Syllabus

Communication Skills and Oral Presentation (HSS 101)

Course Objective: This course concerns itself with the following two objectives:

1. To introduce the students to basic concepts of English language.
2. To improve students' competence in spoken and written varieties of English language.

The design of the course allows for a large component of language practice and intellectual work so that the student's confidence in the general ability to handle English language is reinforced. Thereby, the course helps them to develop their personalities.

Syllabus Component:

S. No	Contents
1	**Communication Skills** Reading comprehension, composition, paragraph writing, grammar, pronunciation and usage aimed at improving the language skills of students of technology.
2	**Writing Skills** Technical/ Project Report writing 1. Meaning and importance 2. Aspects of technical report writing/project report writing
3	**Oral Presentation Skills** 1. Importance of oral presentation. 2. Preparing for oral presentation. 3. Elements of oral presentation. 4. Effective delivery of oral presentation 5. Roll and effective use of Voice 6. Use of body language 7. Art of summing up

Recommended Books:

Textbooks:

1. Prose in Practice by KPK Menon, Macmillan
2. English Through Reading Vol II Bhaskar & Prabhu, Macmillan, 1975

Suggested Readings:

McGraw Hill: Speech Series

Guide to Good Speech by James H. Mc Burney

Fundamentals of Speech by David Guy Powers

Better English Pronunciation by O. Conner

Course Outcomes of Communication Skills and Oral Presentation (HSS 101)

After the completion of course, students will be able to:

CO1	To exhibit effective reading and writing skills.
CO2	To use grammatical elements correctly.
CO3	To produce project reports with efficient technical writing skills.

C**O4**	To give effective oral presentation in English.

SYLLABUS

Semester: 2nd

Subject Code: HU-201
Course Title: Introduction to Social Sciences
L:T:P 4:0:0
Credits: 04

Objective: This course concerns itself with the following two objectives:

1. To introduce the students to basic concepts of the English language.
2. To improve students' competence in spoken and written varieties of English language.

Details of Course

Semester: 2nd
Subject Code: HU-201
Course Title: Introduction to Social Sciences
L:T:P 4:0:0
Credits: 04

Course Objective: This course is designed to introduce the students to the basic concepts of Social Sciences and to make them aware of social, political, and economic aspects of life in general and Engineering profession in particular.

Syllabus Components

S. No	Contents
1	**Sociology** Relevance of social sciences and sociology to engineering studies. Social institutions: Family, marriage, and property The community: Rural and urban community, castes and Classes.
2	**Economics** Economics: Definition, importance, and scope Production and consumption, and elementary treatment. Introduction to factors of production.
3	**Psychology** Definition, Scope and importance Personality Motivation and learning
4	**Civics** State, its elements and its functions Forms of government: structure, merits and demerits Rights and duties of citizens, the concept of human rights.
5	**Entrepreneurship** Meaning and importance of entrepreneurship Essentials for a successful entrepreneurship Procedure, Facilities (monetary and non-monetary) for setting up of an industrial unit.

Course Outcomes of Introduction to Social Sciences (HU-201)
After the completion of course, students will be able,

CO1	Examine the relevance of Social Sciences and Sociology to Engineering Studies and analyse various social institutions, communities, castes, and classes.
CO2	Explain the definition, scope, and importance of Economics and assess the role of various factors of production and consumption.
CO3	Elucidate the definition, scope, and importance of Psychology and evaluate the meaning of personality, motivation, learning, and their influence on human behaviour.
CO4	Describe the elements and functions of state**,** various forms of governments with their merits and demerits, explicate the concept of human rights, and list the rights and duties of citizens.
CO5	Elucidate the meaning, importance, and essential requirements of successful entrepreneurship.

Syllabus
Humanities and Social Sciences-I (HSS-301)

1. **Semester:** 3rd Sem "Department of Civil Engineering" **L:T:P** 3:0:0
   Credits: 03
2. **Course Objectives:**
   I. Describe the economic terms; concepts and explain the function of market, its types and determination of price under various competencies.
   II. Identify the ability to employ the economic way of thinking like application of marginal analysis, use of benefit/cost analysis, utility and demand forecasting techniques.
   III. Describe the process of management's four functions: planning, organizing, directing and controlling and make an appropriate staffing decision which includes recruitment and selection.
   IV. Demonstrate organization's characteristics and how they might impact on management practices and analyze both qualitative and quantitative information to isolate issues and formulate best control methods.

Details of Course

S. No	Contents
1	**INDUSTRIAL ECONOMICS:** Meaning and importance of industrialisation. Organisations- various types of organisations. Division of Economics, Basic Constituents (Micro & Macro Economics)
2	**CONSUMPTION AND MARKET STRUCTURE:** Law of Demand and Elasticity of Demand, Consumer's surplus, Utility and its measurement, Types of market structure – Perfect, Monopoly, Monopolistic and Oligopoly, Demand forecasting techniques. Meaning and factors influencing location of Industrial Units, Scale of production- large vs Small Industrial Units
3	**MANAGEMENT- INTRODUCTION TO MANAGEMENT:** Management and its nature, purpose and definitions. Process and functions of management- Planning, Organising, Actuating and controlling, Functional areas of management, skills and role of Management
4	**PLANNING:** Nature and purpose of planning, types of plans, steps in planning process.

	Objectives: nature and importance of objectives, Types of objectives, primary, secondary, individual and personal objectives. Guidelines for setting objectives **Decision Making**: Importance and limitations of rational decision making, types of decisions- programmed and non-programmed decision making. Process of decision making under certainty, uncertainty and risk.
5	**ORGANISING:** Nature and purpose of organising: steps in organising/ process of organising, formal and informal organisations; span of control & factors determining effective span. **Decentralisation of Authority**: Nature of decentralisation, degree of decentralisation, decentralisation as philosophy and policy **Delegation of authority:** Meaning of authority/delegation, steps in the process of delegation, factors determining the degree of delegation, art of delegation. **Line/staff organisation:** Line organisation, staff organisation, line and staff organisation, functional and committee organisation, the nature of line and staff relationship.
6	**ACTUATING:** Nature and purpose of Actuating, steps in actuating process. **Essentials of Human Resource Management:** Importance and functions of Human resource management, Importance of Human resource planning, Recruitment, selection, training and development, performance appraisal, compensation packages, promotions, transfers demotion and separation etc. **Leadership:** Meaning and importance, Leadership qualities **Motivation:** The need – want - satisfaction chain.
7	**CONTROLLING:** Nature and purpose of controlling, steps in controlling/ process of controlling, types of controls, recruitments of effective controls.

Course Outcomes of Humanities and Social Sciences-I (HSS-301)

After the completion of course, students will be able,

CO1	**Develop the ability to explain economic terms and concepts.**
CO2	Understand and explain the function of market, its types and determination of price under various competencies.
CO3	Demonstrate the ability to employ the economic way of thinking like application of marginal analysis, use of benefit/cost analysis, utility and demand forecasting techniques.
CO4	Demonstrate the ability to recognize when change is needed, adapt to change as it occurs, and lead the change as effective managers.
CO5	Practice the process of management's four functions: planning, organizing, directing and controlling. make an appropriate staffing decision which includes recruitment and selection design, implement and evaluate training programmes.
CO6	Understand an organization’s characteristics and how they might impact on management practices and analyze both qualitative and quantitative information to isolate issues and formulate best control methods.

General Management & Economics (HSS-701)

3. **Semester:** 7th Sem "Department of Electrical Engineering" **L:T:P** 3:0:0
4. **Credits**: 03
5. **Course Objectives:**

V. Describe the economic terms; concepts and explain the function of market, its types and determination of price under various competencies.

VI. Identify the ability to employ the economic way of thinking like application of marginal analysis, use of benefit/cost analysis, utility and demand forecasting techniques.

VII. Describe the process of management's four functions: planning, organizing, directing and controlling and make an appropriate staffing decision which includes recruitment and selection.

VIII. Demonstrate organization's characteristics and how they might impact on management practices and analyze both qualitative and quantitative information to isolate issues and formulate best control methods.

Details of Course

S. No	Contents
1	**INDUSTRIAL ECONOMICS:** Meaning and importance of industrialization. Organisations- various types of organisations. Division of Economics, Basic Constituents (Micro & Macro Economics)
2	**CONSUMPTION AND MARKET STRUCTURE:** Law of Demand and Elasticity of Demand, Consumer's surplus, Utility and its measurement, Types of market structure – Perfect, Monopoly, Monopolistic and Oligopoly, Demand forecasting techniques. Meaning and factors influencing location of Industrial Units, Scale of production- large vs Small Industrial Units
3	**MANAGEMENT- INTRODUCTION TO MANAGEMENT:** Management and its nature, purpose and definitions. Process and functions of management- Planning, Organising, Actuating and controlling, Functional areas of management, skills and role of Management
4	**PLANNING:** Nature and purpose of planning, types of plans, steps in planning process. **Objectives**: nature and importance of objectives, Types of objectives, primary, secondary, individual and personal objectives. Guidelines for setting objectives **Decision Making**: Importance and limitations of rational decision making, types of decisions- programmed and non-programmed decision making. Process of decision making under certainty, uncertainty and risk.
5	**ORGANISING:** Nature and purpose of organising: steps in organising/ process of organising, formal and informal organisations; span of control & factors determining effective span. **Decentralisation of Authority**: Nature of decentralisation, degree of decentralisation, decentralisation as philosophy and policy **Delegation of authority:** Meaning of authority/delegation, steps in the process of delegation, factors determining the degree of delegation, art of delegation. **Line/staff organisation:** Line organisation, staff organisation, line and staff organisation, functional and committee organisation, the nature of line and staff relationship.

6	**ACTUATING:** Nature and purpose of Actuating, steps in actuating process. **Essentials of Human Resource Management:** Importance and functions of Human resource management, Importance of Human resource planning, Recruitment, selection, training and development, performance appraisal, compensation packages, promotions, transfers demotion and separation etc. **Leadership:** Meaning and importance, Leadership qualities **Motivation:** The need – want - satisfaction chain.
7	**CONTROLLING:** Nature and purpose of controlling, steps in controlling/ process of controlling, types of controls, recruitments of effective controls.

Course Outcomes of General Management & Economics (HSS-701)

After the completion of course, students will be able,

CO1	**Develop the ability to explain economic terms and concepts.**
CO2	Understand and explain the function of market, its types and determination of price under various competencies.
CO3	Demonstrate the ability to employ the economic way of thinking like application of marginal analysis, use of benefit/cost analysis, utility and demand forecasting techniques.
CO4	Demonstrate the ability to recognize when change is needed, adapt to change as it occurs, and lead the change as effective managers.
CO5	Practice the process of management's four functions: planning, organizing, directing and controlling. make an appropriate staffing decision which includes recruitment and selection design, implement and evaluate training programmes.
CO6	Understand an organization’s characteristics and how they might impact on management practices and analyze both qualitative and quantitative information to isolate issues and formulate best control methods.

Human Resource Management (HSS-701)

Semester: 7th Sem "Department of Chemical Engineering"
L:T:P 3:0:0 **Credits**: 03

6. **Course Objectives:**

IX. Describe major HRM functions and processes of strategic HRM planning, job analysis and design.

X. Identify strategic HR planning and the HRM process to the organization's strategic management and
decision making process.

XI. Describe wide range of sources for attracting and recruiting talent and appropriate practices for job
Placement.

XII. Demonstrate emerging trends, opportunities and challenges in performance appraisal.

Details of Course

S. No	Contents
1	Human Resource Management - Definition - Objectives - Functions - Scope - Importance - HRM in India - Evolution of HRM - Computer Application in Human Resource Management - Quality of a good Human Resource Managers - Human Resource Planning - Job Analysis, Job description and Job Specification.
2	Recruitment and Selection - Sources of Recruitment - Selection Process - Test Types - Interview Types - Career Planning - VS Man Power Planning and succession Planning - Career Planning - Process - Career Development - Placement and Induction.
3	Training - Methods of Training - Executive Development - Performance Appraisal - Methods of Performance Appraisal - Transfers - Promotion - Wage & Salary Administration - Wage Boards and Pay Commission - Wage Incentive - Fringe Benefits - Employees Welfare - Safety and Health Measures - Grievance Procedures - Redressal of Grievances.
4	Industrial Relations - Meaning & Characteristics Industrial Relations - Parties to Industrial relations - Nature of Trade Unions - Problems of Trade Union - Measures to Strengthen Trade Union Movement in India - Causes for Industrial Disputes - Settlement of Industrial Disputes.

Course Outcomes of Human Resource Management (HSS-701)
After the completion of course, students will be able,

1. Identify each of the major HRM functions and processes of strategic HRM planning, job analysis and design,
   recruitment, selection, training and development, compensation and benefits, and performance appraisal
2. Define strategic HR planning and the HRM process to the organization's strategic management and
   decision making process

3. Recall the wide range of sources for attracting and recruiting talent and appropriate practices for job
   Placement.
4. Recognize emerging trends, opportunities and challenges in performance appraisal and list training and
   development processes as well as future trends for HRM globalization.

Syllabus

Basic Management Principles (HSS-501)

1. **Semester:** 5^{th} Sem "Department of Chemical Engineering"
2. **L:T:P** 3:0:0 **Credits**: 03
3. **Course Objectives:**

I) Describe the management principles, processes and procedures.

II) Identify the knowledge of fundamental terminology and frameworks in the four functions of management: Planning, Organizing, Leading and Controlling.

III) Describe appropriate management techniques for managing contemporary organizations

IV) Demonstrate class discussions, case problems and situations from both the text and student experience that relate to the text material.

Details of Course

S. No	Contents
1	**Overview of Management** Definition- Management- Role of Managers- Evolution of Management thought- Organization and the environmental factors- Trends and Challenges of management in Global Scenario
2	**Planning** Nature and purpose of planning- Planning Process- Types of Plans- Objectives- Management by objectives (MBO) - Types of strategies- Policies- Decision Making
3	**Organizing** Nature and purpose of organizing- Organization structure- Formal and informal groups organization- Line and staff authority- Departmentalisation- Span of control- Centralization and Decentralization- Delegation of authority- Staffing- Selection and Recruitment- Orientation- Career development- Career Stages- Training- Performance Appraisal.
4	**Directing** Creativity and Innovation- Motivation and satisfaction- Motivation theories- Leadership styles- Leadership theories- Communication- Barriers to effective communication- Organization culture- elements and types of culture- Managing cultural diversity.
5	**Controlling** Process of controlling- Types of control- Budgetary and non-budgetary control- Managing productivity- Cost control- Purchase Control- Maintenance Control- Quality Control- planning Operations

Course Outcomes of Basic Management Principles (HSS-501)

After the completion of course, students will be able,

CO1	Relate, discuss, understand, and present management principles, processes and procedures in consideration of their effort on individual actions.
CO2	Have developed a working knowledge of fundamental terminology and frameworks in the four functions of management: Planning, Organizing, Leading and Controlling.
CO3	Be able to identify and apply appropriate management techniques for managing contemporary organizations
CO4	Participate, summarize and lead class discussions, case problems and situations from both the text and student experience that relate to the text material.

Syllabus

Entrepreneurship Development (HSS-801)

1. **Semester:** 8th Sem "Department of Chemical Engineering" **L:T:P** 3:0:0
   Credits: 03

2. Course Objectives:

I. Understanding basic concepts in the area of entrepreneurship, the role and importance of entrepreneurship for economic development
II. Developing personal creativity and entrepreneurial initiative for elaboration of business idea
III. Understanding the stages of the entrepreneurial process and the resources needed for the successful development of entrepreneurial ventures.

3. Details of Course

S. No	Contents
1	**Entrepreneurship:** Concept, nature, importance and need of Entrepreneurship. Concept of innovation, risk taking, opportunity seeking. Characteristics of an entrepreneur, Environmental Scanning (internal & external) Entrepreneurship development programs. Concepts and theories of Personality, Motivation and learning
2	**Enterprises:** Concept of enterprise. Types of enterprise: sole proprietorship, Partnership firm, Joint stock companies. Types of Companies. Process of incorporation of a company in India.
3	**Financing an Enterprise:** Concept of Finance, Sources of finance, concept of equity and debt financing. Types of shares.

4	**Market dynamics:** Concept of Marketing, concept of product and service, deeper concept of 4 P's of marketing, Intellectual property rights, Trademark, patent, copyright.
5	**Market:** Defining market, Classification of markets, Basic concepts about types of market structure (perfect market, monopoly, monopolistic, oligopoly and duopoly). Concept of Demand forecasting and techniques of demand forecasting.

Course outcomes

On successful completion of this course, student should be able to:

I. define basic terms and analyse the business environment in order to identify business opportunities

II. identify the elements of success of entrepreneurial ventures and the legal and financial conditions for starting a business venture

III. evaluate the effectiveness of different entrepreneurial strategies and specify the basic performance indicators of entrepreneurial activity

IV. explain the importance of marketing and management in small businesses venture and interpret their own business plan.

Syllabus

Managerial Economics for Engineers (HSBE-72)

1. **Semester:** 7^{th} Sem (Elective) "Department of Chemical Engineering" **L:T:P** 3:0:0

Course Objectives:

I. Use economic tools to explain the optimal allocation of resources within the firm.

II. Use the tools of economic theory to explain optimal production and pricing decisions by the firm in each market structure

III. Use competition strategies, including costing, pricing, product differentiation, and market environment according to the natures of products and the structures of the markets.

2. **Details of Course**

S. No	Contents
1	**Introduction to Managerial Economics:** Definition, Nature and Scope. Relationship with other areas in economics, Production, Management, Marketing, Finance, Personal and Operations Research. Total Economic Cost. Economics Profit and Accounting Profit, Objectives of the Firm.
2	**Theory of Demand:** Demand Analysis- Demand Function, the Law of Demand and Exceptions to Law of Demand. Methods of Demand Estimation and Demand Forecasting, Elasticity of Demand. Types and significance of Elasticity of Demand. Supply Analysis- Supply Function, the Law of supply Shifts in Demand and Supply. Market Equilibrium.

3	**Production Analysis:** Production Function, Marginal rate of technical Substitution, Isoquants & Isocosts, Production Function with one/two Variables, Cobb-Douglas Production Function, Returns to Scale & Returns to Factor, Economies of scale-Innovations & Global Competitiveness.
4	**Cost Theory & Estimation:** Cost concepts, Determination of cost, cot-output relationship in the short run and long run, short run vs. long run costs, average cost curves, Overall cost leadership.
5	**Market Structure and Pricing practices:** Features and Types of different competitive situations – Price Output determination in perfect competition, Monopoly, Monopolistic competition and Oligopoly, Strategic Decision Making in Oligopoly.

Reference books

S. No	Name of authors/books/publishers
1	Managerial Economics – G. S Gupta, T M H, New Delhi
2	Managerial Economics – Varshney and Maheshwari, Sultan Chand & Sons, New Delhi
3	Managerial Economics – Pearson and Lewis, Prentice Hall, New Delhi
4	Managerial Economics – Thomas and Maunce, McGraw Hill, New Delhi
5	Managerial Economics: Concepts and Tools, Prabhath Jayasinghe, Expographic Books Private Limited.
6	Managerial Economics, William F. Samuelson and Stephen G. Marks, Wiley Publishing.
7	Managerial Economics & Strategy, Jeffrey M. Perloff and James A. Brander, Pearson publishing.

Course outcomes

On successful completion of this course, student should be able to:

1) Understand the roles of managers in firms and understand the internal and external decisions to be made by managers
2) Analyze the demand and supply and elasticity conditions and assess the position of a company
3) Analyze the production function in one as well as in two variables and explain the relevance of economies of scale in production.
4) Design competition strategies, including costing, pricing, product differentiation, and market environment according to the natures of products and the structures of the markets.

Syllabus

Ethics and Self Awareness (HSS-401)

3. Semester: 4th Sem "Department of Chemical Engineering"
4. Subject Code: **HSS-401** Course Title: **Ethics and Self Awareness**
5. Contact Hours: **L:T:P** 2:0:0 **Credits**: 03
6. **Course Objectives:**

i. Explain human behaviour in situational, social and cultural context.

ii. Define culture, ethics, morality and values.

iii. Train the students to think critically and evaluate theories, concepts and perspectives related to

iv. Psychology and human behaviour as well as current societal advances related to career.

v. Describe an understanding of the importance of self-awareness, self-reflection and self-regulation as well as gain practical knowledge and experience.

Details of Course

S. No	Contents
1	Introduction: Definition of ethics, approaches to ethics: psychological, philosophical, social
2	Psycho-Social theories of Moral Development: view of Kohelberg: Morality and Ideology, culture and morality, morality in everyday context.
3	Ethical concerns: work ethics and work values, Business ethics, human values in organizations
4	Self awareness: Self-concept: Johari window, self and culture, self-knowledge, self esteem, perceived self control, self serving bias, self presentation, self growth: transactional analysis and life scripts
5	Bringing out the best of self: Character strengths and virtues, emotional intelligence, social intelligence, positive cognitive states and process: self efficacy, empathy, gratitude, compassion and forgiveness, post traumatic growth.

Course Outcomes of Ethics and Self Awareness (HSS-401)

After the completion of course, students will be able,

1. Study human experience and behavior situation in social and cultural context
2. Promote the appreciation of students' own culture, ethics and values as well as the culture, ethics and values of others.

3.	Empower students to think critically and evaluate theories, concepts and perspectives related to psychology, human mind and human behavior as well as current societal advances related to career.
4.	Develop an understanding of the importance of self-awareness, self-reflection and self-regulation as well as gain practical knowledge and experience.

Syllabus

Managerial Economics for Engineers (HSBE-72)

1. **Semester:** 7^{th} Sem (Elective) “Department of Chemical Engineering”
2. **L:T:P** :0:0:0

Course Objectives:

IV. Use economic tools to explain the optimal allocation of resources within the firm.

V. Use the tools of economic theory to explain optimal production and pricing decisions by the firm in each market structure

VI. Use competition strategies, including costing, pricing, product differentiation, and market environment according to the natures of products and the structures of the markets.

3. **Details of Course**

S. No	Contents
1	**Introduction to Managerial Economics:** Definition, Nature and Scope. Relationship with other areas in economics, Production, Management, Marketing, Finance, Personal and Operations Research. Total Economic Cost. Economics Profit and Accounting Profit, Objectives of the Firm.
2	**Theory of Demand:** Demand Analysis- Demand Function, the Law of Demand and Exceptions to Law of Demand. Methods of Demand Estimation and Demand Forecasting, Elasticity of Demand. Types and significance of Elasticity of Demand. Supply Analysis- Supply Function, the Law of supply Shifts in Demand and Supply. Market Equilibrium.
3	**Production Analysis:** Production Function, Marginal rate of technical Substitution, Isoquants & Isocosts, Production Function with one/two Variables, Cobb-Douglas Production Function, Returns to Scale & Returns to Factor, Economies of scale-Innovations & Global Competitiveness.
4	**Cost Theory & Estimation:** Cost concepts, Determination of cost, cot-output relationship in the short run and long run, short run vs. long run costs, average cost curves, Overall cost leadership.
5	**Market Structure and Pricing practices:** Features and Typesof different competitive situations – Price Output determination in perfect competition, Monopoly, Monopolistic competition and Oligopoly, Strategic Decision Making in Oligopoly.

LITERATURE

S. No	Name of authors/books/publishers

1	Managerial Economics – G. S Gupta, T M H, New Delhi
2	Managerial Economics – Varshney and Maheshwari, Sultan Chand & Sons, New Delhi
3	Managerial Economics – Pearson and Lewis, Prentice Hall, New Delhi
4	Managerial Economics – Thomas and Maunce, McGraw Hill, New Delhi
5	Managerial Economics: Concepts and Tools, Prabhath Jayasinghe, Expographic Books Private Limited.
6	Managerial Economics, William F. Samuelson and Stephen G. Marks, Wiley Publishing.
7	Managerial Economics & Strategy, Jeffrey M. Perloff and James A. Brander, Pearson publishing.

Course outcomes

On successful completion of this course, student should be able to:

5) Understand the roles of managers in firms and understand the internal and external decisions to be made by managers
6) Analyze the demand and supply and elasticity conditions and assess the position of a company
7) Analyze the production function in one as well as in two variables and explain the relevance of economies of scale in production.
8) Design competition strategies, including costing, pricing, product differentiation, and market environment according to the natures of products and the structures of the markets.