University of Engineering and Management

Institute of Engineering & Management, Salt Lake Campus Institute of Engineering & Management, New Town Campus University of Engineering & Management, Jaipur

Model Curricular Framework for UG Degree in Bachelor in Business Administration (BBA), Bachelor in Business Administration (Honours) & Bachelor in Business Administration (Honours with Research)

(Under AICTE)

Following the guidelines of NEP 2020

GENERAL COURSE STRUCTURE & THEME

A. Definition of Credit:

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit
2 Hours Practical (P) per week	1 Credit

B. Course code and definition:

Course code	Definitions
L	Lecture
T	Tutorial
P	Practical
CC	Core Courses
AEC	Ability Enhancement Courses
MDE	Multi-Disciplinary Elective course
VAC	Value added Courses
SEC	Skill Enhancement courses
DSE	Discipline Specific Elective
OE	Open Elective

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Course Name: Bachelor in Business Administration, Bachelor in Business Administration (Honours) and Bachelor in Business Administration (Honours with Research)

Course Level/Duration/System: Undergraduate / Three or Four years/6 or 8 Semesters with multiple entry and exit. The following option will be made available to the students joining BBA Research Program:

a. **One year:** Under Graduate Certificate in Business Administration
b. **Two years**: Under Graduate Diploma in Business Administration
c. **Three years**: Bachelor in Business Administration (BBA)
d. **Four years**: Bachelor in Business Administration with Honours: BBA (Hon- ours) and Bachelor in Business Administration Honours with Research: BBA (Honours with Research)

Minimum eligibility criteria for opting the course in the fourth year will be as follows:

- **BBA (Honours with Research):** Minimum 75% marks or equivalent CGPA in BBA Degree up to Sixth Semester.

- **For BBA (Honours)**: BBA Degree

Note : The students who are eligible for BBA (Honours with Research) shall have choice to pursue either BBA (Honours) or BBA (Honours with Research).

Semester wise Structure and Curriculum for UG Course in BBA

SEMESTER - I								
S. No.	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Type**	**CA**
3 WEEKS COMPULSORY INDUCTION PROGRAM (UHV-I)								
1	CC	Principles and Practices of Management	3	1	0	4	Th	
2	AEC	Business Communication-I	3	1	0	4	Th	
3	CC	Financial accounting	3	1	0	4	Th	FC
4	CC	Business Statistics and Logic	3	1	0	4	Th	FC
5	CC	Business Economics I	3	1	0	4	Th	FC
6	AEC	General English	1	1	0	2	Ses	
7	MDE	Indian Knowledge System^	2	0	0	2	Ses	
8	VAC	Environmental Science and sustainability	2	0	0	2	Ses	
9	SEC	General Studies & Current Affairs- I	2	0	1	2	Th	
10	VAC	Competitive Aptitude Training-I	2	0	0	1	Ses	
11	AEC	Additional Course - Indian or Foreign Language 1-1-0)) [optional course]*	1	1	0	0*		
					TOTAL	**29**		

Note: ^Indian Knowledge System: Indian Culture and Civilization Indian Vision for Human Society Indian Science Indian Town Planning and Architecture Indian Mathematics and Astronomy Indian Aesthetics Indian Health, Wellness

*Indian Languages: Sanskrit/Hindi/All Regional languages Foreign Languages: Spanish/German/French/Korean/Mandarin

Sl.	**Subject Type**	**Code**	**Subject Name**	Credit/Point/Number
12.		IFC	Industry & Foreign Certification (IFC)	At least 3 certificates need to be earned in each semester. Total min 20 certificates required in 4 years program
13.		MAR181	Mandatory Additional Requirements (MAR)	As per University norms
14.	**MOOCs 5**	MOOCs	At least 1 MOOCs course from Swayam Platform	20 credits need to be earned in 4 years program

Subject Name: Principles and Practices of Management Credit: 4

Lecture Hours: 48

Subject Code: BBABB101

COURSE OBJECTIVES:

1. To enable the students to study the evolution of Management,
2. To study the functions and principles of management.
3. To learn the application of the principles in an organization.
4. To enable the effective and barriers communication in the organization

COURSE OUTCOMES:

CO 1: Students will be able to understand the fundamental concept of management and its importance in the practical world.

CO 2: Students will be able to identify, define and solve management related problems.

CO 3: Students will understand the contemporary issues and will get some wider exposure with respect to the global perspective.

CO 4: Demonstrate how the different concepts of management gets practiced in organizations and evaluate them to identify scope of improvement

Module number	Topic	Sub-topics	Mapping with Industryand International Academia	Lecture Hours	Text Book	Corresponding Lab Assignment
1	**Management : Science and Theory, Management : Process**	Definition of Management: Its Nature & Purpose. Managing: Science or Art The Evolution of Management Thought The Functions of Management, managerial Functions at Different Organizational Levels. Managerial Skills. The Managerial Roles Approach – Interpersonal Roles, Informational Roles , Decisional Roles.	***International Academia:*** ***https://ocw.mit.edu/courses/15-270-ethical-practice-leading-through-professionalism-social-responsibility-and-system-design-spring-2016/*** ***Industry Mapping:*** Industry specific managerial skills and roles.	10	Chapter – 1 and 2, Principles and practices of management by L. M. Prasad. Sultan Chand and Sons Publications Chapter -2 and 3, Principles of Management, V.S.P Rao, Himalaya Publishing House	1. Case Study on role of a manager for better business outcomes.
2	**Essentials of Planning and Management by Objectives, Strategies, Decision Making**	Concept, Types of Plans, Steps in Planning , Objectives – The nature of objectives, how to set objectives, The Strategic Planning Process, The Portfolio Matrix: A Tool For Allocating Resources, The Importance and Limitations of Rational Decision Making , Development of Alternatives and Limiting Factor, Evaluation of Alternatives , Selecting an Alternative	***International Academia:*** https://ocw.mit.edu/courses/15-965-technology-strategy-for-system-design-and-management-spring-2009/resources/mit15_965s09_case21/ ***Industry Mapping:*** Optimum allocation of available	10	Chapter – 5,6 and 7, Principles and practices of management by L. M. Prasad. Sultan Chand and Sons Publications	2. Case Study on managerial decision making process

			resources for an organization to meet the objective of the organization.			
3	**The Nature of Organizing and Reengineering, Line/ Staff Authority and Decentralization**	Formal and Informal Organization Organizational Division: The Department, Organizational Level and Span of Management. Brief concept of Reengineering Line/ Staff Concepts and Functional Authority. Concept of Centralization and Decentralization	***International Standards*** https://ocw.mit.edu/courses/11-958-getting-things-implemented-strategy-people-performance-and-leadership-january-iap-2009/resources/slides2/ ***Industry Mapping:*** In the present day dynamic business environment, identifying the nature of organizing best suited for the specific business	10	Chapter – 8, Principles and practices of management by L. M. Prasad. Sultan Chand and Sons Publications Chapter – 15, Organizational behavior. 18th ed, Stephen P. Robbins, Timothy A. Judge & Neharika Vohra. Pearson	3. Case Study on concepts of organizational division

4	**Motivation, Leadership, The System and Process of Controlling, Managing Change**	An Early Behavioural Model: Mc.Gregor's Theory X and Y, Maslow's Hierarchy of Needs Theory , Herzberg's Motivation-Hygiene Theory, The Expectancy Theory of Motivation – The Vroom Theory and Practice, Defining Leadership, Approaches – Trait Approaches to Leadership, Situation or Contingency Approaches to Leadership – Fedler's Contingency Approach to Leadership, Transactional and Transformational Leadership The Basic Control Process, Benchmarking, Control as a Feedback System, Real Time Information and Control Feed-forward and Preventive Control, The Balanced Scorecard, Concept of Gantt Chart, PERT. Techniques for Initiating Change, Resistance to Change, Lewin's Change Management Model	***International Standards*** https://ocw.mit.edu/courses/15-316-building-and-leading-effective-teams-summer-2005/resources/leader_dev/ ***Industry Mapping: Employee motivation, Approach to leadership, Organizational change***	18	Chapter – 7, 8, 12 Organizational behavior. 18th ed, Stephen P. Robbins, Timothy A. Judge & Neharika Vohra. Pearson Chapter - 24, Principles of Management, V.S.P Rao, Himalaya Publishing House	4. Case study on concept of organizational change. 5. Case study on the concept of leadership

Submitted by Arunava Dalal and Piyali Banerjee

TEXTBOOK:

1. Principles and practices of management by L. M. Prasad. Sultan Chand and Sons Publications

2. Organizational behavior. 18th ed, Stephen P. Robbins, Timothy A. Judge & Neharika Vohra. Pearson

3. Principles of Management, V.S.P Rao, Himalaya Publishing House

REFERENCE BOOKS:

1. Essentials of Management An International and Leadership Perspective: Harold Koontz and Heinz Weihrich , Edition- ninth, McGraw Hill

2. Organizational behavior. 13th ed, Stephen P. Robbins, Timothy A. Judge & Seema Sanghi. Pearson

LinkedIn Learning:

1. https://www.linkedin.com/learning/business-fundamentals-for-customer-success-managers/principles-of-business-management-drivers-for-change?u=229219690

2. https://www.linkedin.com/learning/business-fundamentals-for-customer-success-managers/principles-of-business-management-drivers-for-change?u=229219690

NPTEL:

Working In Contemporary Teams

https://nptel.ac.in/courses/110106167

CO-PO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
BBACC101- CO1			2		**2**	**3**		**3**
BBACC101- CO2			3		2	2		3
BBACC101-CO3			2		3	2		3
BBACC101-CO4			2		3	2		3

3= Strong 2=Average 1=Weak

PO & PI Mapping:

PO 1 :Students will develop the capability to assess alternate managerial choices and come up with optimal solutions.	
Competency	**Indicators**
1.1Demonstrate competencies in Business Construction Model & Decision-Making Model 1.2 Demonstrate competencies in evaluation of each of the alternatives	1.1.1. Ability to take up analytical approach for problem solving, 1.1.2. Ability to take into consideration minute details and factors that influences a business. 1.2.1 Ability to weigh the pros and cons of each of the alternatives or options available to a functional area of a business.
PO 4 :Communications kills will be enhanced in Synchronization with the functioning of the business analytics algorithms	
Competency	**Indicators**
4.1 To demonstrate the ability to Make effective communication	4.1.1Ability to choose appropriate words while making verbal communication
4.2 To Demonstrate the ability to pursue stakeholders and enhancing the convincing skills	4.1.2 To be able to select proper language and words when making written communication
PO5 :: Students will develop the capability of functioning efficiently within the teams	

Competency	Indicators
5.1 To be able to demonstrate the importance of adjustment and the importance of concentrating other group members' opinion.	5.1.1 The ability to apply the behavioral science when functioning within the group.
PO 6: **Students will be able to integrate functional areas of management for planning, implementation and control of business decisions**	
Competency	**Indicators**
6.1 Demonstration of the ability to identify gaps in a business strategy ,and to be able to close the gaps. 6.2 Demonstrate the identification of changing trends in a business and operation of the functional areas accordingly.	6.1.1. Continuation of Professional development and observational skills, 6.1.2. Using rational approach towards an issue. 6.2.1. Ability to study the changes in preferences of customers 6.2.2. Study in the changes in political space & professional environment.
PO 8: Students will develop the capability to demonstrate increased level of sensitivity towards areas that require ethical and moral addressing during the course of business.	
Competency	**Indicators**
8.1 To demonstrate the ability to identify that there is a moral dilemma in professional space. 8.2 Demonstration of the ability to solve the moral dilemma in professional space.	8.1.1. The ability to identify the confusion or the dilemma that is inexistence. 8.2.1. Ability to select the best path that will serve to a big interest of the stakeholders and the society.

Subject Name: Business Communication-I Credit: 4 Lecture Hours: 48 Subject Code: BBABB102

[Study Material](#) [MIT Opencourseware](#) [NPTEL](#) [LinkedIn Learning](#)

COURSE OBJECTIVES:

1. Students will learn to apply business communication theory to solve workplace communication issues.
2. Students will learn to demonstrate the communication skills required in the workplace.
3. Students will learn to manage resources effectively and efficiently in a professional context.
4. Students will learn to impart the correct practices of the strategies of effective business interactions.

COURSE OUTCOMES:

CO	**Details**
1	Students will learn to distinguish among various levels of organizational communication and communication barriers while developing an understanding of Communication as a process in an organization.
2	Students will learn to stimulate their Critical thinking by designing and developing clean and lucid interpersonal skills.
3	Students will learn to understand and apply basic principles of critical thinking, problem solving, and technical proficiency in the development of exposition and argument.

4	Students will gain information-seeking skills and strategies necessary for sustaining in professional/ corporate workplace.

Module number	Topic	Sub-topics	Text Book as per Syllabus	Mapping with Industryand International Academia	Lecture Hours	Corresponding Lab/Case Study Assignment
1	**Basics of Communication**	• Role of Communication • Defining Communication, • Classification of Communication • Purpose of Communication • Elements of Communication, • Major Difficulties of Communication • Common problems in Two-way communication • Barriers to Communication • Conditions for Successful Communication, • Characteristics of Successful Communication, • Universal Elements in Communication	The Art and Science of Business Communication: Skills, Concepts, Cases, and Application Fourth Edition by PD Chaturvedi Mukesh Chaturvedi PEARSON Chapter – 1	***International Academia:*** ***MIT.Edu*** ***Industry Mapping: Communication Protocols, Content Strategy, Information Architecture***	12	1. Case Study Module 1 B Com.pdf

2	**Communication in Business Environment**	• The process of communication: Linear concept, The Shannon-Weaver Model • The two way communication process • Conditions for successful communication • The seven C's of communication • Universal elements in communication	The Art and Science of Business Communication: Skills, Concepts, Cases, and Application Fourth Edition by PD Chaturvedi Mukesh Chaturvedi PEARSON Chapter - 2	***International Academia: MIT.Edu*** ***Industry Mapping: Signal Transmission Model, Interactive Communication Strategy, Communication Management Plan, Content Marketing Framework***	12	2. Case Study Module 2 B Com.pdf
3	**Writing Skills**	• Applying for Jobs • Writing a CV • The relationship between a Resume and an Application Letter • The Resume of a Recent Graduate • Guidelines for preparing a good CV • Drafting an Application Letter • Business letter • Memo • Notice • Business Report	The Art and Science of Business Communication: Skills, Concepts, Cases, and Application Fourth Edition by PD Chaturvedi Mukesh Chaturvedi PEARSON Chapter – 12	***International Standards MIT.Edu*** ***Industry Mapping: Talent Acquisition Strategy, Personal Branding Narrative, Entry-Level Skills Profile, Data-Driven Analysis & Recommendations***	12	3. Case Study Module 3 B Com.pdf

4	**Communications for Effective Marketing**	• Objectives of Marketing Communication, • Tools of Marketing Communication, • Some new Tools of Marketing Communication • Consumer, Industrial and Trade Marketing Communication, • Institutional and Corporate Marketing Communication, • Marketing Communication Continuum, • Integrated Marketing Communications	The Art and Science of Business Communication: Skills, Concepts, Cases, and Application Fourth Edition by PD Chaturvedi Mukesh Chaturvedi PEARSON Chapter - 17	***International Standards MIT.Edu*** ***Industry Marketing Campaign Goals Mapping, Marketing Mix Optimization, Emerging Marketing Channels, Target Audience Segmentation, Brand Reputation Management***	12	4. Case Study Module 4 B Com.pdf

**Submitted by Suchana Roy, IEM Saltlake campus*

TEXTBOOK:

1. The Art and Science of Business Communication: Skills, Concepts, Cases, and Application Fourth Edition by PD Chaturvedi Mukesh Chaturvedi PEARSON

Reference Book:

1. Effective Technical Communication|2nd Edition McGrawHill
2. Communication Skills 2E Paperback Sanjay Kumar Pushp Lata OXFORD HIGHER PUBLICATION

Subject Name: Financial Accounting **Credit: 4** **Lecture Hours:**

40 Subject Code: - BBABB103

Study Material **MIT Opencourseware** **NPTEL** **LinkedIn Learning**

Coursera

COURSE OBJECTIVES:

1. To help the students to develop cognizance of the importance of financial accountancy.

2. To enable students to read financial statements effectively and aid in decision making process as an investor.

3. To provide the students to analyze financial statements and develop course of action related to financial policies.

4. To enable students to make them understand how the financial instruments work in the market and how they aid in the development of a business.

COURSE OUTCOMES:

CO 1: Students will be able to comprehend the importance of accounting and its need in everyday life.

CO 2: Students will develop an understanding on determination of business income and importance of Accounting Standards.

CO 3: Students will be involved in the preparation of financial statements, and will be able to decipher results out of them.

CO 4: Students will be well aware of the functions, rules and regulations of the financial sector.

Module number	Topic	Sub-topics	Mapping with Industry and International Academia	Text Book as per syllabus with chapter Nos.	Lecture Hours	Corresponding Lab Assignment
1	**Introduction to Financial Accountancy**	Nature of Accounting, Users of Accounting Information, Double Entry Book Keeping System, Accounting Cycle- Journal, Ledger and Trial Balance, Cash Basis and Accrual Basis Accounting.	***International Academia: MIT.Edu*** ***Industry Mapping: Recording of transactions; recognizing credit and cash transactions***	Financial Accounting (A Basu, S Datta) **Ch- 1 and 2**	10	1. Case Study on basic accounting
2	**Determination of Business Income**	Revenue Recognition, Recognition of Expenses, Depreciation, Methods of Depreciation- SLM and WDV (excluding change in method of depreciation); Concept of Reserves and Provisions	***International Academia: MIT.Edu*** ***Industry Mapping: Charging Depreciation (in connection to fixed assets)***	Financial Accounting (A Basu, S Datta) **Ch- 6 (PART A)**	10	2. Practical Examples from Industry: How depreciation is charged. Case Study: The Wells Fargo Banking Scandal By: Luann J. Lynch, Cameron Cutro Link:

						https://hbsp.harvard.edu/product/UV7267-PDF-ENG
3	**Introduction to Accounting Standards**	Importance of GAAP and IFRS, benefits and relevance of accounting standards. Nature of Capital and Revenue Transaction, Differences between capital and revenue transaction.	***International Standards MIT.Edu*** ***Industry Mapping: Learning the importance of Accounting Standards. Recognizing revenue and capital transactions.***	Financial Accounting (A Basu, S Datta) **Ch- 10 and 11**	10	3. Case Study on financial scams that took place before (Indian and Abroad)- Satyam Computers, Enron Scandal. Case Study: Barclays and the LIBOR Scandal By: Clayton S. Rose and Aldo Sesia Link: https://www.hbs.edu/faculty/Pages/item.aspx?num=43888

4	**Final Accounts: Preparation of Financial Statements**	Importance and relevance of final accounts, why final account is prepared, meaning of gross profit/ net profit/ assets and liabilities. Preparation of Trading Account, Profit and Loss Account and Balance Sheet.	***International Standards : MIT.Edu*** ***Industry Mapping: Learning the need of preparing financial statements.***	Financial Accounting (A Basu, S Datta) **Ch- 12**	10	4. Developing comments on financial condition of companies from their annual reports, decision making on investments in companies, with the help of published annual reports.

Submitted by Suchandra Bose, IEM Ashram campus

TEXTBOOK: 1. Financial Accounting by Prof. Amitabha Basu, Sibasish Dutta, TeeDee Publications

REFERENCE BOOKS:

1. Financial Accounting I, Hanif Mukherjee, Tata McGraw Hill.

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3			1	2	3		1		
CO2	2					3				
CO3	2			2						
CO4	3					2		2		

1= Low(Slight) 2=Moderate(Medium) 3= Substantial (High)

PO & PI Mapping:

PO 1 :Students will develop the capability to assess alternate managerial choices and come up with optimal solutions.	
Competency	**Indicators**
1.1Demonstrate competencies in Business Construction Model & Decision-Making Model 1.2 Demonstrate competencies in evaluation of each of the alternatives	1.1.3. Ability to take up analytical approach for problem solving, 1.1.4. Ability to take into consideration minute details and factors that influences a business. 1.2.1 Ability to weigh the pros and cons of each of the alternatives or options available to a functional area of a business.
PO 4 :Communications kills will be enhanced in Synchronization with the functioning of the business analytics algorithms	
Competency	**Indicators**
4.2 To demonstrate the ability to Make effective communication	4.1.1Ability to choose appropriate words while making verbal communication
4.2 To Demonstrate the ability to pursue stakeholders and enhancing the convincing skills	4.1.2 To be able to select proper language and words when making written communication
PO5 :: Students will develop the capability of functioning efficiently within the teams	
Competency	**Indicators**
5.2 To be able to demonstrate the importance of adjustment and the importance of concentrating other group members' opinion.	5.1.1 The ability to apply the behavioral science when functioning within the group.
PO 6: Students will be able to integrate functional areas of management for planning, implementation and control of business decisions	
Competency	**Indicators**
6.2 Demonstration of the ability to identify gaps in a business strategy ,and to be able to close the gaps.	6.1.3. Continuation of Professional development and observational skills, 6.1.4. Using rational approach towards an issue.

6.2 Demonstrate the identification of changing trends in a business and operation of the functional areas accordingly.	6.2.3. Ability to study the changes in preferences of customers 6.2.4. Study in the changes in political space & professional environment.
PO 8: Students will develop the capability to demonstrate increased level of sensitivity towards areas that require ethical and moral addressing during the course of business.	
Competency	**Indicators**
8.2 To demonstrate the ability to identify that there is a moral dilemma in professional space. 8.2 Demonstration of the ability to solve the moral dilemma in professional space.	8.1.1. The ability to identify the confusion or the dilemma that is inexistence. 8.2.1. Ability to select the best path that will serve to a big interest of the stakeholders and the society.

Subject Name: Business Statistics & Logic Credit: 4 Lecture Hours: 48 Subject Code: BBABB104

Study Material **MIT Opencourseware** **NPTEL** **LinkedIn Learning**

COURSE OBJECTIVES:

1. The course aims to enable the students to have a proper understanding of Statistical applications.
2. The course will help students to understand the use of statistical, graphical and algebraic techniques in Economics and Management.
3. The course is designed to give basic concept of descriptive statistics.
4. The course is designed to give basic concept Correlational & regression analysis.

COURSE OUTCOMES:

CO	Details
1	Ability to understand the concept of Statistics & its use.
2	Ability to solve and understand simple central tendency & dispersion problems
3	Ability to deduce Different moment & correlational analysis
4	Ability to understand basic regression & its application

Module number	Topic	Sub-topics	Text Book as per Syllabus	Mapping with Industryand International Academia	Lecture Hours	Corresponding Lab/Case Study Assignment
1	**Introduction to Statistics**	**1. Introduction to Statistics; Collection, Editing and Presentation of Data**: Primary Data and Secondary Data, Methods of Collection, Presentation of Data: Construction of a Table and the Different Components of a Table. **2. Frequency Distributions-** Attribute and variable; Frequency distribution of an attribute; Discrete and continuous variables; Frequency distributions of discrete and continuous variables. Different diagrammatic representation of a frequency distribution:	Managerial Statistics – S. Roychowdhury & D. Bhattachaya, U.N.Dhur Publication Chapter – 1,2,3	***International Academia:*** **MITOpenCourse** ***Industry Mapping:*** Concept of statistics & its importance	12	Case study on Statistical study & report writing

2	**Measures of Central tendency**	**Measures of Central Tendency**- Introduction, Definition and utility; Different measures of average; Arithmetic Mean; Results on Arithmetic Mean; Merits and Demerits of Arithmetic Mean; Median; Mode; Other positional measures.	Managerial Statistics – S. Roychowdhury & D. Bhattachaya, U.N.Dhur Publication Chapter - 4	***International Academia:*** **MITOpenCourse** ***Industry Mapping:*** Concept of central tendency & application	12	Calculating Central tendency for different dataset
3	**Measures of Dispersion**	**Measures of Dispersion**- Introduction; Meaning and objective of dispersion; Different measures of dispersion – Range, Quartile deviation, Mean deviation, Mean Absolute deviation, Standard deviation.	Managerial Statistics – S. Roychowdhury & D. Bhattachaya, U.N.Dhur Publication Chapter – 5 (Upto 5.6)	***International Standards:*** **MITOpenCourse** ***Industry Mapping:*** Concept of dispersion & application	12	Calculating dispersion for different dataset
4	**Measures of Moment, Skewness & Kurtosis**	**Moments, Skewness and Kurtosis**: Moments: Different Ways to Calculate Moments. Skewness: Measures of Skewness, Kurtosis and its Measures.	Managerial Statistics – S. Roychowdhury & D. Bhattachaya, U.N.Dhur Publication Chapter - 6	***International Standards:*** **MITOpenCourse** ***Industry Mapping:*** Concept of shape of data and its interpretation	12	Calculating moment skewness & kurtosis and understanding its meaning

**Submitted by Sreeparna Guha, IEM Saltlake campus*

TEXTBOOK:

1. Managerial Statistics – S. Roychowdhury & D. Bhattachaya, U.N.Dhur Publication

Reference Book:

Business Mathematics and Statistics – Ranajit Dhar, Dishari Prakashani.

Subject Name: Business Economics I **Credit: 6** **Lecture Hours: 60** **Subject Code: BBABB105**

Study Material **MIT Opencourseware** **NPTEL** **LinkedIn Learning**

COURSE OBJECTIVES:

1. To enable the students to understand fundamental concepts, terms and terminologies involved in Economics
2. Through the incorporation of case lets/case studies, familiarize the students with real economic scenarios.

3. To make students understand the different types of markets and its equilibrium level of price and quantity determination process.

COURSE OUTCOMES:

CO 1: Students would be able to understand the fundamental problems of a business economics and its solutions techniques. They also able to understand the driving force behind the change in market price of commodity and its elasticity of demand.

CO 2: Students would be able to understand the economies and diseconomies of scale in production and the different types of costs associated with the production process.

CO 3: Students would be able to understand the different types of markets and its equilibrium level of price and quantity determination process under perfect competition, monopoly, monopolistic competition and oligopoly market.

CO 4: Students would be able to understand the different types of factors of productions and their prices.

Module number Course content: Course content:	Topic	Sub-topics	Text Book	Mapping with Industryand International Academia	Lecture Hours	Corresponding Lab Assignment
M 1	**1. The Economic Problem: Scarcity And Choice** **2. Demand and Supply** **3. Elasticities Of Demand and supply** **4. Consumer's Behaviour** **5. Indifference Curve Analysis of Demand:**	Introduction- The Problem Of Scarcity And Choice- Scarcity Of Resources And The Problem Of Choice- Kinds Of Resources-Types Of Output-Basic Questions And Central Problems Of An Economy- What To Produce-How To Produce :Choice Of Technique Of Production-For Whom To Produce: How To Distribute Output?-What Provision Should Be Made For Economic Growth? What, How, And For Whom: Subject Matter Of Microeconomics-=Choice And Opportunity Cost-Production Possibility Frontier Or Curve- The Law Of Increasing Opportunity Cost-Scarcity, Choice, And Production Possibility Curve-Unemployment And PPF- Productive Inefficiency-Allocative Efficiency: Right –Mix Of Goods- Economic Growth And Production Possibility Curve-Capital Formation And Economic Growth. (pg- 3-19) Introduction-Market And Competition –Utility And Demand-The Meaning Of Demand And Quantity Demanded-The Law Of Demand-Demand Schedule And Demand Curve- Ceteric Peribus Assumption-Derivation Of Market Demand-Market Demand Curve-Reasons For The Law Of Demand-Why Does Demand Curve Generally Slopes Downward?-Exceptions To The Law Of Demand-Factors Determining Demand- Movement Along A Demand Curve And Shifts In Demand Curve- Movement Along The Demand Curve: Extension And Contraction Of Demand- Shifts In The Demand Curve: Increase And Decrease In Demand-Conclusion-Demand Function And Demand Curve –Deriving Market Demand Function. (pg – 105-119) 1. Various Concepts Of Demand Elasticity-Price Elasticity Of Demand-Price Elasticity Of Demand For Different Goods Varies A Good Deal-Measurement	***Principles of Microeconomics, HL Ahuja, S Chand*** ***Ch-1,5,7,9,***	***International Academia:*** [***https://ocw.mit.edu/courses/14-01-principles-of-microeconomics-fall-2018/video_galleries/lecture-videos/***](https://ocw.mit.edu/courses/14-01-principles-of-microeconomics-fall-2018/video_galleries/lecture-videos/) ***Industry Mapping:*** Business decision making.	20	Case Study

		Of Price Elasticity- Mid- Point Method-Calculating Percentage Changes – Arc Elasticity Of Demand - Cross And Income Elasticity Of Demand- Some Numerical Problems Of Elasticity Of Demand.(pg- 147- 155) 2. Introduction. The Budget Constraints. The Concept of Utility: Total and Marginal Utility. Law of Diminishing Marginal Utility. Consumer's Equilibrium: Principle of Equi-marginal Utility. Derivation of Downward Sloping Demand Curve with Marginal Utility Analysis. (pg – 203-210, 212-216) 3. Assumptions about Consumer Preferences: Indifference Curve Approach. What are Indifference Curves? Marginal Rate of Substitution. Principle of Diminishing Marginal Rate of Substitution. Properties of Indifference Curves. Budget Line or Budget Constraint. Shifts in Budget Line. Consumer's Equilibrium: Maximising Satisfaction. Consumer's Equilibrium. Income Effect: Income Consumption Curve.(pg- 235-242, 243-257)				
2	**1. Production Function** **2. Theory of Costs**	1. Introduction. Production Function. Law of Variable Proportions: Three Stages of Production. Isoquants. Marginal Rate of Technical Substitution. Returns to Scale: Increasing Returns to Scale; Constant Returns to Scale; Decreasing Returns to Scale. Expansion Path (Concepts Only). (pg- 339-346, 353-356,364-371) 2. The Concepts of Cost: Accounting Costs and Economic Costs; Opportunity Cost; Sunk Costs. Short Run and Long Run Defined. Short Run and Long Run. Total, Fixed and Variable Costs in the Short Run. The Short-Run Average and Marginal Cost Curves. Theory of Long-Run Costs: Long-Run Average Cost Curve. Why Long-Run Average Cost Curve is of U-Shape? Economies of Scale. Internal Diseconomies of Scale. (pg- 394-409)	***Principles of Microeconomics, HL Ahuja, S Chand*** ***Chapters : 17,20***	***International Academia:*** ***https://ocw.mit.edu/courses/14-01-principles-of-microeconomics-fall-2018/video_galleries/lecture-videos/*** ***Industry Mapping:*** *Cost & output decisions*	10	Case Study

3	**Market Structures** **i)The Theory Of Firm And Pricing in Perfect Competition** **ii) Equilibrium Of The Firm Under Perfect Competition** **iii) Monopoly** **iv)Price Discrimination** **v)Monopolistic Competition** **vi) Oligopoly**	i) Market Structure And Concepts Of Revenue- Meaning Of Market-Classification Of Market Structures: Perfect Competition, Monopoly, Monopolistic, Oligopoly-Concepts Of Average Revenue (AR) And Marginal Revenue (MR)-AR And MR Under Perfect Competition-Relationships Between AR And MR Curves. (pg- 431-439) ii) Meaning And Conditions Of Perfect Competition-The Demand Curve Of A Product Facing A Perfect Competitive Firm-Meaning Of A Firm's Equilibrium-Firm's Equilibrium Under Perfect Competition: MR-MC Approach-Second Order Condition For Equilibrium Of The Firm-Short Run Equilibrium Of The Firm Under Perfect Competition : Maximizing Profits, Maximizing Losses, Deciding To Shut Down- Long Run Equilibrium Of The Firm Under Perfect Competition.(pg- 461-472) iii) Monopoly: Its Meaning and Conditions. The Nature of Demand and Marginal Revenue Curves under Monopoly. Price-Output Equilibrium under Monopoly. (pg-503-507) iv) Meaning of Price Discrimination. Degrees of Price Discrimination: Price Discrimination of the First Degree, Price Discrimination of the Second Degree, Price Discrimination of the Third Degree.(pg- 530-538) v) Product Differentiation and Monopolistic Competition. Important Features of Monopolistic Competition. Price-Output Equilibrium under Monopolistic Competition. Excess Capacity under Monopolistic Competition (Concepts Only).(pg-556-564) vi) Characteristics. Indeterminate Pricing and Output. Price Leadership (Only Meaning and Characteristics). Collusive Oligopoly (Meaning and Characteristics Only). Kinked Demand Curve.(pg-582-599)	***Principles of Microeconomics, HL Ahuja, S Chand*** ***Chapters : 21, 23, 26, 27,29,30***	***International Standards*** ***https://ocw.mit.edu/courses/14-01-principles-of-microeconomics-fall-2018/video_galleries/lecture-videos/*** ***Industry Mapping:*** *Understanding different market structures and how different markets work*	20	Case Study

4	**1) Concept of Rent** **2) Theory of Interest** **3) Theory of Profit**	i) Introduction. Ricardian Theory of Rent: Scarcity Rent: Rent as Surplus over Cost of Production - Differential Rent. (pg- 726-734) ii) Introduction. Classical Theory of Interest. Loanable Funds Theory of Interest. Keynes's Liquidity Preference Theory of Interest.(pg- 746-763) iii) Introduction. Innovations and Profits: Schumpeter's Theory of Profits. Risk, Uncertainty and Profits: Knight's Theory of Profits.(pg- 764-770)	***Principles of Microeconomics, HL Ahuja, S Chand*** ***Chapters : 41, 42, 764***	***International Standards*** ***https://ocw.mit.edu/courses/14-01-principles-of-microeconomics-fall-2018/video_galleries/lecture-videos/*** ***Industry Mapping:*** *Determination of factor prices*	10	Case Study

TEXTBOOK: ***Principles of Microeconomics, HL Ahuja, S Chand***

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
BBA105-CO1	3	2	3			2	1	
BBA105-CO2	2	3	3				2	
BBA105-CO3	2	3	2				2	
BBA105-CO4	2	3	2				2	

1= Low(Slight) 2=Moderate(Medium) 3= Substantial (High)

PO & PI Mapping:

PO1: Assessment of Choices Students will develop the capability to assess alternate managerial choices and come up with optimal solutions.

Competency	Indicators
1.1 Demonstrate competencies in Business Construction Model & Decision- Making Model 1.2 Demonstrate competencies in evaluation of each of the alternatives	1.1.1. Ability to take up analytical approach for problem solving, 1.1.2. Ability to take into consideration minute details and factors that influences a business. 1.2.1 Ability to weigh the pros and cons of each of the alternatives or options available to a functional area of a business.

PO 2 : Identification of the Nature of a Problem Area
Students will be able to apply their conceptual understanding of marketing, finance and human resources in the real world.

Competency	Indicators
2.1. Demonstrate an ability to identify an area that requires problem solving. 2.2 Demonstrate an ability to assess the business environment and understand their impact on the business.	2.1.1 Ability to evaluate problem statement and contribute towards problem solving methods, 2.1.2 understanding a problem or issue belong to demand analysis. 2.2.1 To be able to identify the different types of demand elasticity which influence the decision-making process.

PO 3 : **Decision Making Skills**
Students will develop decision making skills with the help of analytical and critical thinking ability.

Competency	Indicators
3.1 To be able to demonstrate the different aspects that can get influenced by the decision taken within the business. 3.2 To be able to demonstrate the optimal solution or close to an optimal solution to a given managerial problem.	3.1.1 Capability of identify the different types of costs and production, 3.1.2 Follow up the changes of market structures and its applications 3.2.1 Reaching to a solution and evaluating it after observing the changes

PO6: Integration of Functions:

Students will be able to integrate functional areas of management for planning, implementation and control of business decisions.	
Competency	**Indicators**
6.2 Demonstrate the identification of changing trends in a business and operation of the functional areas accordingly.	6.2.1. Ability to study the changes in preferences of customers 6.2.2. Study in the changes in political & technological environment
PO7: DeployableSkill set: Students willdevelop deployableskills parallel to thechosen functional/specialized area.	
Competency	**Indicators**
7.1 Demonstratingthe ability toidentify the natureof a problemappearing duringthe course ofbusiness. 7.2 Demonstratingthe ability to applythelearnedskillset as whenrequired.	7.1.1Acknowledgementofthe existence of aproblem, 7.1.2 Deciding theoverall nature of theproblem and its minordetails. 7.2.1. Ability toimplementtherequiredknowhow as whennecessityarises.

Subject Name: Indian Knowledge System (IKS) Credit: 2 Lecture Hours:20 Subject Code:BBABB182

Study Material **AICTE Open course ware** **NPTEL**

COURSE OBJECTIVES:

1. Creating awareness amongst the youths about the true history and rich culture of the country.
2. Understanding the scientific value of the traditional knowledge of Bhārata.
3. Promoting the youths to do research in the various fields of Bhāratīya knowledge system.
4. Converting the Bhāratīya wisdom into the applied aspect of the modern scientific paradigm.
5. Adding career, professional and business opportunities to the youths.

COURSE OUTCOMES:

CO 1: Understand the diverse paths of spirituality in Bhartiya culture, including Gyaan Marg, Bhakti Marg, Karm Marg, and Yog Marg, and recognize their significance in individual and collective spiritual growth

CO 2: Evaluate the Bhartiya philosophy of life derived from Shastras and analyze its implications for contemporary Bhartiya lifestyles, fostering a deeper understanding of the connection between spirituality and everyday life.

CO 3: Demonstrate knowledge of various Indian knowledge systems, such as Ayurveda, Vedic sciences, Yoga, Vedanta, and Jyotish, and appreciate their contributions to human knowledge and well-being.

CO 4:Analyze the Bhartiya wisdom related to life sciences, including physics, chemistry, and botany, as described in ancient texts, and understand their relevance and potential applications in contemporary scientific research.

Module No.	Topic	Sub topics	Mapping with Industry and International Academia	Lecture Hours	Corresponding Lab Assignment	Text Book Chapter No.
1	**Indian Knowledge System – An Introduction, The Vedic Corpus, and Wisdom through the Ages**	1. What is IKS? 2. Why do we need IKS? 3. Organization of IKS 4. Historicity of IKS 5. Some salient aspects of IKS 6. Introduction to Vedas 7. A synopsis of the four Vedas 8. Sub-classification of Vedas 9. Messages in Vedas 10. Gateways of ancestral wisdoms 11. Introduction to Purāṇa 12. The Purāṇic repository	***InternationalAcademia:A ICTE Web Link*** ***Industry Mapping:*** • Application of ancient wisdom in modern management practices. • Understanding historical context for contemporary leadership and decision-making. • Incorporating holistic and ethical approaches derived from IKS in business strategies.	2	1. Case study analys of a modern business applying principles from th Vedic corpus.	Chapter-1,2,3,4 (Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavana R.N. (2022), “Introduction to Indian Knowledge System: Concepts and Applications”, PHI Learning Private Ltd. Delhi)
2	**Number Systems and Units of Measurement**	1. Number systems in India – Historical evidence 2. Salient aspects of Indian Mathematics 3. Bhūta-Saṃkhyā system 4. Kaṭapayādi system 5. Measurements for time, distance, and weight 6. Piṅgala and the binary system	***National Standards AICTE Web Link*** ***Industry Mapping:*** • Integration of ancient numerical systems in modern computing and data processing. • Application of historical measurement techniques in contemporary project management and logistics.	3	1. Practical exercise in applying ancient measurement techniques to a real-world scenario in project planning.	Chapter- 6 (Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavana R.N. (2022), “Introduction to Indian Knowledge System: Concepts and Applications”, PHI Learning Private Ltd. Delhi)
3	**Mathematics**	1. Introduction to Indian Mathematics	***National Standards AICTE Web Link***	3	1. Solve modern algebraic	Chapter- 8 (Mahadevan, B., Bhat

		2. Unique aspects of Indian Mathematics 3. Indian Mathematicians and their Contributions 4. Algebra 5. Geometry 6. Trigonometry 7. Binary mathematics and combinatorial problems in ChandaḥŚāstra 8. Magic squares in India	***Industry Mapping:*** • Use of historical mathematical concepts in financial modeling and risk assessment. • Implementation of ancient algebra and geometry in modern engineering and technology.		problems using methods from Indian mathematicians. 2. Develop a project using principles of Indian geometry and trigonometry to solve engineering challenges.	Vinayak Rajat, Nagendra Pavana R.N. (2022), "Introduction to Indian Knowledge System: Concepts and Applications", PHI Learning Private Ltd. Delhi)
4	**Astronomy**	1. Introduction to Indian astronomy 2. Indian contributions in astronomy 3. The celestial coordinate system 4. Elements of the Indian calendar 5. Notion of years and months 6. Pañcāṅga – The Indian calendar system 7. Astronomical Instruments (Yantras) 8. Jantar Mantar of Rājā Jai Singh Sawai	***National Standards*** ***AICTE Web Link*** ***Industry Mapping:*** • Application of Indian astronomical knowledge in modern space research and astrophysics. • Utilizing traditional celestial coordinate systems in navigation technologies.	4	1. Create a model of the Indian calendar system and compare it with the Gregorian calendar. 2. Build a simple astronomical instrument inspired by the Jantar Mantar and demonstrate its use.	Chapter 9 (Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavana R.N. (2022), "Introduction to Indian Knowledge System: Concepts and Applications", PHI Learning Private Ltd. Delhi)
5	**Health Wellness and Psychology**	1. Distinguish thought on Health and wellness in Indian system 2. Ayurveda: approach to health 3. Ayurveda: definition of health 4. Tri-doṣas 5. Role of agni in health	***National Standards*** ***AICTE Web Link*** ***Industry Mapping:*** • Application of Ayurveda and Indian wellness practices in modern healthcare and lifestyle industries.	4	1. Design a daily wellness regimen based on Ayurveda principles for a corporate environment. 2. Create a case	Chapter 13 (Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavana R.N. (2022), "Introduction to Indian Knowledge System: Concepts and Applications", PHI

		6. Sapta-dhātavaḥ: seven-tissues 7. Psychological aspects of health 8. Disease management elements 9. Dinacaryā: daily regimen for health & wellness 10. Importance of sleep 11. Food intake methods and drugs 12. Approach to lead a healthy life 13. Indian approach to psychology 14. Basic tenets of Indian psychology 15. The tri-guṇa system & holistic picture of the individual 16. Prakṛti and its evolution and nature of individual 17. The Pañca-kōṣa framework 18. Four states of Consciousness 19. Consciousness studies: An Indian approach	• Utilizing Indian psychological frameworks in corporate wellness programs and employee mental health.		study on the implementation of Indian psychological approaches in enhancing workplace productivity and well-being.	Learning Private Ltd. Delhi)
6	**Town Planning and Architecture**	1. Temple architecture in ancient India, Sculptures, Theatre, Drama and Martial arts traditions, Fairs and festivals, Yoga, 2. Integrated approach to healthcare, 3. Approaches and	***National Standards*** ***AICTE Web Link*** ***Industry Mapping:*** • Implementation of ancient Indian architectural principles in sustainable urban	4	1. Develop a sustainable urban planning model incorporating ancient Indian architectural techniques.	Chapter 12 (Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavana R.N. (2022), “Introduction to Indian Knowledge System: Concepts and Applications”, PHI

		strategies to the protection and conservation of environment.	planning. • Conservation strategies for heritage sites and their adaptation in modern architecture.			Learning Private Ltd. Delhi)

SubmittedbyManali Chowdhury, IEM Saltlake campus

TEXTBOOK: 1. Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavana R.N. (2022), "Introduction to Indian Knowledge System: Concepts and Applications", PHI Learning Private Ltd. Delhi

REFERENCE BOOKS:

1. Pride of India: A Glimpse into India's Scientific Heritage, Samskrita Bharati, New Delhi.
2. Sampad and Vijay (2011). "The Wonder that is Sanskrit", Sri Aurobindo Society, Puducherry.
3. Acarya, P.K. (1996). Indian Architecture, Munshiram Manoharlal Publishers, New Delhi.
4. Banerjea, P. (1916). Public Administration in Ancient India, Macmillan, London.
5. Kapoor Kapil, Singh Avadhesh (2021). "Indian Knowledge Systems Vol – I & II", Indian Institute of Advanced Study, Shimla, H.P.

CO-POMapping: (PO- As per AICTE)

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning

BBABB182CO1						3	2	3				3
BBABB182CO2						3	2	3				3
BBABB182CO3						3		3				3
BBABB182CO4						3		3				3

1= Low (Slight)   2= Moderate (Medium)   3= Substantial (High)

IKS Lectures and Videos uploaded on IKS YouTube Channel. ⇒Link

Study Material and Notes⇒Link

Subject Name: Environmental Science and Sustainability Credit: 2 Lecture Hours: 20

Subject Code: BBABB183

Pre-requisite: Environmental studies

Relevant Links:

[Study Material] [Coursera] [NPTEL] [LinkedIn Learning] [Infosys Springboard]

COURSE OBJECTIVES:

1. To introduce basic postulates of environment and nature and to introduce sustainability development for understanding the environment expressions.
2. To study about ecosystem for the analysis and design of food chains, food webs and biodiversity.
3. To introduce the basics of global warming, effects, causes, measures and Kyoto protocol
4. To illustrate the concept of Environment Management System and some concept of audit, green rating project.

COURSE OUTCOMES:

CO 1: Students will have a thorough knowledge of multidisciplinary nature and sustainable development also they will apply that knowledge while required.

CO 2: After completing this course, the students will be able to design and analyze about Nature ecosystem.

CO 3: Students will acquire a knowledge about Global warming and climate changes.

CO 4: They will be able understand what is EMS and also, they will acquire knowledge on conducting audits and

green rating project.

Module Number	Topic	Sub-topics	Text Book as per Syllabus	Mapping with Industry and International Academia	Lecture Hours	Corresponding lab/Case Study Assignment
1	**Realm of Ecology**	Introduction, Multidisciplinary nature, Scope and importance; the need for environmental education. Concept of sustainability and sustainable development. Study of environmental management in Management Schools	**Environmental management by N K Uberoi 2nd Edition** Chapter No. 1 (Page No. 2,3,8,15,16) Chapter No. 2 (Page No. 24,25, 28, 29)	***International Academia:*** (Readings | Sustainable Economic Development | Urban Studies and Planning | MIT OpenCourseWare) ***IndustryMapping:*** GIS Data design in ecological modeling	5	1.Case Study and Assignment

2	**Ecosystem and Biodiversity**	Ecosystems: Definition, Structure: food chains, food webs and function of ecosystem, Industrial ecology, Biodiversity and Conservation – Levels, Acquisition of Biological Wealth	**Environmental management by N K Uberoi 2nd Edition** Chapter No. 14	**International Standards** (Readings | Energy, Environment, and Society: Global Politics, Technologies, and Ecologies of the Water-Energy-Food Crises | Science, Technology, and Society | MIT OpenCourseWare) ***Industry Mapping:*** UKNEA (2011) and Newton *et al.* (2012a	5	1. **Environmental Audit of the Campus (**Students can assess energy consumption, waste generation, water usage, and pollution levels. Based on their findings, propose strategies for improving environmental performance).
3	**Global Environment Problem**	Global Warming, Effects, How to Combat Global Warming, Climate Change, Kyoto Protocol, Climate Change and Business	Environmental management by N K Uberoi 2nd Edition Chapter No. 5 (Page No. 86 – 95)	***International Standards*** : (Readings | Global Warming Science | Earth, Atmospheric, and Planetary Sciences | MIT OpenCourseWare) ***IndustryMapping:*** GIS Application	5	1**. Impact Assessment** (Assign students to research and present the various impacts of global warming on different sectors (ecosystems, agriculture, sea level rise, extreme weather events, etc.).

4	**Environmental Management System**	Installing EMS, Why EMS, Certification for EMS, Environmental Standards, ISO 14000(Series)- The Basic Principles, Actual Conduct of Audit Certification, The Indian Scene, Green rating project	**Environmental management by N K Uberoi 2nd Edition** Chapter No. 10	***International Standards:*** (Readings | Introduction to Environmental Policy and Planning | Urban Studies and Planning | MIT OpenCourseWare) ***IndustryMapping:*** GIS Software and Digital elevation model	5	1. **Sustainability Assessment of Products (**Ask students to select any day-to-day products and conduct a life cycle analysis to assess their environmental impact. They should evaluate raw material extraction, production, transportation, use, and disposal phases, and propose alternatives or improvements for sustainability)

*Submitted by Priyanka Singh, IEM Saltlake Campus

TEXT BOOK:

1. **Environmental management by N K Uberoi 2nd Edition**

REFERENCE BOOKS:

1. Environmental management by N K Uberoi 2nd Edition Reference:
2. A Textbook Environment by KM. Agrawal; PK. Sikdar; SC Deb
3. Environmental Management by GN Pandey