi, 2002

5. M.S.Raju: "Consumer Behavior Concepts, applications and Cases", Vikas Publishing House, New Delhi, 2013.

II Year III Semester	RETAIL MARKETING	L	T	P	C
EMM-302		4	0	0	3

Course Objectives:
- Tounderstandtheconcept,processandmanagementofretailbusiness
- Todevelopanunderstandingoftheretailstrategyandplanningprocess,and
- Tohaveanunderstandingofmerchandiseprocess

Course Outcomes:
- **CO1:** Understand the fundamental concepts of retailing, types of retail formats, and trends in Indian retail.
- **CO2:** Analyze the process of store location selection, layout design, and visual merchandising.
- **CO3:** Evaluate merchandise planning, budgeting, pricing strategies, and vendor relations.
- **CO4:** Evaluate merchandise planning, budgeting, pricing strategies, and vendor relations.
- **CO5:** Examine the impact of globalization and new retail formats in the evolving retail industry.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	-	-	-	-	-	-	-	3	2	-
CO2	2	3	2	2	1	-	-	-	-	-	-	-	3	2	-
CO3	2	3	3	2	2	-	-	-	-	-	-	-	2	3	-
CO4	2	2	2	3	3	-	-	-	-	-	-	-	2	2	-
CO5	2	2	3	3	3	-	-	-	-	-	-	-	3	3	-

UNIT – I :

An overview of Retailing - Types of stores - Product Retailing vs. Service Retailing – Non store Retailing - Retail strategy - Achieving competitive advantage and positioning

Retailing environment - Legal, Social, Economic, Technological, issues - Trends in the Indian Retailing Industry.

UNIT-II :

Retail store location and layout - Country/Region analysis - Trade area analysis - Site evaluation and selection - Store design and layout - Comprehensive store planning - Exterior design and layout - Interior store design and layout – visual merchandising – elements of visual merchandising.

UNIT-III :

Planning merchandise needs and merchandise budgets - Methods for determining inventory evaluation - Assortment planning, buying and vendor relations - Merchandise pricing - Price strategies - Psychological pricing - Mark-up and markdown strategies.

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UNIT-IV :

Communicating with the retail customer - Retail promotion mix-Advertising - Sales promotion - Publicity – Push and Pull strategies in retailing - Retail selling process - Retail database- In-store customer service.

UNIT – V :

Globalization and changing retail formats – Online retailing - International Retailing – Opportunities and Challenges - Market entry formulas - New customized formats

(customized stores, portable stores, merchandise depots, retail theatre, service malls, customermade stores, interactive kiosk 'shopping arcades')

REFERENCES

1. Chetan Bajaj, Tuli & Srivastava, RETAIL MANAGEMENT, Oxford University Press, New Delhi.2010

2. Giridhar Joshi, INFORMATION TECHNOLOGY FOR RETAIL, Oxford University Press, New Delhi.2009 Swapna Pradhan, RETAIL MANAGEMENT, TEXT & CASES, Tata McGraw-Hill Publshing company, New Delhi, 2008

3. Ron Hasty and James Reardon, RETAIL MANAGEMENT. McGraw-Hill Publication,

International Edition. Fernie, PRINCIPLES OF RETAILING, Elsevier Publishing, 2010.

II Year III Semester	CUSTOMER RELATIONSHIP MANAGEMENT	L	T	P	C
EMM-303		4	0	0	3

Course Objectives:

- The objective of this course is to provide students with a comprehensive understanding of Customer Relationship Management (CRM) as a strategic tool to enhance customersatisfaction,loyalty,andlong-termprofitability.
- Thecourseaimstoequiplearners with knowledge of CRM principles, technologies, and practices that help businesses acquire, retain, and grow their customer base.

Course Outcomes:

- **CO1:** Understand the fundamentals of Customer Relationship Management and its strategic importance in the business context.
- **CO2:** Analyze the processes of customer acquisition, retention, and relationship building using CRM frameworks.
- **CO3:** Apply knowledge of database management, data warehousing, and mining in CRM systems and call center operations.
- **CO4:** Evaluate the use of Sales Force Automation (SFA) and its integration with CRM to improve marketing channel performance.
- **CO5:** Examine current trends, ethical considerations, and strategic implementations of e-CRM in both B2B and B2C environments.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	1	-	-	-	-	-	-	3	2	-
CO2	3	3	2	2	2	1	-	-	-	-	-	-	3	2	-
CO3	2	3	3	2	2	1	-	-	-	-	-	-	2	3	-
CO4	2	2	3	3	2	2	-	-	-	-	-	-	3	2	-
CO5	2	3	3	2	3	2	-	-	-	-	-	-	3	3	-

Unit – I

Customer Relationship Management Fundamentals: Definition and Significance of CRM – Critical success factors for a winning CRM program – Emergence of CRM practice – CRM Strategy, Stages of relationship – Issues of relationship – CRM cycle – Customer Life Time Value – 7 C's of CRM - Application areas.

Unit – II

Building Customer Relationship Management and CRM Implementation: Requisites for Effective Customer acquisition – Customer Knowledge Management for Effective CRM – Customer Retention Process – Strategies to Prevent Defection and Recover Lapsed Customers –

CRM framework for Implementation – Implementing CRM process – The dynamics of Relationships, The relationship oriented organization - Integration of CRM with ERP System – Barriers to effective CRM – Gartner's Competency model of CRM.

Unit – III

Functional Components of CRM: Database Management in CRM – Relationship data management-Database Construction – Data Warehousing – architecture of Data Warehousing - Data Mining Characteristics – Data Mining tools and techniques – Meaning of Call Centre – Significance and Advantages of Call Centre – Multimedia Contact Centre - Important CRM software for Multimedia Contact Centre

Unit – IV

Sales Force Automations (SFA): Definition and need of Sales Force Automation – Barriers to successful Sales Force Automation – functionality and technological aspect of Sales Force Automation – data synchronization – flexibility and performance – Impact of CRM on Marketing Channels – Meaning – How does the traditional distribution channel structure support customer relationship – Influence of the channels on pricing and the formation of relationships – The relationship policy to improve size, quality and relationship with the customer base - emerging channel trends that impact CRM

Unit – V

Trends and Issues in CRM: CRM in e- business (B2B & B2C) – Measuring the

Effectiveness of CRM – Factors Influencing the future of CRM – E-CRM in Business Features of e-CRM – Advantages of e-CRM. The best CRM implementation strategies –Privacy and ethics Consideration in CRM implementation.

REFERENCES:

1. V. Kumar Werner Reinartz – Customer Relationship Management - Concept, Strategy, and Tools Third Edition – springer

2. Ed Peelen: "Customer Relationship Management" Pearson, Education

3. Roger J Baran, Robert J Galka and Daniel P Strunk: "Customer Relationship Management" Cengage learning

4. S.Shanmuga sundaram: "Customer Relationship Management" Prentice Hall of India.

5. Alok Kumar, Chabbi Sinha & Rakesh Kumar – Customer Relationship Management: Concepts and application – Biztantra, Delhi,2007

6. H. Peeru Mohammad, A/ Sagadevan – Customer Relationship Management – A step by step approach, Vikas publishing house Pvt. Ltd, Delhi, 2008

II Year III Semester	ADVERTISEMENT AND BRANDMANAGEMENT	L	T	P	C
EMM-304		4	0	0	3

Course Objective:
- Expose the students to the dynamism of advertising and brand management and equip them to be able to manage the advertising and branding activities in the business scenario.

Course Outcomes:
- **CO1:** Understand the fundamentals of advertising, communication models, and the decision-making process in setting advertising objectives and budgets.
- **CO2:** Develop effective advertising campaigns by designing compelling ad messages, copy, layouts, and selecting appropriate media and schedules.
- **CO3:** Analyze advertising organization structures, evaluate advertising effectiveness, and understand the branding concepts including brand equity and loyalty.
- **CO4:** Apply strategies for brand identity creation, brand positioning, rebranding, brand extensions, and managing brand portfolios.
- **CO5:** Manage brand equity and loyalty in various sectors, develop international branding strategies, and understand the role of internet branding and global branding dynamics.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	1	0	1	-	-	2	1	-	-	3	2	-
CO2	2	3	2	2	1	1	-	-	2	2	1	-	2	3	-
CO3	2	2	3	1	2	1	-	-	2	1	1	-	3	3	-
CO4	1	2	2	2	2	2	1	-	3	2	0	1	2	2	-
CO5	2	1	2	1	1	1	-	1	2	2	0	-	2	3	-

Unit I –
Basics of Advertising: definition importance and nature; Communication model; Persuasion Process – perception, learning and attitude change and their impact on advertisements; Major advertising decisions and influencing factors; Determining advertising Objectives and budget.

Unit II –
Developing Advertising Campaign: Determining advertising message and copy - Headline, body copy, logo, illustration and layout; Creative styles and advertising appeals; Media planning – media selection and scheduling.

Unit III –
Organization and Evaluation of Advertising Efforts: In-house arrangements; Using advertising agencies – selection, compensation and appraisal of advertising agency; Evaluating Advertising Effectiveness. Branding concepts - definition of brand, Importance of branding Brand personality, brand image, brand identify, brand equity and brand loyalty; Product vs.Corporate branding: Major branding decisions.

Unit IV –

Identifying and selecting brand name Building brand personality, image and identity; Brand positioning and re-launch; Brand extension; Brand portfolio; communication for branding Enhancing brand image through sponsorship and even management.

Unit V –

Managing Brand Equity and Loyalty: Brand Building in Different Sectors - Customers,industrial, retail and service brands. Building brands through Internet. Developing International Brands: Pre-requisites and process; Country-of-origin effects and global branding; Building Indian brands for global markets.

REFERENCE:

1. S.H.H Kazmi and SatishK.Batra : Advertising and sales promotion, Excel books
    Cowley. D: Understanding Brands, ,Kogan Page Ltd
2. George E.Belch& Michael A. Balch : Advertising and Promotion, TMH
3. Aaker, Myers &Batra : Advertising Management , Prentice Hall.
4. Wells,Moriarity&Burnett : Advertising Principles & practices , Prentice Hall.

II Year III Semester	DATAMINING & DATAWARE HOUSING	L	T	P	C
ESY-301		3	0	0	3

CourseObjectives

The main objective of the course is to

- Introducebasicconceptsandtechniquesofdatawarehousinganddatamining
- Examinethetypesofthedatatobeminedandapplypre-processingmethodsonraw data
- Discover interesting patterns, analyse supervised and unsupervised models and estimatethe accuracy of the algorithms.

Course Outcomes:

- **CO1:** Understand the basic concepts of data warehousing, OLAP, data cube modeling, and their applications in business intelligence.
- **CO2:** Apply data preprocessing techniques such as cleaning, integration, reduction, transformation, and discretization to prepare data for mining.
- **CO3:** Analyze various classification techniques including decision trees, Bayesian methods, and rule-based approaches for solving classification problems.
- **CO4:** Implement association rule mining techniques such as Apriori and FP-Growth for discovering frequent patterns from transactional datasets.
- **CO5:** Evaluate clustering techniques such as K-means, Hierarchical Clustering, and DBSCAN for effective grouping and pattern discovery in data.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	2	1	-	-	-	-	-	2	3	-	-
CO2	3	3	2	-	2	1	-	-	-	-	-	3	2	2	-
CO3	3	3	3	2	2	1	-	-	-	-	-	3	3	3	-
CO4	3	2	3	-	3	2	-	-	-	-	-	3	2	2	-
CO5	3	3	3	2	3	1	-	-	-	-	-	3	2	3	-

UNIT–I:

Data Warehousing and Online Analytical Processing: Basic concepts, Data Warehouse Modeling: Data Cube and OLAP, Data Warehouse Design and Usage, Data Warehouse Implementation, Cloud Data Warehouse, Data Mining and Patten Mining,Technologies, Applications, Major issues, Data Objects & Attribute Types, Basic Statistical Descriptions of Data, Data Visualization, Measuring Data Similarity and Dissimilarity. (Text Book- 1)

UNIT II:

Data Preprocessing: An Overview, Data Cleaning, Data Integration, Data Reduction, Data Transformation and Data Discretization. (Text Book- 1)

UNIT–III:

Classification: Basic Concepts, General Approach to solving a classification   problem, Decision Tree Induction: Attribute Selection Measures, Tree Pruning, Scalability and Decision Tree Induction, Visual

Mining for Decision Tree Induction, Bayesian Classification Methods: Bayes Theorem, Naïve Bayes Classification, Rule-Based Classification, Model Evaluation and Selection. (Text Book- 2)

UNIT–IV:

Association Analysis: Problem Definition, Frequent Itemset Generation, Rule Generation: Confident Based Pruning, Rule Generation in Apriori Algorithm, Compact Representation of frequent item sets, FP-Growth Algorithm. (Text Book- 2)

UNIT–V:

Cluster Analysis: Overview, Basics and Importance of Cluster Analysis, Clustering   techniques, Different Types of Clusters; K-means: The Basic K-means Algorithm, K-means Additional Issues, Bisecting K Means, Agglomerative Hierarchical Clustering: Basic Agglomerative Hierarchical Clustering Algorithm DBSCAN: Traditional Density Center-Based Approach, DBSCAN Algorithm, Strengths and Weaknesses. (Text Book- 2)

Text Books:

1. Data Mining concepts and Techniques, 3rd   edition, Jiawei Han, Michel Kamber, Elsevier, 2011.
2. Introduction to Data Mining: Pang-Ning Tan & Michael Steinbach, Vipin Kumar, Pearson, 2012.
   Reference Books:
   1. Data Mining: VikramPudi and P. Radha Krishna, Oxford Publisher.
   2. Data Mining Techniques, Arun K Pujari, 3rd   edition, Universities Press,2013.
   3. (NPTEL course by http://onlinecourses.nptel.ac.in/noc17_mg24/preview
   4. http://www.saedsayad.com/data_mining_map.htm Prof.PabitraM

II Year III Semester	SOFTWARE PROJECT MANAGEMENT	L	T	P	C
ESY-302		3	0	0	3

CourseObjectives:

Attheendofthecourse,thestudentshallbeableto:

- To describe and determine the purpose and importance of project management from theperspectives of planning, tracking and completion of project
- Tocompareanddifferentiateorganizationstructuresandprojectstructures
- Toimplementaprojecttomanageprojectschedule,expensesandresourceswiththe application of suitable project management tools

Course Outcomes:

- **CO1:** Understand the conventional software management models and the evolution of software economics to estimate and improve software development cost and productivity.
- **CO2:** Describe the software development life cycle phases and identify different artifacts involved in software projects.
- **CO3:** Analyze model-based software architectures, workflows, and process checkpoints to manage and evaluate software project progress.
- **CO4:** Examine project organizational structures and responsibilities, and apply software metrics for effective project control and process instrumentation.
- **CO5:** Apply agile methodology concepts including Scrum practices and patterns to enable iterative and adaptive software project management.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	2	-	-	-	-	-	2	-	2	3	-	-
CO2	3	2	-	-	-	-	-	-	-	2	-	2	2	-	-
CO3	3	3	3	2	2	-	-	-	-	2	-	3	3	2	-
CO4	3	3	2	3	2	-	-	-	-	3	-	3	3	3	-
CO5	3	3	3	3	3	-	-	-	-	3	-	3	3	3	-

UNIT-I: Conventional Software Management: The waterfall model, conventional software Management performance. Evolution of Software Economics: Software Economics, pragmatic software cost estimation. Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.

UNIT-II:

Life cycle phases: Engineering and production stages, inception, Elaboration, construction,transition phases. Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

UNIT- III:

Model based software architectures: A Management perspective and technical perspective. Work Flows of the process: Software process workflows, Iteration workflows. Checkpoints of the process: Major mile stones, Minor Milestones, Periodic status assessments.

UNIT- IV:

Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations. Project Control and Process instrumentation: The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

UNIT-V:

Agile Methodology, Adapting to Scrum, Patterns for Adopting Scrum, Iterating towards Agility.

Text Books:
1. Software Project Management, Walker Royce, PEA, 2005.
2. Succeeding with Agile: Software Development Using Scrum, Mike Cohn, Addison Wesley.
3. The DevOps Handbook: How to Create World-Class Agility, Reliability, and security in TechnologyOrganizations,GeneKim,JohnWillis,PatrickDebois JezHumb,1stEdition,O'Reilly publications, 2016.

Reference Books:
1. Software Project Management, Bob Hughes,3/e, Mike Cotterell, TMH
2. Software Project Management, Joel Henry, PEA
3. Software Project Management in practice, Pankaj Jalote, PEA, 2005,
4. Effective Software Project Management, Robert K.Wysocki, Wiley,2006.

II Year III Semester	PYTHON FOR DATA SCIENCE	L	T	P	C
ESY-303		**3**	**0**	**0**	**3**

CourseObjectives:

- Python programming has become one of the most popular languages for software development, particularly within the fields of data science, machine learning, artificial intelligence, and web development.
- The students will learn elements of the language and development strategies by creating a complete program that performs a wide range of operations on a variety of data types, structures, and objects, implements program logic through conditional statements and loops, structures code for reusability through functions, classes, and modules, reads and writes files, and handles error conditions.

CourseOutcomes:

- The learnings in the course will enable students to
- CO1: Learn the different types of Python applications
- CO2:UnderstandandrememberthepythoncommandstorunprograminIDE
- CO3:Applytheconceptofvariables,datatypes,conditionsandfunctionstocreatemini programs
- CO4:Analyzethedatastructures,databaseandliststogeneratethedesiredoutput
- CO5: Evaluate various data wrangling and math operations using numpy and pandas library andDevelop basic data visualization using the matplotlib library

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	2	-	-	2	-	-
CO2	3	2	-	-	-	-	-	-	-	2	-	-	2	-	-
CO3	3	3	3	2	-	-	-	-	-	3	-	2	3	2	-
CO4	3	3	3	3	2	-	-	-	-	3	-	3	3	3	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

UNIT-1.

Introduction to Python-Python importance -Python installation - Data types,variables, Input, output and operators in Python -Print comment and formatting in Python- Python Program Flow.

UNIT-2.

Functions and Modules -Function parameters and scope - Variable arguments Calling a function-Files Handling- Classes in Python • Class and Object and their creation • Variables and Instance methods • Inheritance and Polymorphism.

UNIT-3

Data Structures in Python • List and Index • Range function • Dictionaries in Python • Dictionary and its content • Predefined value in a Dictionary - Tuples in Python. Database and SQL • Creating a database • Creating tables, rows and column • Reading, Updation and deletion of Table structure and table data • Select, From, Where, Order By, Having clause • Wildcard values, Joins and conditions.
UNIT-4

IDE for Data science in python - Jupyter notebook - Code running and debugging in notebook- Introduction to NumPy module - Arrays in NumPy -Array Slicing and indexing - NumPy built-in functions -Perform math operations in NumPy.Introduction to pandas fundamentals.

UNIT-5

Introduction to data visualization • Principles of information visualization • Good visualization strategy- Basic and advanced charting (Introduction to matplotlib library) Charting fundamentals -Data manipulation and charts -Interactive charts -Addressing a research question using data visualization

Textbook
1.Yuli Vasiliev, Python for Data Science, O'Reilly Publication, 3rd Edition, 2022, ISBN 9781718502208.
Reference Books:
 1. Hameed, Python for Data Science, Wiley, 2021, ISBN 978-9354243479.
 2. Motwani, Data Analytics using Python, Wiley, 2020, ISBN 978-812650295

II Year III Semester	**BLOCK CHAIN IN BUSINESS AND MANAGEMENT**	L	T	P	C
ESY-304		**3**	**0**	**0**	**3**

Course Introduction:

Blockchain technology has generated massive interest among governments, enterprises, and academics, because of its capability of providing a transparent, secure, tamper-proof solution for interconnecting different stakeholders in a trustless setup. In January 2021, the Ministry of Electronics and Information Technology(MeiTY),GovernmentofIndia,publishedthefirst draft of the"National Strategy on Blockchain"that highlights17potential applications that are of national interest. Against this backdrop, this subject will cover the basic design principles of Blockchain technology and its applications over different sectors.

CourseObjectives:

- **To introduce the fundamental concepts of blockchain technology** and explain its evolution
- **To familiarize students with various blockchain frameworks and platforms,** such as Ethereum and Hyperledger, and introduce smart contracts, decentralized applications (DApps), and consensus mechanisms.
- **To explore various business use cases of blockchain**, including applications in finance (cryptocurrency, fintech), healthcare, government, public services, NFTs, and supply chain.
- **To understand core concepts of blockchain consensus mechanisms**, including network models, sybil resistance, security, scalability challenges, and blockchain's interaction with emerging technologies like IoT.
- **To provide practical exposure to blockchain platforms and tools**, enabling students to work with platforms like Hyperledger Composer and Ethereum to build real-world applications.

CourseOutcomes:

At the end of the course students will be able to:

- CO1: Reflect on the underlyingtechnologythatdriveblockchaininbusiness.
- CO2: Explain the underlying technology that drive blockchain in business with examples.
- CO3: Apply the learnt tools and techniques to share information and assets.
- CO4: Analyse business case for use of Blockchain technology
- CO5: Use open-source tools to create a blockchain use case.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	2	-	-	2	-	-
CO2	3	2	-	-	1	-	-	-	-	2	-	-	2	-	-
CO3	3	3	3	2	2	-	-	-	-	3	-	2	3	2	-
CO4	3	3	2	3	3	-	-	-	-	3	-	3	3	3	-
CO5	-	3	3	3	3	-	-	-	-	-	-	3	3	3	-

UNIT-1

Introduction to blockchain: Importance in the business, Evolution of Blockchain Technology, Elements of a Blockchain, Types of Blockchain, Introduction to cryptography & cryptocurrencies Money, Block Structure and real world applications.

UNIT-2

Blockchain Technology and frameworks: Introduction to popular Blockchain technologies, Smart Contracts & DApps, Identity and Anonymity on Blockchain, Governance and Consensus

UNIT-3

Use cases of blockchain in business applications: Blockchain and Cryptocurrency (Bitcoin, Ethereum), Blockchain and NFT, Blockchain in Supply Chain and Manufacturing, Blockchain in Fintech, Blockchain in Healthcare, Blockchain in Government and Public Service.

UNIT-4

Blockchain Applications: Blockchain Consensus: network models, corruption tolerance, sybil resistance- Nakamoto Consensus: security, attacks and incentives- Scalability in Blockchain-Introduction to IoT.

UNIT-5

Practical blockchain: Hyperledger and Ethereum – concepts and application, Hyperledger Composer

References:

1. Don Tapscott and Alex Tapscott; Blockchain Revolution; Portfolio Penguin, 1st Edition, 2016; ISBN: 0241237858
2. Mohsen Attaran and Angappa Gunasekaran; Applications of Blockchain Technology in Business; Springer; 1st Edition; 2019; ISBN – 9783030277987.
3. Hyperledger Tutorials - https://www.hyperledger.org/use/tutorials
4. Ethereum Development Resources - https://ethereum.org/en/developers

II Year III Semester	INTRODUCTION TO ARTIFICIAL INTELLIGENCE	L	T	P	C
EAI-301		3	0	0	3

Course Objectives:
- Understand the foundational concepts and scope of Artificial Intelligence.
- Learn and apply different problem-solving techniques using search algorithms.
- Analyze and implement intelligent agent behavior and constraint satisfaction problems.

Course Course Outcome(s):
- CO1:Understand the fundamental concepts, problems, and techniques of Artificial Intelligence.
- CO2: Apply search strategies and techniques for solving AI-related problems.
- CO3: Analyze and implement constraint satisfaction and adversarial search strategies.
- CO4: Design knowledge-based systems using predicate logic and rule-based representations.
- CO5: Demonstrate application of AI in real-world domains using expert systems and intelligent agents.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO2	3	3	2	-	-	-	-	-	-	-	-	-	2	2	-
CO3	3	3	2	-	2	-	-	-	-	-	-	-	2	3	-
CO4	3	3	3	2	-	-	-	-	-	-	-	-	3	3	-
CO5	3	3	3	2	3	-	-	-	-	-	-	-	2	3	-

UNIT–I

Introduction, Overview of Artificial intelligence: Problems of AI, AI technique, Tic - Tac - Toe problem. Intelligent Agents, Agents & environment, nature of environment, structure of agents, goal based agents, utility based agents, learning agents. Problem Solving, Problems, Problem Space & search: Defining the problem as state space search, production system, problem characteristics, issues in the design of search programs.

UNIT–II

Search techniques: Problem solving agents, searching for solutions; uniform search strategies: breadth first search, depth first search, depth limited search, bidirectional search, comparing uniform search strategies. Heuristic search strategies Greedy best-first search, A* search, AO* search, memory bounded heuristic search: local search algorithms & optimization problems: Hill climbing search, simulated annealing search, local beam search

UNIT-III

Constraint satisfaction problems: Local search for constraint satisfaction problems. Adversarial search, Games, optimal decisions & strategies in games, the minimax search procedure, alphabeta pruning, additional refinements, iterative deepening.

UNIT– IV

Knowledge & reasoning: Knowledge representation issues, representation & mapping, approaches to knowledge representation. Using predicate logic, representing simple fact in logic, representing instant & ISA relationship, computable functions & predicates, resolution, natural deduction. Representing knowledge using rules, Procedural verses declarative knowledge, logic programming, forward verses backward reasoning, matching, control knowledge.

UNIT–V

Probabilistic reasoning: Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafer theory, Planning Overview, components of a planning system, Goal stack planning, Hierarchical planning, other planning techniques Expert Systems: Representing and using domain knowledge, expert system shells, and knowledge acquisition. Home Assignments: Assignments should include problems related to the topics covered in lectures, like heuristics, optimal search, and graph heuristics. Constraint satisfaction problems, k-nearest neighbors,decision trees, etc. can be included in home assignments.

Text Books:

1. Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach
2. Artificial Intelligence, Russel, Pearson

Reference Books:

  3. Artificial Intelligence, Ritch & Knight, TMH

4. Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI

5. Logic & Prolog Programming, Saroj Kaushik, New Age International

   6. Expert Systems, Giarranto, VIKAS

II Year III Semester	PYTHON PROGRAMMING	L	T	P	C
EAI-302		0	1	2	2

Course Objectives: The main objectives of the course are
- Introduce core programming concepts of Python programming language.
- Demonstrate about Python data structures like Lists, Tuples, Sets and dictionaries
- Implement Functions, Modules and Regular Expressions in Python Programming and to create practical and contemporary applications using these

Course Outcomes:
- **CO1:** Understand the history, features, and installation of Python and its basic programming structure.
- **CO2:** Write and implement Python programs using control flow and operators.
- **CO3:** Apply exception handling mechanisms in Python.
- **CO4:** Develop functions with various types of arguments including *args and **kwargs.
- **CO5:** Manipulate strings using slicing, formatting, and built-in methods.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	-	-	-	-	-	-	-	1	3	-	-
CO2	3	3	3	-	2	-	-	-	-	-	-	2	2	3	-
CO3	3	3	3	-	-	-	-	-	-	-	-	2	2	3	-
CO4	3	3	3	-	-	-	-	-	-	-	-	2	3	2	-
CO5	3	3	2	-	-	-	-	-	-	-	-	2	2	2	-

UNIT-I:

History of Python Programming Language, Thrust Areas of Python, Installing Anaconda Python Distribution, Installing and Using Jupyter Notebook. Parts of Python Programming Language: Identifiers, Keywords, Statements and Expressions, Variables, Operators, Precedence and Associativity, Data Types, Indentation, Comments, Reading Input, Print Output, Type Conversions, the type () Function and Is Operator, Dynamic and Strongly Typed Language. Control Flow Statements: if statement, if-else statement, if...elif…else, Nested if statement, while Loop, for Loop, continue and break Statements, Catching Exceptions Using try and except Statement.

Sample Experiments:
1. Write a program to find the largest element among three Numbers**.**
2. Write a Program to display all prime numbers within an interval
3. Write a program to swap two numbers without using a temporary variable.
4. Demonstrate the following Operators in Python with suitable examples.
 i) Arithmetic Operators ii) Relational Operators iii) Assignment Operators iv) Logical
Operators v) Bit wise Operators vi) Ternary Operator vii) Membership Operators viii) IdentityOperators
5. Write a program to add and multiply complex numbers
6. Write a program to print multiplication table of a given number.

UNIT-II:

Functions: Built-In Functions, Commonly Used Modules, Function Definition and Calling the function, return Statement and void Function, Scope and Lifetime of Variables, Default Parameters, Keyword Arguments, *args and **kwargs, Command Line Arguments. Strings: Creating and Storing Strings, Basic String Operations, Accessing Characters in String by Index Number, String Slicing and Joining, String Methods, Formatting Strings. Lists: Creating Lists, Basic List Operations, Indexing and Slicing in Lists, Built-In Functions Used on Lists, List Methods, Del Statement.

Sample Experiments:

7. Write a program to define a function with multiple return values.
8. Write a program to define a function using default arguments.
9. Write a program to find the length of the string without using any library functions.
10. Write a program to check if the substring is present in a given string or not.
11. Write a program to perform the given operations on a list: i. addition ii. insertion iii. slicing
12. Write a program to perform any 5 built-in functions by taking any list.

UNIT-III:

Dictionaries: Creating Dictionary, Accessing and Modifying key:value Pairs in Dictionaries, Built-In Functions Used on Dictionaries, Dictionary Methods, del Statement. Tuples and Sets: Creating Tuples, Basic Tuple Operations, tuple() Function, Indexing and Slicing in Tuples, Built-In Functions Used on Tuples, Relation between Tuples and Lists, Relation between Tuples and Dictionaries, Using zip() Function, Sets, Set Methods, Frozenset.

Sample Experiments:

13. Write a program to create tuples (name, age, address, college) for at least two members and concatenate the tuples and print the concatenated tuples.
14. Write a program to count the number of vowels in a string (No control flow allowed).
15. Write a program to check if a given key exists in a dictionary or not.
16. Write a program to add a new key-value pair to an existing dictionary.
17. Write a program to sum all the items in a given dictionary.

UNIT-IV:

Files: Types of Files, Creating and Reading Text Data, File Methods to Read and Write Data, Reading and Writing Binary Files, Pickle Module, Reading and Writing CSV Files, Python os and os.path Modules. Object-Oriented Programming: Classes and Objects, Creating Classes in Python, Creating Objects in Python, Constructor Method, Classes with Multiple Objects, Class Attributes Vs Data Attributes, Encapsulation, Inheritance, Polymorphism.

Sample Experiments:

18. Write a program to sort words in a file and put them in another file. The output file should have only lower-case words, so any upper-case words from source must be lowered.
19. Python program to print each line of a file in reverse order.
20. Python program to compute the number of characters, words and lines in a file.
21. Write a program to create, display, append, insert and reverse the order of the items in the array.
22. Write a program to add, transpose and multiply two matrices.
23. Write a Python program to create a class that represents a shape. Include methods to calculate its area and perimeter. Implement subclasses for different shapes like circle, triangle, and square.

UNIT-V:

Introduction to Data Science: Functional Programming, JSON and XML in Python, NumPy with Python, Pandas.

Reference Books:

1. Python with Machine Learning by Dr. A. Krishna Mohan et al. SChand publications.
2. Introduction to Programming Using Python, Y. Daniel Liang, Pearson. Gowri shankar S, Veena A.,
3. Introduction to Python Programming, CRC Press. Python Programming, S Sridhar, J Indumathi, V M Hariharan, 2 nd Edition, Pearson, 2024.

II Year III Semester	BLOCK CHAIN TECHNOLOGY	L	T	P	C
EAI-303		3	0	0	3

Course Objectives:

- To learn the fundamentals of Block Chain and various types of block chain and consensus mechanism.
- To understand public block chain system, Private block chain system and consortium block chain.
- Able to know the security issues of blockchain technology.

Course Outcomes:

- **CO1:** Understand the fundamentals of Blockchain, its origin, components, and types of consensus mechanisms
- **CO2:** Analyze the structure, operation, and applications of public and private blockchain systems incl. smart contracts
- **CO3:** Compare different types of blockchain architectures such as private, public, and consortium blockchains
- **CO4:** Evaluate security, privacy, and scalability issues; explore blockchain applications
- **CO5:** Examine case studies in blockchain applications in retail, healthcare, finance, energy

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P 08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	-	-	1	-	-	-	-	-	-	1	3	-	-
CO2	3	3	2	-	2	-	-	-	-	-	-	2	3	3	-
CO3	3	2	2	-	2	-	-	-	-	-	-	2	2	3	-
CO4	3	3	3	2	2	-	1	1	1	-	-	3	3	2	-
CO5	3	2	2	2	3	-	-	-	1	-	1	2	3	2	-

UNIT – I

Fundamentals of Blockchain: Introduction, Origin of Blockchain, Blockchain Solution, Components of Blockchain, Block in a Blockchain, The Technology and the Future. Blockchain Types and Consensus Mechanism: Introduction, Decentralization and Distribution, Types of Blockchain, Consensus Protocol. Cryptocurrency: Bitcoin, Altcoin and Token: Introduction, Bitcoin and the Cryptocurrency, Cryptocurrency Basics, Types of Cryptocurrencies, Cryptocurrency Usage.

UNIT – II

Public Blockchain System: Introduction, Public Blockchain, Popular Public Blockchains, The Bitcoin Blockchain, Ethereum Blockchain. Smart Contracts: Introduction, Smart Contract, Characteristics of a Smart Contract, Types of Smart Contracts, Types of Oracles, Smart Contracts in Ethereum, Smart Contracts in Industry.

UNIT – III

Private Blockchain System: Introduction, Key Characteristics of Private Blockchain, Private Blockchain, Private Blockchain Examples, Private Blockchain and Open Source, E- commerce Site Example, Various Commands (Instructions) in E-commerce Blockchain, Smart Contract in Private Environment, State

Machine, Different Algorithms of Permissioned Blockchain, Byzantine Fault, Multichain. Consortium Blockchain: Introduction, Key Characteristics of Consortium Blockchain, Need of Consortium Blockchain, Hyperledger Platform, Overview of Ripple, Overview of Corda. Initial Coin Offering: Introduction, Blockchain Fundraising Methods, Launching an ICO, Investing in an ICO, Pros and Cons of Initial Coin Offering, Successful Initial Coin Offerings, Evolution of ICO, ICO Platforms.

UNIT – IV

Security in Blockchain: Introduction, Security Aspects in Bitcoin, Security and Privacy Challenges of Blockchain in General, Performance and Scalability, Identity Management and Authentication, Regulatory Compliance and Assurance, Safeguarding Blockchain Smart Contract (DApp), Security Aspects in Hyperledger Fabric. Applications of Blockchain: Introduction, Blockchain in Banking and Finance, Blockchain in E ducation, Blockchain in Energy, Blockchain in Healthcare, Blockchain in Real-estate, Blockchain in Supply Chain, The Blockchain and IoT. Limitations and Challenges of Blockchain.

UNIT – V

Blockchain Case Studies:

Case Study 1 – Retail,

Case Study 2 – Banking and Financial Services,

Case Study 3 – Healthcare,

Case Study 4 – Energy and Utilities.

Blockchain Platform using Python: Introduction, Learn How to Use Python Online Editor, Basic Programming Using Python, Python Packages for Blockchain.

Blockchain platform using Hyperledger Fabric: Introduction, Components of Hyperledger Fabric Network, Chain codes from Developer.ibm.com, Blockchain Application Using Fabric Java SDK.

Text book:

1. "Block chain Technology", Chandramouli Subramanian, Asha A.George, Abhilasj K A and Meena Karthikeyan , Universities Press.

Reference Books:

1. Blockchain Blue print for Economy, Melanie Swan, SPD Oreilly.

2. Blockchain for Business, Jai Singh Arun, Jerry Cuomo, Nitin Gauar, Pearson Addition Wesley

II Year III Semester	MACHINE LEARNING	L	T	P	C
EAI-304		3	0	0	3

Course Objectives:
- The objectives of the course is to
- Define machine learning and its different types (supervised and unsupervised) and understand their applications.
- Apply supervised learning algorithms including decision trees and k-nearest neighbours (k-NN).
- Implement unsupervised learning techniques, such as K-means clustering. ,

Course Outcomes:
- At the end of the course, student will be able to
- Enumerate the Fundamentals of Machine Learning
- Build Nearest neighbour based models
- Apply Models based on decision trees and Bayes rule
- Make use of Linear discriminants for machine Learning
- Choose appropriate clustering technique

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	P 08	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	-	-	-	-	1	-	1	3	2	1
CO2	3	3	2	3	2	-	-	-	-	1	-	1	3	3	2
CO3	3	3	3	3	2	-	-	-	-	1	-	1	3	3	3
CO4	3	3	3	3	3	-	-	-	-	1	-	1	3	3	3
CO5	2	3	3	3	2	-	-	-	-	1	-	1	3	3	2

UNIT-I

introduction to Machine Learning: Evolution of Machine Learning, Paradigms for ML, Learning by Rote, Learning by Induction, Reinforcement Learning, Types of Data, Matching, Stages in Machine Learning, Data Acquisition, Feature Engineering, Data Representation, Model Selection, Model Learning, Model Evaluation, Model Prediction, Search and Learning, Data Sets.

UNIT-II

nearest Neighbor-Based Models: Introduction to Proximity Measures, Distance Measures, Non-Metric Similarity Functions, Proximity Between Binary Patterns, Different Classification Algorithms Based on the Distance Measures ,K-Nearest Neighbor Classifier, Radius Distance Nearest Neighbor Algorithm, KNN Regression, Performance of Classifiers, Performance of Regression Algorithms.

UNIT-III

Models Based on Decision Trees: Decision Trees for Classification, Impurity Measures, Properties, Regression Based on Decision Trees, Bias–Variance Trade-off, Random Forests for Classification and Regression. The Bayes Classifier: Introduction to the Bayes Classifier, Bayes' Rule and Inference, The Bayes Classifier and its Optimality, Multi-Class Classification | Class Conditional Independence and Naive Bayes Classifier (NBC)

UNIT-IV

Linear Discriminants for Machine Learning: Introduction to Linear Discriminants, Linear Discriminants for Classification, Perceptron Classifier, Perceptron Learning Algorithm, Support Vector Machines, Linearly Non-Separable Case, Non-linear SVM, Kernel Trick, Logistic Regression, Linear Regression, Multi-Layer Perceptrons (MLPs), Backpropagation for Training an MLP.

UNIT-V

Clustering :Introduction to Clustering, Partitioning of Data, Matrix Factorization | Clustering of Patterns, Divisive Clustering, Agglomerative Clustering, Partitional Clustering, K-Means Clustering, Soft Partitioning, Soft Clustering, Fuzzy C-Means Clustering, Rough Clustering, Rough K-Means Clustering Algorithm, Expectation Maximization-Based Clustering, Spectral ClusteringText Books:

1."Machine Learning Theory and Practice", M N Murthy, V S Ananthanarayana, Universities Press
(India), 2024

Reference Books:
1."Machine Learning", Tom M. Mitchell, McGraw-Hill Publication, 2017
2."Machine Learning in Action",Peter Harrington, DreamTech
3."Introduction to Data Mining", Pang-Ning Tan, Michel Stenbach, Vipin Kumar, 7th Edition, 2019

II Year IV Semester	LABOR WELFARE AND EMPLOYMENT LAWS	L	T	P	C
EHR-401		4	0	0	3

CourseObjectives: To equip students with the foundational knowledge and understanding of labour welfare practices and legislative frameworks that govern industrial relations and employee well-being in India. The course focuses on various labour laws, welfare schemes, social security measures, and recent labour codes introduced for improving labour standards..

Course Outcomes (COs):
1.   CO1: Explain the concept, philosophy, and evolution of labour welfare in India, and understand the role of welfare officers and ILO.
2.   CO2: Understand the objectives and provisions of labour legislation, especially the Factories Act, and evaluate safety and welfare measures at the workplace.
3.   CO3: Analyze wage and social security legislations including Payment of Wages Act, ESI Act, EPF Act, and Maternity Benefit Act.
4.   CO4: Interpret the provisions of Industrial Relations legislation including the Industrial Disputes Act and its role in conflict resolution.
5.   CO5: Evaluate the significance of the Industrial Employment (Standing Orders) Act, Trade Unions Act, and the implications of the New Labour Codes in India.

CO-PO/PSO Mapping:

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
CO 1	3	2	1	2	1	2	-	-	-	-	-	-	3	2	-
CO 2	3	3	2	2	1	2	-	-	-	-	-	-	3	2	-
CO 3	3	2	3	3	2	1	-	-	-	-	-	-	3	2	-
CO 4	2	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO 5	2	3	2	2	3	2	-	-	-	-	-	-	3	-	-

UNIT I:
Labour Welfare: Introduction to Labour Welfare: Concept, scope and philosophy, principles and approaches of labour welfare, Classification-Evolution of labour welfare in India- Impact of ILO on labour welfare in India. Welfare Officers 'Role, Status and Function, Signs of poor welfare.

UNIT II:
Labour Legislation: Objectives-Principles-Classification-Evaluation of Labour legislation in India-Factories Act 1948, Definitions - Objectives of Act - Factory Inspectorate – Measures to be taken by Factories for Health, Safety and Welfare of Workers - Working Hours - Provisions Relating to Hazardous Processes - Annual Leave with Wages - Special Provisions - Obligations by Employer and Employee - Offences and Penalties.

UNIT III:

Wage and Social Security Legislations: Payment of wages Act 1936 - Minimum wages Act 1948 - Payment of Bonus Act 1966 - Employees' State Insurance Act, 1948, Employees' Provident Funds and Miscellaneous Provisions Act, 1952, Payment of Gratuity Act, 1972, Workmen's Compensation Act 1923 - Maternity Benefit Act 1961.

UNIT IV: Industrial Relations Legislation: Industrial Disputes Act 1947Concept, objectives, Types of Strikes and their Legality – Authorities under the Act and their Duties – Voluntary Reference of Disputes to Arbitration – Types of Strikes and Lock-outs Wages for Strike and Lock-out Period– Change in Conditions of Service.

UNIT V: Industrial Employment (standing orders) Act 1946: Certification of Draft Standing Orders – Appeals – Date of Operation of Standing Orders – Posting of Standing Orders – Payment of Subsistence Allowance. Trade Unions Act 1926.The New Labor Codes: Code on Wages 2019, industrial relations code 2020, code on social security 2020, occupational safety, health and working conditions code 2020.
Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References:
1. Govt. of India (Ministry of Labour, 1969). Report of the Commission on Labour Welfare, New Delhi: Author.
2. Govt. of India (Ministry of Labour, 1983). Report on Royal Commission on Labour in India, New Delhi: Author.
3. Malik, P.L: ―Industrial Law‖, Eastern Book Company. Laknow4. Moorthy, M.V: ―Principles of Labour Welfare‖, Oxford University Press, New Delhi.
5. Pant, S.C: ―Indian Labour Problems‖, Chaitanya Pub. House. Allahabad.

I Year IV Semester	INTERNATIONAL HUMAN RESOURCE MANAGEMENT	L	T	P	C
EHR-402		4	0	0	3

Course Objective:
- To provide students with comprehensive knowledge of managing human resources in an international context. T
- his course explores global HR strategies, cross-cultural management practices, international assignments, global compensation, and HRD strategies for gaining a strategic advantage in a globalized world.

Course Outcomes:
- **CO1:** Understand the scope, role, and challenges of International Human Resource Management in a globalized economy.
- **CO2:** Analyze the processes involved in managing international assignments, including expatriation and repatriation.
- **CO3:** Evaluate cross-cultural management models and develop skills for managing diverse international teams..
- **CO4:** Examine compensation practices and performance management systems for global assignments.
- **CO5:** Formulate strategies for creating a global HRD climate and enhancing the quality of work life and productivity.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	1	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO3	2	2	3	3	3	2	-	-	-	-	-	-	3	3	-
CO4	3	3	2	2	1	2	-	-	-	-	-	-	3	2	-
CO5	3	2	3	3	2	3	-	-	-	-	-	-	3	3	-

UNIT I

Introduction: A Global HR Perspective in New Economy-Challenges of Globalization - Implications of Managing People and Leveraging Human Resource - Strategic Role of International HRM – Distinction between Domestic and International HRM – HR Challenges at International Level.

UNIT II

Managing International Assignments: Significance -Global HR Planning – Staffing policy – Training and development – performance appraisal –International Labour relations – Industrial democracy - Positioning Expatriate – Repatriate – factors of consideration - Strategies - Legal content of Global HRM- International assignments for Women - Problems.

UNIT III

Cross Culture Management: Importance – Concepts and issues – Understanding Diversity – Managing Diversity Cross- Cultural Theories – Hofstede's Model – Kluchkohn - Strodthbeck Model – Andre- Laurent' Theory – Cultural Issues. considerations - Problems – Skill building methods – Cross Culture Communication and Negotiation – Cross Culture Teams. Talent crunch – Indian MNCs and Challenges.

UNIT IV

Compensation Management: Objectives -Importance – Concepts- Trends - Issues – Methods – Factors of Consideration – Models – incentive methods – Approaches of Compensation in Global Assignments - global compensation implications on Indian systems - Performance Management.

UNIT V

Global Strategic Advantages through HRD: Measures for creating global HRD Climate – Strategic Frame Work of HRD and Challenges - Globalization and Quality of Working Life and Productivity – Challenges in Creation of New Jobs through Globalization- New Corporate Culture. Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References: 1.Subba Rao P: ―International Human Resource Management‖, Himalaya Publishing House, Hyderabad, 2011 2.NilanjanSen Gupta: ―International Human Resource Management Text and cases‖ Excel Books, New Delhi. 3.Tony Edwards :―International Human Resource Management‖, Pearson Education, New Delhi, 2012 4.Aswathappa K, Sadhana Dash: ―International Human Resource Management, TMH,
New Delhi, 5. Monir H Tayeb: ―International Human Resource Management‖, Oxford Universities Press, Hyderabad, 2012.

II Year IV Semester	EMPLOYEE RELATIONS AND WORKPLACE CULTURE	L	T	P	C
EHR-403		4	0	0	3

Course Objective:
- To provide students with a comprehensive understanding of industrial relations, including trade unions, grievance handling, industrial disputes, and workplace ethics.
- The course aims to develop the ability to manage employee relations and foster a healthy industrial environment in organizations, considering diversity, inclusion, and ethical leadership.

Course Outcomes (COs):
1. **CO1:** Understand the concept, scope, and framework of industrial relations, including its evolution in India and the impact of globalization.
2. **CO2:** Analyze the growth and challenges of trade unions and the process and significance of collective bargaining in industrial relations.
3. **CO3:** Identify the causes of employee grievances and understand grievance redressal systems, discipline, and code of conduct in the industry.
4. **CO4:** Evaluate the causes, consequences, and mechanisms for the prevention and settlement of industrial disputes in India.
5. **CO5:** Recognize ethical issues, diversity, and inclusion challenges in workplace culture and the role of HR in building ethical and inclusive environments.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	2	2	-	-	-	-	-	-	3	2	-
CO2	2	3	3	2	3	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	2	2	1	-	-	-	-	-	-	3	2	-
CO4	3	3	2	3	2	2	-	-	-	-	-	-	3	3	-
CO5	2	2	2	3	3	3	-	-	-	-	-	-	2	3	-

UNIT I:

Industrial Relations Management: Concept-meaning and scope of IR-system frame workTheoretical perspective- Evaluation –Background of industrial Relations in India-Influencing factors of IR in enterprise and the consequences. Globalization and IR- Recent Trends in Industrial Relations.

UNIT II:

Trade Unions: Introduction-Definition and objectives-growth of Trade Unions in India -Union Recognition-Union Problems-Employees Association- Collective Bargaining – CharacteristicsImportance-Principles-The process of CB-Participation in the bargaining Process-Essential conditions for the success of collective bargaining –Negotiating techniques and skills.

UNIT III:

Employee Grievances: Causes of Grievances – Grievances Redressal Machinery – Discipline in Industry - Measures for dealing with Indiscipline–Standing Orders- Code of Discipline.

UNIT IV:

Industrial Disputes: Meaning, nature and scope of industrial disputes - Cases and Consequences of Industrial Disputes –Prevention and Settlement of industrial disputes in India.

UNIT V:

Ethics, Diversity and Inclusion in Workplace Culture: Ethical issues in ER, Corporate culture and ethical leadership, Workplace diversity and inclusion, DEI strategies, Role of HR in ethical and inclusive culture building.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit.

References 1.C.S Venkataratnam: ―Industrial Relations‖, Oxford University Press, New Delhi, 20112.

Sinha: ―Industrial Relations, Trade Unions and Labour Legislation‖, Pearson Education, New Delhi, 2013

3. Mamoria: ―Dynamics of Industrial Relations‖, Himalaya Publishing House, New Delhi, 2010

4. B.D.Singh: ―Industrial Relations‖ Excel Books, New Delhi, 2010

5. Arun Monappa: ―Industrial Relations‖, TMH, New Delhi. 2012

6. Prof. N.Sambasiva Rao and Dr. Nirmal Kumar: ―Human Resource Management and Industrial Relations‖, Himalaya Publishing House, Mumbai

7. Ratna Sen: ―Industrial Relations‖, MacMillon Publishers, New Delhi, 2011.

II Year IV Semester	HUMAN CAPITAL MANAGEMENT	L	T	P	C
EHR-404		4	0	0	3

Course Objective:

To provide students with a detailed understanding of the concept, measurement, and management of human capital. The course emphasizes accounting methods, economic models, and workplace practices that influence human resource value, quality of work life, employee engagement, industrial safety, and social security.

Course Outcomes (COs):

1. **CO1:** Understand the economic theories and evolution of human capital and its relevance in the changing global and Indian labour market.
2. **CO2:** Analyze cost-based models of Human Resource Accounting (HRA) and evaluate the relationship between investment in human capital and productivity.
3. **CO3:** Apply value-based models to measure human capital and assess recent developments in Human Resource Valuation.
4. **CO4:** Evaluate the importance of quality of work life, employee engagement, empowerment, and participation in management.
5. **CO5:** Examine the causes and prevention of industrial accidents and understand statutory safety measures, social security systems, and workplace counselling.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	1	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO4	2	2	2	3	3	2	-	-	-	-	-	-	2	3	-
CO5	2	3	2	3	2	3	-	-	-	-	-	-	3	-	-

Unit I

Economic theories of Human Capital: Nature and Role of Human Capital; The Human Capital Model; Predictions of Human Capital Approach; Socio-economic relevance of labour problems in changing scenario; Evolution of organized labour; Industrialization and Development of Labour Economy; Growth of Labour Market in India in the globalised stetting.

Unit II

Accounting Aspects of Human Capital – Cost Based Models: Meaning, Basic Premises, Need and Significance of HRA, Advantages and Limitation of HRA; Monetary and Non-Monetary Models; Cost Based Models- Acquisition Cost Method, Replacement Cost Model, Opportunity Cost Method, standard cost method, Current Purchasing Power Method (C.P.P.M.); Comparison of Cost incurred on Human capital and the contributions made by them in the light of productivity and other aspects.

Unit III

Accounting Aspects of Human Capital – Value Based Models: Value Based Models - Hermanson's Unpurchased Goodwill Method, Hermanson's Adjusted Discount Future Wages Model, Lev and Schwartz Present Value of Future Earnings Model, Flamholtz's Stochastic Rewards Valuation Model, Jaggi and Lau's Human Resource Valuation Model, Robbinson's Human Asset Multiplier Method, Watson's Return on Effort Employed Method, Brummet, Flamholtz and Pyle's Economic Value Method of Group Valuation, Morse's Net Benefit Method; Recent developments in the field of Human Asset/Capital Accounting.

Unit IV
Quality of Work Life: Workers' Participation in Management - Worker's Participation in India, shop floor, Plant Level, Board Level- Quality Circles. Workers' education objectives -Rewarding. Employees Engagement and Empowerment-nature-types-drivers-benefits-measurement of Engagement-Empowerment.

Unit V
Industrial Accidents and safety: meaning and definition of accident-types of industrial accidentscost and consequences-causes and prevention of accidents- Industrial safety –statutory machineries for industrial safety-safety audit. Social Security: Introduction and types –Social Security in India, Health and Occupational safety programs- work place discipline –work place counselling-meaning –definition –types-advantages-characteristics of an effective counsellor.

Relevant cases have to be discussed in each unit and in examination case is compulsory from any unit. Suggested Readings:

1. I.L.O., Social & Labour aspects of Economic Development, Geneva
2. Report of the National Commission on Labour
3. Patterson & Schol., Economic Problems of Modern Life. Mc-Graw Hill Book Company.
 4. Walter Hageabuch, Social Economics, Cambridge University Press.
5. S. Howard Patterson, Social Aspects of Industry.
 6. Millis and Montgonery, Labours Progress and some Basic Labour Problems. Mc -Graw Hill Book Company.
7. Flamholtz, Eric, Human Resource Accounting, Dickenson Publishing Co., Califf.
 8. Hermanson, Roger H. Accounting for Human Assets, Occasionals Paper No.14, Graduate School of Business Administration, Michigan State University. 9. Flamholtz, Eric G., Human Resource Accounting: Advances in Concepts, Methods and Applications, Jossey Eass Publishers, San Francisco, London.
10. Likert, Rensis, The Human Organisation: Its Management and Value, McGraw Hill Book Co., New York, N.Y.
 11. Ganguli, Prabuddha, Intellectual Property Rights: Unleashing the Knowledge Economy, Tata McGraw-Hill Publishing Co. Ltd., New Delhi.
12. Chakraborty, S.K., Human Asset Accounting: The Indian Context in Topics in Accounting and Finance, Oxford University Press. Note: Latest edition of the readings may be used.

II Year IV Semester	CORPORATE STRATEGIC FINANCE	L	T	P	C
EFM-401		4	0	0	3

Course Objective:
- To provide a comprehensive understanding of corporate financial strategies, including value creation, funding, investment, mergers, and takeovers.
- The course emphasizes decision-making under risk and uncertainty, regulatory frameworks, and the financial evaluation of strategic alternatives for enhancing corporate value..

Course Outcomes (COs):
1. **CO1:** Understand the concept of shareholder value creation and apply value-based performance metrics like MVA, EVA, and M/BV.
2. **CO2:** Analyze various sources of corporate funding and their impact on capital structure, dividend policy, and firm valuation.
3. **CO3:** Evaluate corporate investment strategies and apply decision-making tools under risk and uncertainty including NPV, IRR, and decision trees.
4. **CO4:** Examine corporate merger strategies, merger procedures, and assess their financial and control implications.
5. **CO5:** Understand corporate takeover strategies, regulatory frameworks, and restructuring mechanisms including spin-offs and leveraged buyouts.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	1	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO5	3	2	3	3	2	2	-	-	-	-	-	-	3	-	-

Unit-1:

Introduction of corporate finance – Shareholder Value Creation (SCV): Market Value Added (MVA) – Market-to-Book Value (M/BV) – Economic Value Added (EVA) – Managerial Implications of Shareholder Value Creation.

Unit-II:

Sources of corporate funding: Governing Regulatory Framework for share capital Debt securities – Capital Structure Planning and Policy – Financial Options and Value of the Firm – Dividend Policy and Value of the Firm.

Unit-III:

Corporate Investment Strategy – Techniques of Investment Appraisal Under Risk and Uncertainty – Risk Adjusted Net Present Value – Risk Adjusted Internal Rate of Return – Capital Rationing – Decision Tree Approach for Investment Decisions – Evaluation of Lease Vs Borrowing Decision.

Unit-IV:

Corporate Merger Strategy – Theories of Mergers – Horizontal and Conglomerate Mergers – Merger Procedure – Valuation of Firm – Financial Impact of Merger – Merge and Dilution Effect on Earnings Per Share – Merger and Dilution Effect on Business Control.

Unit-V:

Corporate Takeover Strategy – Types of Takeovers – Negotiated and Hostile Bids – Takeover Procedure – Takeover Defenses – Takeover Regulations of SEBI – Distress Restructuring Strategy – Sell offs – Spin Offs – Leveraged Buyouts.

Suggested Readings:

1. Van Horn, JC, Financial Management and Policy, Prentice Hall, New Delhi
2. PG Godbole, Mergers, Acquisitions and Corporate Restructuring, Vikas, New Delhi
3. Weaver, Strategic Corporate Finance, Cengage, ND
4. Weston JF, Chung KS & Heag SE., Mergers, Restructuring & Corporate Control, Prentice Hall.
5. Satyanarayana, Strategic Financial Management Discovery Publishing House, New Delhi
6. GP Jakarthiya, Strategic Financial Management, Vikas, New Delhi
7. Coopers & Lybrand, Strategic Financial: Risk Management, Universities Press (India) Ltd.
8. Robicheck, A, and Myers, S., Optimal Financing Decisions, Prentice Hall Inc.
9. Bhalla, V.K., Managing International Investment and Finance, New Delhi, Anmol, 1997.

II Year IV Semester	INTERNATIONAL TRADE AND FINANCE	L	T	P	C
EFM-402		4	0	0	3

Course Objective:
- To equip students with knowledge and analytical skills in international trade, export-import financing, foreign exchange markets, trade documentation, and export promotion schemes.
- The course aims to develop a strong understanding of global trade practices, risk management tools, and government policies supporting trade.

Course Outcomes (Cos)
1. **CO1:** Understand the nature, benefits, and challenges of international trade and analyze India's EXIM policy and trade trends.
2. **CO2:** Evaluate export-import finance mechanisms, terms of trade, and the role of financial institutions in supporting foreign trade.
3. **CO3:** Analyze foreign exchange markets, factors affecting exchange rates, and risk hedging tools in international trade.
4. **CO4:** Identify and interpret the various export trade documents used in international trade transactions.
5. **CO5:** Understand and assess export promotion schemes, incentives, and the role of government agencies in promoting international trade.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO4	2	3	3	2	2	1	-	-	-	-	-	-	3	2	-
CO5	3	2	2	3	2	2	-	-	-	-	-	-	3	-	-

UNIT-I

International Trade –Benefits – Basis of International Trade – Foreign Trade and Economic Growth – Balance of Trade – Balance of Payment – Current Trends in India – Barriers to International Trade – Indian EXIM Policy.

UNIT-II

Export and Import Finance: Special need for Finance in International Trade – INCO Terms (FOB, CIF, etc.,) – Payment Terms – Letters of Credit – Pre Shipment and Post Shipment Finance – Forfaiting – Deferred Payment Terms – EXIM Bank – ECGC and its schemes – Import Licensing – Financing methods for import of Capital goods.

UNIT-III

Foreign Exchange Markets – Spot Prices and Forward Prices – Factors influencing Exchange rates – The effects of Exchange rates in Foreign Trade – Tools for hedging against Exchange rate variations – Forward, Futures and Currency options – FEMA – Determination of Foreign Exchange rate and Forecasting – Law of one price – PPP theory – Interest Rate Parity – Exchange rate Forecasting.

UNIT-IV

Export Trade Documents: Financial Documents – Bill of Exchange – Type – Commercial Documents – Proforma, Commercial, Consular, Customs, Legalized Invoice, Certificate of Origin Certificate Value, Packing List, Weight Certificate, Certificate of Analysis and Quality, Certificate of Inspection, Health certificate. Transport Documents - Bill of Lading, Airway Bill, Postal Receipt, Multimodal Transport Document. Risk Covering Document: Insurance Policy, Insurance Cover Note. Official Document: Export Declaration Forms, GR Form, PP From, COD Form, Softer Forms, Export Certification, GSPS – UPCDC Norms.

UNIT-V

Export Promotion Schemes – Government Organizations Promoting Exports – Export Incentives: Duty Exemption – IT Concession – Marketing Assistance – EPCG, DEPB – Advance License – Other efforts I Export Promotion – EPZ – EQU – SEZ and Export House.

REFERENCES

6. Jeevanandam .C, INTERNATIONAL BUSINESS, M/s Sultan & Chand, Delhi, 2008
7. Sumathi Varma, INTERNATIONAL BUSINESS, Ane, Delhi, 2010

II Year IV Semester	**GLOBAL FINANCIAL MANAGEMENT**	L	T	P	C
EFM-403		4	0	0	3

Course Objective:
- To provide students with comprehensive knowledge of international financial systems, foreign exchange risk management, international capital markets, foreign investment decisions, and global financial reporting practices.
- The course equips learners with the analytical tools to make sound financial decisions in a global business environment.

Course Outcomes (COs):
1. **CO1:** Understand the evolution of the international monetary system and evaluate the impact of historical and contemporary exchange rate regimes.
2. **CO2:** Identify various types of foreign exchange exposure and apply risk management techniques using internal strategies and financial derivatives.
3. **CO3:** Analyze the features of international financial instruments and markets, including Eurocurrency and global bond markets.
4. **CO4:** Evaluate foreign investment decisions using multinational capital budgeting and risk-adjusted valuation techniques.
5. **CO5:** Understand international accounting and reporting practices including foreign currency transactions, transfer pricing, and consolidated financial statements.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO5	3	3	2	3	2	2	-	-	-	-	-	-	3	-	-

Unit I :
International Monetary and Financial System: Evolution; Breton Woods Conference and Other Exchange Rate Regimes; European Monetary System, South East Asia Crisis and Current Trends.

Unit II :
Foreign Exchange Risk: Transaction Exposure; Accounting Exposure and Operating Exposure – Management of Exposures – Internal Techniques, Management of Risk in Foreign Exchange Markets: Forex Derivatives – Swaps, futures and Options and Forward Contracts.

Unit III :
Features of Different International Markets: Euro Loans, CPs, Floating Rate Instruments, Loan Syndication, Euro Deposits, International Bonds, Euro Bonds and Process of Issue of GDRs and ADRs.
Unit IV :

Foreign Investment Decisions : Corporate Strategy and Foreign Direct Investment; Multinational Capital Budgeting; International Acquisition and Valuation, Adjusting for Risk in Foreign Investment.

Unit V:
International Accounting and Reporting; Foreign Currency Transactions, Multinational Transfer Pricing and Performance Measurement; Consolidated Financial Reporting.

Suggested Readings:
1. Buckley Adrin, Multinational Finance, 3rd Edition, Engle Wood Cliffs, Prentice Hall of India.
2. S.P.Srinivasan, B.Janakiram, International Financial Management, Wiley India, New Delhi.
3. Clark, International Financial Management, Cengage, ND
4. V.Sharan, International Financial Management, 3rd Edition, Prentice Hall of India.
5. A.K.Seth, International Financial Management, Galgothia Publishing Company.
6. Satyanarayana, Global Financial Management, Discovery Publishing House, New Delhi
7. P.G.Apte, International Financial Management, Tata McGrw Hill, 3rd Edition.
8. Bhalla, V.K., International Financial Management, 2nd Edition, New Delhi, Anmol, 2001.
9. V.A.Avadhani, International Financial Management, Himalaya Publishing House.

II Year IV Semester	FINANCIAL DERIVATIES	L	T	P	C
EFM-404		4	0	0	3

Course Objective:

To provide students with a comprehensive understanding of financial derivative instruments, their valuation, trading mechanisms, and risk management strategies. The course emphasizes the application of derivatives in hedging, speculation, and arbitrage, along with regulatory practices in India.

Course Outcomes (COs)

- **CO1:** Understand the fundamentals, types, and evolution of financial derivatives, especially in the Indian context.
- **CO2:** Analyze forward contracts, pricing mechanisms, and evaluate the risks and returns associated with forward trading.
- **CO3:** Comprehend the structure and functioning of the futures market, including trading strategies and hedging applications.
- **CO4:** Evaluate option contracts using pricing models and understand their role in financial risk management.
- **CO5:** Examine different types of swaps and understand their applications in managing interest rate, currency, and commodity risks.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO5	3	3	3	3	2	2	-	-	-	-	-	-	3	-	-

Unit - I:

introduction to Financial Derivatives – Meaning and Need – Growth of Financial Derivatives in India – Derivative Markets – Participants- Functions – Types of Derivatives – Forwards – Futures – Options-Swaps – The Regulatory Framework of Derivatives Trading in India.

Unit –II:

Forward Market: Concept- features of forward contract – classification of forward contractsforward trading mechanism – determination of forward prices – valuing forward contracts – forward prices vs futures prices- payoff from the forward contracts – foreign currency forwards – pricing currency forward contracts.

Unit - III:

Futures Market: Features of Futures –Differences Between Forwards and Futures – Financial Futures – Trading – Currency Futures – Interest Rate Futures – Pricing of Future Contracts-Value at Risk (VaR)-Hedging Strategies – Hedging with Stock Index Futures – Types of Members and Margining System in India – Futures Trading on BSE & NSE. Unit -

IV: Options Market: – Meaning & Need – Options Vs Futures -Types of Options Contracts – Call Options – Put Options Factors Affecting Options pricing- Put-Call Parity Pricing Relationship - Pricing Models - Introduction to Binominal Option Pricing Model – Black Scholes Option Pricing Model.

Unit – V:

Swaps Markets: – Meaning – Overview – The Structure of Swaps – Interest Rate Swaps – Currency Swaps – Commodity Swaps – Swap Variant – Swap Dealer Role –Equity Swaps – Economic Functions of Swap Transactions - FRAs and Swaps.

Suggested Readings:
1. Hull C. John, ―Options, Futures and Other Derivatives‖, Pearson Educations Publishers,
2. David Thomas. W & Dubofsky Miller. Jr., Derivatives valuation and Risk Management, Oxford University, Indian Edition.
3. ND Vohra & BR Baghi, Futures and Options, Tata McGraw-Hill Publishing Company Ltd.
4. Red Head: Financial Derivatives: An Introduction to Futures, Forward, Options‖ Prentice Hall of India.
5. David A. Dubofsky, Thomas W. Miller, Jr.: Derivatives: Valuation and Risk Management, Oxford University Press.
6. Sunil K.Parameswaran, ―Futures Markets: Theory and Practice‖ Tata-McGraw-Hill Publishing Company Ltd.
7. D.C. Patwari, Financial Futures and Options, Jaico Publishing House.
8. T.V. Somanathan, Derivatives, Tata McGraw-Hill Publishing Company Ltd.
9. NSE Manual of Indian Futures & Options & www. Sebi.com
10. S.C. Gupta, Financial Derivatives: Theory, Concepts and Problems, Prentice Hall of India.

II Year IV Semester	GREEN MARKETING	L	T	P	C
EMM-401		3	0	0	3

Course Objective:
- To provide students with a comprehensive understanding of green marketing principles, practices, and strategies, and how environmental sustainability can be integrated into marketing decisions.
- The course aims to develop awareness about green consumer behavior, eco-innovation, environmental regulations, and green business opportunities.

Course Outcomes (COs):
- **CO1:** Understand the concepts of green marketing and the strategic importance of environmental sustainability in marketing.
- **CO2:** Analyze different green marketing approaches and differentiate between authentic and misleading green practices.
- **CO3:** Evaluate the consumer decision-making process in the context of environmentally responsible consumption.
- **CO4:** Understand environmental consciousness and regulatory guidelines related to waste management and sustainable practices.
- **CO5:** Examine real-world green marketing initiatives and evaluate their impact on business and society.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	3	-	-	-	-	-	-	3	2	-
CO2	3	3	2	3	2	3	-	-	-	-	-	-	3	3	-
CO3	2	3	3	2	3	2	-	-	-	-	-	-	2	3	-
CO4	3	3	3	3	2	3	-	-	-	-	-	-	3	3	-
CO5	3	2	3	3	2	3	-	-	-	-	-	-	3	-	-

Unit I –

Green Marketing and Green Product : Introduction to green marketing-strategic green planning-environment and consumption- Green Product- Green Behavior- Five shades of green consumers Segmenting consumers- Green consumer's motives-Buying strategies -Green Business Opportunities- Designing green products-eco-design to eco- innovation-Fundamentals of green marketing-Establishing Credibility-Green distribution and Packaging Contemporary Government polices and subsidies that aids green product development

Unit II –

Green Marketing Concepts: Green Spinning – Green Selling – Green Harvesting – Enviropreneur Marketing - Compliance Marketing – Green Washing – Climate Performance Leadership Index

Unit III –

Purchase Decision: Meaning of Purchase decision – Factors affecting Purchase decision – Steps in the decision making process - Five stages of consumer buying decision process - Models of buyer decision-making

Unit IV –

Environmental consciousness: Introduction of Environment - Importance of environmentalism - Environmental movement - Benefits of green environment to the society - Ewaste exchange - Extended Producer Responsibility Plan - Guidelines for Collection and Storage of E-Waste - Guidelines for Transportation of E-Waste - Guidelines for Environmentally Sound Recycling of E-Waste

Unit V –

Green Marketing Initiatives: Green Firms – HCL's Green Management Policy – IBM's Green Solutions – IndusInd Bank's Solar Powered ATMs – ITCs Paperkraft – Maruti's Green Supply Chain – ONCGs Mokshada Green Crematorium – Reva's Electric Car – Samsung's Ecofriendly handsets- Wipro Infotech's Eco-friendly computer peripherals

References:

1. Green Marketing and Environmental Responsibility in Modern Corporations, Esakki and Thangasamy, IGI Global, 2017
2. Green Marketing Management, Robert Dahlstrom, Cengage Learning, 2010.
Essential Reading / Recommended Reading
1. Green Marketing: Challenges and Opportunities for the New Marketing Age, Jacquelyn A. Ottman, NTC Business Books, 1993
2. The New Rules of Green Marketing, Jacquelyn A. Ottman, Berrett-Koehler Publishers, 2011

II Year IV Semester	MARKETING RESEARCH	L	T	P	C
EMM-402		**3**	**0**	**0**	**3**

Course Objective:
To equip students with the knowledge and skills required to design, conduct, analyze, and present marketing research effectively for data-driven decision-making. The course aims to provide both theoretical and practical understanding of marketing research processes, tools, techniques, and applications in a business context.

Course Outcomes (COs):
- **CO1:** Understand the scope, significance, and ethical issues of marketing research in business decision-making.
- **CO2:** Design effective research frameworks using appropriate data collection methods.
- **CO3:** Apply statistical tools and analytical techniques for data measurement, analysis, and interpretation.
- **CO4:** Utilize software tools like SPSS and Excel to solve real-life marketing problems and gain data-driven insights.
- **CO5:** Prepare and present marketing research reports using effective storytelling and data visualization methods.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	3	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	2	3	-	-	-	-	-	-	3	3	-
CO5	2	2	3	2	3	3	-	-	-	-	-	-	2	-	-

UNIT 1 -
Introduction to Marketing Research: Definition and Scope of Marketing Research, Importance of marketing research in, Business Decision-Making, Marketing Research vs. Market Research, Ethical Issues in Marketing Research

UNIT 2 -
Research Design and data collection methods: Steps in the Marketing research Process, Types of Research: Exploratory, Descriptive, and Causal, Primary vs. Secondary Data, Qualitative Research Methods (Focus Groups, In-depth Interviews, Ethnography), Quantitative Research Methods (Surveys, Experiments, Observations) application and sample size determination.

UNIT 3 -
Measurement Analysis and interpretation: Types of Scales (Nominal, Ordinal, Interval, Ratio), Reliability and Validity in Measurement, Descriptive and Inferential Statistics, Factor and Cluster Analysis

Unit 4 -

Marketing Research Tools and application: SPSS, Excel, and Other Analytical Tools, Data Visualization and Dashboarding, AI and Big Data in Marketing Research Applications of Marketing Research - Consumer Behavior Analysis, Brand Research, Advertising Research, Market Segmentation and Positioning Studies, Product and Pricing Research

Unit 5 -
Reporting and Presentation of Research Findings: Structuring a Research Report, Effective Data Presentation Techniques, Storytelling with Data

REFERENCES:
1. "Marketing Research: An Applied Orientation" – Naresh K. Malhotra - Prentice Hall, 7th Edition
2. "Essentials of Marketing Research" – William G. Zikmund, Barry J. Babin, Cengage Learning, 6th Edition
3. "Marketing Research" – G.C. Beri - McGraw-Hill Education, 5th Edition, 2013
4. "Marketing Research: Text and Cases" – Rajendra Nargundkar - McGraw-Hill Education, 4th Edition, 2015
5. "Marketing Research" – Naresh Malhotra & Satyabhushan Dash - Pearson Education, 7th Edition (Revised), 2019
6. "Marketing Research" – R. Panneerselvam - PHI Learning,1st Edition, 2004

II Year IV Semester	SERVICES MARKETING	L	T	P	C
EMM-403		**3**	**0**	**0**	**3**

Course Objective:

To familiarize students with the concepts, strategies, and practices of services marketing, and to equip them with the skills to plan and implement marketing strategies in service-dominant sectors by understanding customer expectations, service design, pricing, and relationship management.

Course Outcomes (COs):

- **CO1:** Understand the unique characteristics of services and apply market segmentation, targeting, and positioning in the service context.
- **CO2:** Analyze pricing and promotional strategies appropriate for service-based offerings.
- **CO3:** Evaluate service quality, address service failures, and implement relationship marketing strategies.
- **CO4:** Manage service processes, people, and physical evidence to enhance customer satisfaction.
- **CO5:** Apply service marketing concepts to key sectors such as financial, hospitality, healthcare, education, and public utilities.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	2	3	2	-	-	-	-	-	-	3	3	-
CO3	3	2	3	3	2	3	-	-	-	-	-	-	3	3	-
CO4	3	3	3	2	3	3	-	-	-	-	-	-	3	3	-
CO5	3	3	2	2	2	2	-	-	-	-	-	-	3	2	-

Unit – I Introduction to Services Marketing: Understanding Services, Differences in Goods versus Services, Emerging Service Environment, Classification of Services. Service Market Segmentation, Targeting & Positioning: Process of market segmentation, customer loyalty Segmentation, Targeting and Positioning service value addition to the service product, planning and branding service products, new service development.

Unit – II Pricing strategies for services: Service pricing, establishing monetary pricing objectives foundations of pricing objectives, pricing and demand, putting service pricing strategies into practice. Service promotion: The role of marketing communication. Implication for communication strategies, setting communication objectives, marketing communication mix.

Unit – III Implementing Services Marketing: Improving Service Quality and Productivity, SERVQUAL, Service Failures and Recovery Strategies. Customer Relationship Marketing: Relationship Marketing, the nature of service consumption understanding customer needs and expectations, Strategic responses to the intangibility of service performances.

Unit – IV Managing Service Delivery Process: Managing Physical Evidence of Services, Designing and Managing Service Processes, Managing People for Service Advantage.

Unit – V Marketing of Services in Sectors: Financial Services, Health Service, Hospitality Services including travel, hotels and tourism, Professional Service, Public Utility Services, Educational Services.

Text Books:

1. Valarie A. Zeithaml & Mary Jo Bitner - Services Marketing: Integrating Customer Focus

Across The Firm, Third Edition, 2004; Tata McGraw-Hill Publishing Company Ltd, 2008.
2. Christopher H. Lovelock, Jochen Wirtz, Jayanta Chatterjee, Services Marketing: People, Technology, Strategy (A South Asian Perspective) Fifth Edition 2011; Pearson Education
Suggested Readings:
1. Cengiz Haksever, Barry Render, Roberta S. Russel, and Robert G. Murdic: Service Management and Operations (Second Edition); Pearson Education (Singapore) Pte., Ltd., 2003.
2. Kenneth E. Clow & David L. Kurtz: Services Marketing, Biztantra Publication, 2003.
3. Nimit Chowdhary & Monika Chowdhary, Textbook of Marketing of ServicesThe Indian Experience, Macmillan India Ltd., 2005

II Year IV Semester	SALES AND DISTRIBUTION MANAGEMENT	L	T	P	C
EMM-404		3	0	0	3

Course Objective:

To equip students with the knowledge and practical understanding of sales and distribution systems in organizations, focusing on personal selling, sales forecasting, market potential analysis, channel design, wholesaling, retailing, and the integration of sales with marketing strategy.

Course Outcomes (COs):

- **CO1:** Understand the role, functions, and structure of sales management and the integration of sales with marketing.
- **CO2:** Analyze the personal selling process and develop effective sales strategies and budgeting plans.
- **CO3:** Evaluate market potential, forecast sales, set quotas, and design compensation plans.
- **CO4:** Design and manage efficient marketing channels and handle channel conflicts.
- **CO5:** Understand the role of wholesaling and retailing in distribution systems and assess strategic challenges and ethical issues in sales and distribution.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	2	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	3	2	3	-	-	-	-	-	-	3	3	-
CO4	3	2	3	3	3	3	-	-	-	-	-	-	3	3	-
CO5	3		2	2	3	3	2	-	-	-	-	-	-	3	-	-

UNIT 1 - Introduction to Sales Management: Meaning of sales - Evolution of Sales Concept – Nature and Role of Selling – Objectives of Sales Management - Integrating Sales and Marketing Management - Environmental Changes Affecting Sales Management – The Sales Organization – Role of a Sales Organization – Basis for Designing a Sales Organization –Types of Sales Force Structure -Sales Culture – Sales Functions & Policies – Role of a sales manager – responsibilities of sales manager

UNIT 2 - Personal selling: Buyer Seller Dyads – Types of Selling Jobs - Sales Force Objectives and strategies – Theories of Personal Selling – Personal Selling Process - The sales planning process and its importance - Types of Budgets - Methods of Budgeting for Sales Force

UNIT 3 – Assessing Market Potential: Importance of Assessing Market Potential - Analyzing Market Potential – Sales Forecasting Methods – Selecting a Forecasting Methods – definition of sales quota – types of sales quotas – methods of setting sales quotas – sales analysis and audit – compensating sales force – types of compensation plans – designing compensation plans - Determinants of sales force performance - Methods of sales force evaluation

UNIT 4 - Marketing Channels, integration and management: Channel members and their functions - Designing marketing channels - Channel flows and costs –Importance of channel integration – Vertical marketing systems – Types of vertical marketing systems – Horizontal marketing systems - Hybrid channel systems – criteria for selecting channel members – evaluation of channel members – modifying channel arrangements – managing channel relationships - Managing Channel Conflicts

UNIT 5 - Wholesaling & Retailing: Wholesaling and its importance – Types of wholesalers – Strategic issues in wholesaling - Trends shaping wholesale distribution - Challenges in wholesaling - Wholesaling in India –Retailing and its Importance – Evolution of retailing – Classification of retailers - Strategic issues in retailing - Trends in retailing – channel Information system - Ethical and Social Issues in Sales and Distribution Management

Reference books

1. Sales and distribution management – Richard R. still, Edward W. Cundiff, Norman A.P Govoni and Sandeep Puri – Pearson publications.

2. Sales and distribution management – Krishna K Havaldar and Vasant Calvale – Mc Graw hill – 3rd edition

3. Sales and distribution management – Tapan K. Panda, Sunil Sahadev – Oxford Higher Education

4. Sales and distribution management – K. Shridhara Bhat – Himalaya Publishing House

II Year IV Semester	INTRODUCTION TO ARTIFICIAL INTELLIGENCE	L	T	P	C
ESMJ-401		3	0	0	3

Course Objectives:

- Introduce the foundational concepts and techniques of Artificial Intelligence.
- Develop an understanding of intelligent agents, problem-solving, and search strategies.
- Explore various approaches to knowledge representation and reasoning under uncertainty.
- Introduce AI techniques such as game playing, constraint satisfaction, planning, and expert systems.
- Prepare students to apply AI tools to real-world problem domains.

Course Outcomes (COs):

- **CO1:** Understand the basic concepts, scope, and problems of AI and design simple intelligent agents.
- **CO2:** Apply uninformed and informed search strategies to solve AI problems.
- **CO3:** Analyze and implement constraint satisfaction and adversarial search in competitive environments.
- **CO4:** Represent knowledge using logic-based and rule-based systems for reasoning and decision making.
- **CO5:** Apply probabilistic reasoning techniques, planning methodologies, and understand expert systems and their applications.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	3	2	-	-	-	-	-	-	3	3	-
CO5	3		3	2	3	2	2	-	-	-	-	-	-	3	-	-

UNIT–I Introduction, Overview of Artificial Intelligence: Problems of AI, AI technique, Tic - Tac - Toe problem. Intelligent Agents, Agents & environment, nature of environment, structure of agents, goal based agents, utility based agents, learning agents. Problem Solving, Problems, Problem Space & search: Defining the problem as state space search, production system, problem characteristics, and issues in the design of search programs.

UNIT–II Search techniques: Problem solving agents, searching for solutions; uniform search strategies: breadth first search, depth first search, depth limited search, bidirectional search, comparing uniform search strategies. Heuristic search strategies Greedy best-first search, A* search, AO* search, memory bounded heuristic search: local search algorithms & optimization problems: Hill climbing search, simulated annealing search, local beam search

UNIT-III Constraint satisfaction problems: Local search for constraint satisfaction problems. Adversarial search, Games, optimal decisions & strategies in games, the minimax search procedure, alphabeta pruning, additional refinements, iterative deepening.

UNIT– IV Knowledge & reasoning: Knowledge representation issues, representation & mapping, approaches to knowledge representation. Using predicate logic, representing simple fact in logic, representing instant & ISA relationship, computable functions & predicates, resolution, natural deduction. Representing knowledge using rules, Procedural verses declarative knowledge, logic programming, forward verses backward reasoning, matching, control knowledge.

UNIT–V Probabilistic reasoning: Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafer theory, Planning Overview, components of a planning system, Goal stack planning, Hierarchical planning, other planning techniques Expert Systems: Representing and using domain knowledge, expert system shells, and knowledge acquisition.

Text Books:

1. Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach

2. Artificial Intelligence, Russel, Pearson

Reference Books:

3. Artificial Intelligence, Ritch & Knight, TMH

4. Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI

5. Logic & Prolog Programming, Saroj Kaushik, New Age International

6. Expert Systems, Giarranto, VIKAS

II Year IV Semester	ENTERPRISE RESOURCE PLANNING	L	T	P	C
ESMJ-402		3	0	0	3

Course Objectives (COs):
- Provide an understanding of the evolution and concepts of ERP systems.
- Explore the ERP implementation life cycle and associated challenges.
- Analyze post-implementation activities including maintenance, change management, and security.
- Evaluate ERP system options, selection criteria, and project impact measurements.
- Investigate current trends and future directions in ERP systems and technologies.

Course Outcomes (COs):
- **CO1:** Explain the fundamentals, evolution, and scope of ERP systems including integration with SCM and CRM.
- **CO2:** Identify ERP implementation methodologies, challenges, and success/failure factors.
- **CO3:** Evaluate post-implementation activities including change management, maintenance, and ERP support.
- **CO4:** Apply methods for ERP system selection, project evaluation, and IT project approval.
- **CO5:** Analyze trends, future directions, and technological advancements shaping the ERP landscape.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	3	2	3	-	-	-	-	-	-	3	3	-
CO3	3	3	3	2	2	3	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	3	2	-	-	-	-	-	-	3	3	-
CO5	3	3	2	2	2	2	-	-	-	-	-	-	3	-	-

UNIT- I: Introduction to ERP: Overview of ERP – Introduction and Evolution –advanced ERP- SCM and CRM systems and related technologies – ERP life cycle ERP implementation Life cycle- SDLC and ERP lifecycle.

UNIT-II: ERP Implementation: reasons for ERP failure. Pre – implementation Tasks – Implementation methodologies – Process definition - Dealing with employee resistance Training and Education – Project management and monitoring Success and failure factors of an ERP implementation.

UNIT-III: Post ERP implementation: Change Management – post implementation review, support, maintenance and security of ERP. Different business modules of an ERP package. ERP market place and market place dynamics.

UNIT-IV: ERP System Options and Selection Methods: Optimal Means of Developing an ERP, Measurement of Project Impact, IT Selection and Project Approval, ERP proposal Evaluation, Project Evaluation Techniques.

UNIT--V: ERP present and future: Turbo charge the ERP system- EAI – ERP. Internet and WWW- Future Directions and trends in ERP – Future Directions in ERP: New Markets, New Technologies, Faster Implementation Methodologies, New Business Segments, Trends in Security.

Relevant cases have to be discussed in each unit and in examination case is compulsory from anyunit.

References:

1. Singla: ―Enterprise Resource Planning‖, Cengage Learning, New Delhi, 2013.

2. Alexleon: ―Enterprise Resource Planning‖, TMH, New Delhi, 2011.

3. Mahadeo Jaiswal, Ganesh Vanapalli: ―Enterprise Resource Planning‖, MacMillon, New Delhi,2013.

4. N.Venkateswaran: ―Enterprise Resource Planning‖, SCITECH Publiscation, New Delhi, 2009.

5. S.Kesharwani, SBodduluri, M Ashok Kumar: ―Enterprise Resource Planning‖, Paramount Publishing House, New Delhi, 2012.

II Year IV Semester	INTERNET OF THINGS	L	T	P	C
ESMJ-403		3	0	0	3

Course Objectives (COs):

1. Introduce the fundamental concepts and building blocks of IoT systems.
2. Explore reference architectures and data pipelines in IoT.
3. Provide insight into sensors, industrial systems, and data acquisition technologies.
4. Understand networking protocols and communication models relevant to IoT.
5. Study IoT data storage, processing, visualization, and security mechanisms with industry-specific use cases.

Course Outcomes(cos)

- **CO1:** Understand the fundamental concepts and various applications of IoT across industries.
- **CO2:** Analyze and design IoT system architectures and data pipelines.
- **CO3:** Integrate sensors and understand the functioning of industrial control systems.
- **CO4:** Apply IoT-specific networking technologies and communication protocols.
- **CO5:** Manage time-series data, visualize IoT data, and ensure security and privacy in IoT systems.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	1	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	3	2	-	-	-	-	-	-	3	3	-
CO5	3	3	3	2	3	2	-	-	-	-	-	-	3	3	-

UNIT– I Introduction to IoT and Use cases: Understanding basic concepts of IoT, Consumer IoT vs Industrial Internet, Fundamental building blocks, Use Cases of IoT in various industry domains.

UNIT- II Architecture: IoT reference architectures, Industrial Internet Reference Architecture, Edge Computing, IoT Gateways, Data Ingestion and Data Processing Pipelines, Data Stream Processing.

UNIT-III Sensors and Industrial Systems: Introduction to sensors and transducers, integrating sensors to sensor processing boards, introduction to industrial data acquisition systems, industrial control systems and their functions.

UNIT–IV Networking and Communication for IoT: Recap of OSI 7 layer architecture and mapping to IoT architecture, Introduction to proximity networking technologies (ZigBee, Bluetooth, Serial Communication), Industrial network protocols (Modbus, CANbus), Communicating with cloud applications (web services, REST, TCP/IP and UDP/IP sockets, MQTT, WebSockets, protocols. Message encoding (JSON, Protocol Buffers).

UNIT –V IoT Data Processing and Storage: Time Series Data and their characteristics, time series databases, basic time series analytics, data summarization and sketching, dealing with noisy and missing data, anomaly and outlier detection.

a) IoT Applications • Smart Cities • Connected Vehicles and Telematics • Smart Grids • Smart Homes, b) IoT data visualization

c) Survey of cloud based IoT platforms

d) Low power wide area networks for IoT

e) IoT device management

f) Survey of chips, embedded modules and development boards for IoT devices

g) Embedded and real-time operating systems for IoT

h) IoT Security

• Security risks in IoT

• Securing IoT endpoint devices and secure communication protocols for IoT

• Security and Privacy of IoT data

Text Books:

    1. The Internet of Things, Samuel Greengard, MIT Press Essential Knowledge Series,

II Year IV Semester	DATA ANALYTICS	L	T	P	C
ESMJ-404		**3**	**0**	**0**	**3**

Course Objectives (COs):

This course aims to:

1. Familiarize students with data management concepts and sources.
2. Provide knowledge of analytical tools, data modeling, and their applications in business.
3. Impart hands-on understanding of regression, classification, and segmentation models.
4. Enable the application of forecasting and time series methods.
5. Equip learners with various data visualization techniques for analytical storytelling.
   .

Course Outcomes (COs):

- **CO1:** Design and manage data architectures and handle various forms of real-world data including sensor and signal data.
- **CO2:** Utilize appropriate data modeling techniques and tools for business analytics.
- **CO3:** Apply regression and logistic models to analyze business problems and interpret model results.
- **CO4:** Differentiate between regression and segmentation methods, and apply time series analysis for forecasting.
- **CO5:** Employ data visualization methods to interpret and communicate complex data patterns effectively.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	1	2	-	-	-	-	-	-	3	2	-
CO2	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO3	3	3	3	3	2	2	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	3	2	-	-	-	-	-	-	3	3	-
CO5	3		3	3	2	3	2	-	-	-	-	-	-	3	3	-

UNIT-I Data Management: Design Data Architecture and manage the data for analysis, underst and various sources of Data like Sensors/Signals/GPS etc. Data Management, Data Quality (noise, outliers, missing values, duplicate data) and Data Processing & Processing.

UNIT-II Data Analytics: Introduction to Analytics, Introduction to Tools and Environment, Application of Modeling in Business, Databases & Types of Data and variables, Data Modeling Techniques, Missing Imputations etc. Need for Business Modeling.

UNIT-III Regression – Concepts, Blue property assumptions, Least Square Estimation, Variable Rationalization, and Model Building etc. Logistic Regression: Model Theory, Model fit Statistics, Model Construction, Analytics applications to various Business Domains etc.

UNIT-IV Object Segmentation: Regression Vs Segmentation – Supervised and Unsupervised Learning, Tree Building – Regression, Classification, Overfitting, Pruning and Complexity, Multiple Decision Trees etc. Time Series Methods: Arima, Measures

of Forecast Accuracy, STL approach, Extract features from generated model as Height, Average Energy etc. and Analyse for prediction.

UNIT-V Data Visualization: Pixel-Oriented Visualization Techniques, Geometric Projection Visualization Techniques, Icon-Based Visualization Techniques, Hierarchical Visualization Techniques, Visualizing Complex Data and Relations..

TEXT BOOKS:

1. Student's Handbook for Associate Analytics – II, III.

2. Data Mining Concepts and Techniques, Han, Kamber, 3rd Edition, Morgan Kaufmann Publishers.

Reference Books:

1. Introduction to Data Mining, Tan, Steinbach and Kumar, Addision Wisley, 2006.

2. Data Mining Analysis and Concepts, M. Zaki and W. Meira

3. Mining of Massive Datasets, Jure Leskovec Stanford

II Year IV Semester	NATURAL LANGUAGE PROCESSING	L	T	P	C
EAI-401		3	0	0	3

Course Objectives:

- This course introduces the fundamental concepts and techniques of natural language processing (NLP).
- Students will gain an in-depth understanding of the computational properties of natural languages and the commonly used algorithms for processing linguistic information.
- The course examines NLP models and algorithms using both the traditional symbolic and the more recent statistical approaches.
- Enable students to be capable to describe the application based on natural language processing and to show the points of syntactic, semantic and pragmatic processing

Course Outcomes:

- **CO1:** Understand the origins, challenges, and foundational concepts in Natural Language Processing (NLP).
- **CO2:** Analyze and apply word-level statistical models, such as N-grams and PoS tagging techniques.
- **CO3:** Evaluate syntactic analysis methods including CFGs, parsing strategies, and probabilistic grammars.
- **CO4:** Develop semantic representations and perform Word Sense Disambiguation using various approaches.
- **CO5:** Explore discourse analysis techniques and utilize lexical resources for NLP tasks.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2				-	-	-	-	-	-	-	3		-
CO2	3	3	2	2	2	-	-	-	-	-	-	-	3	2	-
CO3	3	3	3	2	2	-	-	-	-	-	-	-	3	2	-
CO4	3	3	3	3	3	-	-	-	1	-	-	-	3	3	-
CO5	3		3	3	2	3	-	-	-	1	-	-	3	3	-

UNIT I:

INTRODUCTION: Origins and challenges of NLP – Language Modeling: Grammar-based LM, Statistical LM – Regular Expressions, Finite-State Automata – English Morphology, Transducers for lexicon and rules, Tokenization, Detecting and Correcting Spelling Errors, Minimum Edit Distance.

UNIT II:

WORD LEVEL ANALYSIS: Unsmoothed N-grams, Evaluating N-grams, Smoothing, Interpolation and Backoff – Word Classes, Part- of-Speech Tagging, Rule-based, Stochastic and Transformation-based tagging, Issues in PoS tagging – Hidden Markov and Maximum Entropy models.

UNIT III:

SYNTACTIC ANALYSIS: Context-Free Grammars, Grammar rules for English, Treebanks, Normal Forms for grammar – Dependency Grammar – Syntactic Parsing, Ambiguity, Dynamic Programming parsing – Shallow parsing Probabilistic CFG,

Probabilistic CYK, Probabilistic Lexicalized CFGs – Feature structures, Unification of feature structures

UNIT IV:

SEMANTICS AND PRAGMATICS: Requirements for representation, First-Order Logic, Description Logics – Syntax-Driven Semantic analysis, Semantic attachments – Word Senses, Relations between Senses, Thematic Roles, selectional restrictions – Word Sense Disambiguation,

WSD using Supervised, Dictionary & Thesaurus, Bootstrapping methods – Word Similarity using Thesaurus and Distributional methods.

UNIT V:

DISCOURSE ANALYSIS AND LEXICAL RESOURCES: Discourse segmentation, Coherence – Reference Phenomena, Anaphora Resolution using Hobbs and Centering Algorithm –Coreference Resolution – Resources: Porter Stemmer, Lemmatizer, Penn Treebank, Brill's Tagger, WordNet, PropBank, FrameNet, Brown Corpus, British National Corpus (BNC).

Text Books:

1. Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech, 2ndEdition, Daniel Jurafsky, James H. Martin - Pearson Publication,2014.

2. Natural Language Processing with Python, First Edition, Steven Bird, Ewan Klein and Edward Loper, OReilly Media,2009.

Reference Books:

1. Language Processing with Java and Ling Pipe Cookbook, 1stEdition, Breck Baldwin, Atlantic Publisher, 2015.

2. Natural Language Processing with Java, 2ndEdition, Richard M Reese, OReilly Media,2015.

3. Handbook of Natural Language Processing, Second, NitinIndurkhya and Fred J. Damerau, Chapman and Hall/CRC Press, 2010.Edition

4. Natural Language Processing and Information Retrieval, 3rdEdition, TanveerSiddiqui, U.S. Tiwary, Oxford University Press,2008.

II Year IV Semester	AUGMENTED REALITY & VIRTUAL REALITY	L	T	P	C
EAI-402		3	0	0	3

Course Objectives:

• Provide a foundation to the fast growing field of AR and make the students aware of the various AR concepts.

• To give historical and modern overviews and perspectives on virtual reality. It describes the fundamentals of sensation, perception, technical and engineering aspects of virtual reality systems.

Course Outcomes:

- **CO1:** Understand the fundamental concepts, history, and technologies behind Augmented Reality and its various applications.
- **CO2:** Explain and apply various computer vision techniques and interaction modalities used in AR systems.
- **CO3:** Describe Virtual Reality systems, underlying geometry, light optics, and human perception essential for immersive experiences.
- **CO4:** Analyze the human visual system and perception principles to enhance rendering and realism in VR environments.
- **CO5:** Evaluate and apply principles of motion, interaction, and audio in both real and virtual worlds to design immersive systems.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1		2	-	-	-	-	-	-	-	3	2	-
CO2	3	3	2	2	3	-	-	-	-	-	-	-	3	2	-
CO3	3	2	3	-	2	-	-	-	-	-	-	-	2	2	-
CO4	2	2	3	1	2	-	-	-	-	-	-	-	2	3	-
CO5	3	3	3	2	3	1	-	-	-	-	-	-	3	3	-

UNIT - I

Introduction to Augmented Reality: Augmented Reality - Defining augmented reality, history of augmented reality, Examples, Related fields Displays: Multimodal Displays, Visual Perception, Requirements and Characteristics, Spatial Display Model, Visual Displays Tracking: Tracking, Calibration, and Registration, Coordinate Systems, Characteristics of Tracking Technology, Stationary Tracking Systems, Mobile Sensors

UNIT - II

Computer Vision for Augmented Reality: Marker Tracking, Multiple-Camera Infrared Tracking, Natural Feature Tracking by Detection, Outdoor Tracking.

Interaction: Output Modalities, Input Modalities, Tangible Interfaces, Virtual User Interfaces on Real Surfaces, Augmented Paper, Multi-view Interfaces, Haptic Interaction Software Architectures: AR Application Requirements, Software Engineering Requirements, Distributed Object Systems, Dataflow, Scene Graphs.

UNIT - III

Introduction to Virtual Reality: Defining Virtual Reality, History of VR, Human Physiology and Perception The Geometry of Virtual Worlds: Geometric Models, Axis-Angle Representations of Rotation, Viewing Transformations Light and Optics: Basic Behavior of Light, Lenses, Optical Aberrations, The Human Eye, Cameras, Displays

UNIT - IV

The Physiology of Human Vision: From the Cornea to Photoreceptors, From Photoreceptors to the Visual Cortex, Eye Movements, Implications for VR

Visual Perception: Visual Perception - Perception of Depth, Perception of Motion, Perception of Color Visual Rendering: Visual Rendering -Ray Tracing and Shading Models, Rasterization, Correcting Optical Distortions, Improving Latency and Frame Rates, Immersive Photos and Videos.

UNIT - V

Motion in Real and Virtual Worlds: Velocities and Accelerations, The Vestibular System, Physics in the Virtual World, Mismatched Motion and Vection Interaction: Motor Programs and Remapping, Locomotion, Social Interaction Audio: The Physics of Sound, The Physiology of Human Hearing, Auditory Perception, Auditory Rendering.

Text Books:

1. Augmented Reality: Principles & Practice by Schmalstieg / Hollerer, Pearson Education India;First edition (12 October 2016),ISBN-10: 9332578494

2. Virtual Reality, Steven M. LaValle, Cambridge University Press, 2016

Reference Books:

1. Allan Fowler-AR Game Development‖, 1st Edition, A press Publications, 2018, ISBN 978-1484236178

2. Understanding Virtual Reality: Interface, Application and Design, William R Sherman and Alan B Craig, (The Morgan Kaufmann Series in Computer Graphics)". Morgan Kaufmann Publishers, San Francisco, CA, 2002

3. Developing Virtual Reality Applications: Foundations of Effective Design, Alan B Craig, William R Sherman and Jeffrey D Will, Morgan Kaufmann, 2009

4. Designing for Mixed Reality, Kharis O'Connell Published by O'Reilly Media, Inc., 2016, ISBN:9781491962381

5. Sanni Siltanen- Theory and applications of marker-based augmented reality. Julkaisija – Utgivare Publisher. 2012. ISBN 978-951-38-7449-0

6. Gerard Jounghyun Kim, "Designing Virtual Systems: The Structured Approach", 2

II Year IV Semester	DEEP LEARNING	L	T	P	C
EAI-403		**3**	**0**	**0**	**3**

Course Objecives:

The main objective of the course is to make students:

• Learn deep learning methods for working with sequential data,

• Learn deep recurrent and memory networks,

• Learn deep Turing machines,

• Apply such deep learning mechanisms to various learning problems.

• Know the open issues in deep learning, and have a grasp of the current research directions.

Course Outcomes:

- **CO1:** Understand the evolution and core concepts of machine learning and the fundamentals of deep learning.
- **CO2:** Explain biological inspirations and architectural components of deep neural networks, and strategies for training and optimization.
- **CO3:** Implement and evaluate neural networks using frameworks like Keras, TensorFlow, and Theano for various classification tasks.
- **CO4:** Apply CNNs and RNNs using PyTorch for advanced deep learning tasks involving spatial and sequential data.
- **CO5:** Explore cutting-edge applications and research topics in deep learning including GANs, NLP, and Autoencoders.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	-	-	-	-	-	-	-	2	2	-
CO2	3	3	2	2	3	-	-	-	-	-	-	-	3	2	-
CO3	3	3	3	2	3	-	-	-	-	-	-	-	3	3	-
CO4	2	3	3	3	3	-	-	-	-	-	-	-	3	3	-
CO5	3	3	3	3	3	1	-	-	-	-	-	-	3	3	-

UNIT I:

Fundamentals of Deep Learning: Artificial Intelligence, History of Machine learning: Probabilistic Modeling, Early Neural Networks, Kernel Methods, Decision Trees, Random forests and Gradient Boosting Machines, Fundamentals of Machine Learning: Four Branches of Machine Learning, Evaluating Machine learning Models, Overfitting and Underfitting. [Text Book 2]

UNIT II:

Introducing Deep Learning: Biological and Machine Vision, Human and Machine Language, Artificial Neural Networks, Training Deep Networks, Improving Deep Networks.[Text Book3]

UNIT III:

Neural Networks: Anatomy of Neural Network, Introduction to Keras: Keras, Tensor Flow, Theano and CNTK, Setting up Deep Learning Workstation, Classifying Movie Reviews: Binary Classification, Classifying newswires: Multiclass Classification. [Text Book 2]

UNIT IV:

Convolutional Neural Networks: Nerual Network and Representation Learing, Convolutional Layers, Multichannel Convolution Operation, Recurrent Neural Networks: Introduction to RNN, RNN Code, PyTorch Tensors: Deep Learning with PyTorch, CNN in PyTorch. [Text Book 3]

UNIT V:

Interactive Applications of Deep Learning: Machine Vision, Natural Language processing, Generative Adversial Networks, Deep Reinforcement Learning. [Text Book 1] Deep Learning Research: Autoencoders, Deep Generative Models: Boltzmann Machines Restricted Boltzmann Machines, Deep Belief Networks. [Text Book 1]

Text Books:

1. Deep Learning- Ian Goodfellow, Yoshua Bengio and Aaron Courvile, MIT Press, 2016

2. Deep Learning with Python - Francois Chollet, Released December 2017, Publisher(s): Manning Publications, ISBN: 9781617294433

3. Deep Learning Illustrated: A Visual, Interactive Guide to Artificial Intelligence - Jon Krohn, Grant Beyleveld, Aglaé Bassens, Released September 2019, Publisher(s): Addison-Wesley Professional, ISBN: 9780135116821

4. Deep Learning from Scratch - Seth Weidman, Released September 2019, Publisher(s): O'Reilly Media, Inc., ISBN: 9781492041412

Reference Books:

1. Artificial Neural Networks, Yegnanarayana, B., PHI Learning Pvt. Ltd, 2009.

2. Matrix Computations, Golub, G.,H., and Van Loan,C.,F, JHU Press,2013.

3. Neural Networks: A Classroom Approach, Satish Kumar, Tata McGraw-Hill Education, 2004.

Web Link:Swayam NPTEL: Deep Learning:
    https://onlinecourses.nptel.ac.in/noc22_cs22/preview

II Year IV Semester	DATA VISUALIZATION	L	T	P	C
EAI-404		3	0	0	3

Course Objectives:
• To understand the fundamentals of data visualization.
• To know the working principles of various information visualization depth tools.
• To acquire knowledge about the issues in data representation.
• To visualize the Data using tools Tableau
• To gain skill in designing real time interactive information visualization system.

Course Outcomes:
 Upon completion of the course, the students will be able to
• Apply mathematics and basic science knowledge for designing information visualizing System.
• Collect data ethically and solve engineering problem in visualizing the information.
 • Implement algorithms and techniques for interactive information visualization. • Conduct experiments by applying various modern visualization tool and solve the space layout problem.
• Analyze and design system to visualize multidisciplinary multivariate Data individually or in teams. Develop a cost effective and a scalable information visualization system.

CO-PO/PSO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	1		-	-	-	-	-	-	-	3	2	-
CO2	2	3	2	2		3	-	-	-	-	-	-	2	3	-
CO3	2	2	3	2	2	-	-	-	-	-	-	-	3	3	-
CO4	2	3	3	3	3	-	-	-	-	-	-	-	3	2	-
CO5	3	2	3	2	2		-	-	-	-	-	-	3	3	-

UNIT-1 Context of data visualization – Definition, Methodology, Visualization design objectives. Key Factors – Purpose, visualization function and tone, visualization design options – Data representation, Data Presentation, Seven stages of data visualization, widgets, data visualization tools. Mapping - Time Series - Connections and Correlations - Scatterplot Maps - Trees, Hierarchies, and Recursion - Networks and Graphs

Unit II VISUALIZATION TECHNIQUES FOR TIME-SERIES, TREES & GRAPHS Mapping - Time series - Connections and correlations – Indicator-Area chart-Pivot table- Scatter charts, Scatter maps - Tree maps, Space filling and non-space filling methods Hierarchies and Recursion - Networks and Graphs-Displaying Arbitrary Graphs-node link graph-Matrix representation for graphs- Info graphics

Unit III TEXT AND DOCUMENT VISUALIZATION : Acquiring data, - Where to Find Data, Tools for Acquiring Data from the Internet, Locating Files for Use with Processing, Loading Text Data, Dealing with Files and Folders, Listing Files in a Folder ,Asynchronous Image Downloads, Web Techniques, Parsing data - Levels of Effort, Tools for Gathering Clues, Text Markup Languages, Regular Expressions, Grammars and BNF Notation, Compressed Data, Vectors and Geometry, Binary Data Formats, Advanced Detective Work.

Unit IV INTERACTIVE DATA VISUALIZATION: Drawing with data – Scales – Axes –Updates, Transition and Motion – Interactivity - Layouts – Geomapping – Exporting, Framework – D3.js, Tableau Dashboards

Unit V SECURITY IN DATA VISUALIZATION : Port scan visualization - Vulnerability assessment and exploitation - Firewall log visualization - Intrusion detection log visualization -Attacking and defending visualization systems – Creating secured visualization system..

REFERENCES:

1) Colin Ware, "Information Visualization Perception for Design", Third edition, Margon Kaufmann Publishers, 2012.

2) Robert Spence, "Information Visualization Design for Interaction", Second Edition, Pearson Education.

3) Matthew O. Ward, George Grinstein, Daniel Keim, "Interactive Data Visualization: Foundation, Techniques and Applications

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