1.3.1 Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability and other value framework enshrined in Sustainable Development Goals and National Education Policy-2020 into the Curriculum.

List of courses for Universal Human Values, Gender, and Professional Ethics

S.No	Course Code	Course Name	Category	Department	Regulation
1.	18MC101	Induction Program	Mandatory Course	Science and Humanities	2018
2.	18MC301	Indian Constitution	Mandatory Course	All Department	2018
3.	18MEPE32	Professional Ethics and human Values	Professional Elective	Mechanical Engineering	2018
4.	18MEOE03	Total Quality Management	Open Elective	Mechanical Engineering	2018
5.	18MEOE04	Principles of Management	Open Elective	Mechanical Engineering	2018
6.	18MEOE05	Professional Ethics and Human Values	Open Elective	Mechanical Engineering	2018
7.	22MC101	Induction Program	Mandatory Course	Science and Humanities	2022
8.	22MC301	Indian Constitution	Mandatory Course	All Department	2022
9.	22MEPE34	Professional Ethics and Human Values	Professional Elective	Mechanical Engineering	2022
10.	22MEOE05	Principal of Management	Open Elective	Mechanical Engineering	2022
11.	22MEOE06	Professional Ethics in Engineering	Open Elective	Mechanical Engineering	2022
12.	22MEOE09	Total Quality Management	Open Elective	Mechanical Engineering	2022

PRINCIPAL
GOVT. COLLEGE OF ENGG.,
SALEM-636 011

Syllabus of the courses with topics of Universal Human Values, Gender, and Professional Ethics

22MC101	INDUCTION PROGRAM		SEMESTER I			
PRE-REQUISITE		CATEGORY	L	T	P	C
		MC	0	0	0	0

INDUCTION PROGRAM (MANDATORY) - 3 WEEKS DURATION
LIST OF EXPERIMENTS

- Physical activity.
- Creative Arts.
- Universal Human Values.
- Literary.
- Proficiency Modules.
- Lectures by Eminent People.
- Visits to local Areas.
- Familiarization to Dept./Branch & Innovations.

Total = 21Days

18MC301	INDIAN CONSTITUTION	L	T	P	C
		2	0	0	0

Course Objectives:

1. Learn the salient features of the Indian Constitution.
2. To study the List the Fundamental Rights and Fundamental Duties.
3. To study the Present a systematic analysis of all dimensions of Indian Political System.
4. To study the Understand the power and functions of the Parliament, the Legislature and the Judiciary.

UNIT I

Union and its Territory – Citizenship-Fundamental Rights-Directive Principles of State Policy-Fundamental Duties

UNIT II

The Union-The States-The Union Territories-The Panchayats-The Municipalities

UNIT III

The Co-operative Societies-The scheduled and Tribal Areas-Relations between the Union and the States-Finance, Property, Contracts and Suits-Trade and Commerce within the territory of India

UNIT IV

Services under the Union, the States - Tribunals – Elections- Special Provisions -Relating to certain Classes

UNIT V

Languages-Emergency Provisions - Miscellaneous-Amendment of the Constitution

Total (15+0) = 15 Periods

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1 : Understand the emergence and evolution of the Indian Constitution
CO2 : Explain the key concepts of Indian Political System
CO3 : Describe the role of constitution in a democratic society.
CO4 : Present the structure and functions of the Central and State Governments, the Legislature and the Judiciary

Reference Books:

1. SubhashC.Kashyap, Our Constitution, National Book Trust, 2017.
2. Durga Das Basu, Introduction to the Constitution of India, Lexis Nexis, 2015
3. Granville Austin, The Indian Constitution: Cornerstone of a Nation, Oxford University Press, 1999.
4. M.V.Pylee, Constitutional History of India, S.Chand publishing, 2010.

18MEPE32	PROFESSIONAL ETHICS AND HUMAN VALUES	L	T	P	C
		3	0	0	3

Course Objectives:

1. To create awareness on Engineering Ethics and providing basic knowledge about engineering Ethics, Variety of moral issues and Professional Ideals.
2. To provide basic familiarity about Engineers as responsible Experimenters, Codes of Ethics, Industrial Standards.
3. To inculcate knowledge and exposure on Safety and Risk, Risk Benefit Analysis.

UNIT I HUMAN VALUES **9 + 0**

Morals, Values and Ethics – Integrity – Work Ethic – Service Learning – Civic Virtue – Respect for Others – Living Peacefully – caring – Sharing – Honesty – Courage – Valuing Time – Co-operation – Commitment – Empathy – Self-Confidence – Character – Spirituality.

UNIT II ENGINEERING ETHICS **9 + 0**

Senses of 'Engineering Ethics' - variety of moral issued - types of inquiry - moral dilemmas - moral autonomy - Kohlberg's theory - Gilligan's theory - consensus and controversy – Models of Professional Roles - theories about right action – Self-interest- customs and religion - uses of ethical theories.

UNIT III ENGINEERING AS SOCIAL EXPERIMENTATION **9 + 0**

Engineering as experimentation - engineers as responsible experimenters - codes of ethics - a balanced outlook on law – the challenger case study.

UNIT IV SAFETY, RESPONSIBILITIES AND RIGHTS **9 + 0**

Safety and risk - assessment of safety and risk - risk benefit analysis and reducing risk - the three mile island and Chernobyl case studies. Collegiality and loyalty - respect for authority - collective bargaining - confidentiality - conflicts of interest – occupational crime - professional rights - employee rights - Intellectual Property Rights (IPR) - discrimination.

UNIT V GLOBAL ISSUES **9 + 0**

Multinational corporations - Environmental ethics - computer ethics - weapons development - engineers as managers consulting engineers-engineers as expert witnesses and advisors -moral leadership-sample code of Ethics like ASME,ASCE, IEEE, Institution of Engineers (India), Indian Institute of Materials Management, Institution of electronics and telecommunication engineers (IETE),India.

Total (45+0) = 45 Periods

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1 : understand the importance of ethics and values in life and society.
CO2 : understood the core values that shape the ethical behavior of an engineer.
CO3 : exposed awareness on professional ethics and human values.

Text Books:

1. Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw-Hill, New York 2005.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, "Engineering Ethics", Prentice Hall of India, New Delhi, 2004.

Reference Books:

1. Tripathi A N, "Human values" , New Age international Pvt. Ltd., New Delhi, 2002.
2. Charles D. Fleddermann, "Engineering Ethics", Pearson Education / Prentice Hall, New Jersey, 2004.
3. Charles E Harris, Michael S. Protchard and Michael J Rabins, "Engineering Ethics – Concepts and Cases", Wadsworth Thompson Learning, United States, 2000.
4. John R Boatright, "Ethics and the Conduct of Business", Pearson Education, New Delhi, 2003.

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	0	0	0	0	0	3	2	3	0	0	0	0	0	0	3
CO2	0	0	0	0	0	3	2	3	0	0	0	0	0	0	3
CO3	0	0	0	0	0	3	2	3	0	0	0	0	0	0	3

1- Faintly
2- Moderately
3- Strongly

18MEOE03	TOTAL QUALITY MANAGEMENT	L	T	P	C
		3	0	0	3

Course Objectives:

1. Understand the philosophy and core values of Total Quality Management (TQM)
2. Explain the salient contributions of Quality Gurus like Deming, Juran and Crosby.
3. Determine the voice of the customer and convert into quality terms to enhance the economic performance and long-term business success of an organization.

UNIT I INTRODUCTION **9 + 0**

Definition of Quality - Dimensions of Quality - Quality planning - Quality costs, Analysis techniques for quality costs - Basic concepts of total quality management (TQM) - Historical review - Principles of TQM - Leadership - Role of senior management - Quality council, Quality statements - Strategic planning - Deming philosophy - Barriers to TQM implementation.

UNIT II TQM PRINCIPLES **9 + 0**

Customer satisfaction - Customer perception of quality, Customer complaints, Service quality, Customer Retention, Employee involvement - Motivation, Empowerment, Teams, Recognition and reward, Performance appraisal - Continuous process improvement – Juran Trilogy, PDSA Cycle, 5S, Kaizen - Supplier Partnership, Sourcing, Supplier selection, Supplier rating, Relationship development - Performance measures, Basic concepts, Strategy.

UNIT III STATISTICAL PROCESS CONTROL (SPC) **9 + 0**

The seven tools of quality, Statistical fundamentals – Measures of central tendency and dispersion, Population and sample, Normal curve - Control charts for variables and attributes, Process capability - Concept of six sigma, new seven Management tools.

UNIT IV TQM TOOLS **9 + 0**

Benchmarking – Reasons to benchmark, Benchmarking process, Quality function deployment (QFD) process – House of quality, Benefits - Taguchi quality loss function - Total productive maintenance (TPM) concept, Improvement needs - FMEA – Stages of FMEA.

UNIT V QUALITY MANAGEMENT SYSTEMS **9 + 0**

Need for ISO 9000 and other quality systems, ISO 9001:2008 quality system – Elements, Implementation of quality system, Documentation, Quality auditing, TS 16949:2002.

Total (45 + 0) = 45 Periods

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1 : Identify customer needs and convert those as quality index that will be used as inputs in TQM methodologies.

CO2 : Measure the performance quality i.e. cost of poor quality, process effectiveness and efficiency to identify areas for improvement.

CO3 : Determine the set of performance indicators that will align people with the objectives of an organization.

CO4 : Apply various TQM tools as a means to improve quality

CO5 : Explain ISO standards & quality systems, procedure for implementation, documentation and auditing

Text Books:

1. Dale H. Besterfiled et al., “Total Quality Management”, Pearson Education Asia, 1999.
2. Feigenbaum.A.V. “Total Quality Management”, McGraw Hill, 1991.

Reference Books:

1. Oakland.J.S, “Total Quality Management”, Butterworth – Hcinemann Ltd., Oxford. 1989.

2. Narayana V and Sreenivasan, N.S, “Quality Management – Concepts and Tasks”, New Age International, 1996.
3. James R.Evans and William M.Lidsay, “The Management and Control of Quality”, 5th Edition, South-Western, 2002.
4. Zeiri, “Total Quality Management for Engineers”, Wood Head Publishers, 1991.

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	0	0	0	0	0	2	1	0	0	1	3	1	1	1	2
CO2	0	0	1	2	0	1	1	0	0	0	1	2	0	1	1
CO3	0	0	0	0	3	0	1	1	0	0	2	0	1	2	2
CO4	0	2	0	0	3	0	0	0	2	2	3	0	0	1	1
CO5	0	0	2	1	2	0	0	0	2	0	3	0	0	1	1

1- Faintly
2- Moderately
3- Strongly

18MEOE04	PRINCIPLES OF MANAGEMENT	L	T	P	C
		3	0	0	3

COURSE OBJECTIVES:

1. To understand the term management basic features of management, principles usages in all walks of life and industrial growth.
2. Knowledge on the principles of management is essential for all kinds of people in all kinds of organizations. After studying this course, students will be able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling.
3. Students will also gain some basic knowledge in international aspect of management.

UNIT I MANAGEMENT AN INTRODUCTION AND OVERVIEW 9 + 0

Definitions of management – features of management – Management thoughts – different schools of management – Scientific management – Arts or Science, Management Vs administration – Principles of Management.

UNIT II FUNCTIONS OF MANAGEMENT 9 + 0

Role of managers. Functions approach to management, Management functions, Management levels –, reconciling functions and role, responsibility of managers – towards subordinates, peers, supervisors, customers, government, company, creditors, shareholders, competitors etc..

UNIT III MANAGERIAL PLANNING AND DECISION MAKING 9 + 0

Planning fundamentals, objectives. Management by objectives – Changes in objectives – goal distortions – major types of planing, policies and objectives, procedures – methods, rules, programmes and schedule, projects, budgets – importance of decision making, types of decisions, decision making process – decision theory – quantitative techniques – decision making conditions – Operation Research (OR), Definition, successful areas of operation research - Decision tree.

UNIT IV ORGANIZATION 9 + 0

Organization: Basic concepts – organization as a structure – as a process – as a group properties of modern organization – typology, importance of organization – business /industrial organization – sole trading, partnership company, co – operative , public enterprise line (military), line and staff, functional , matrix committee based organization - departmentalization – need, bases of departmentation – career planning and management.

UNIT V STAFFING, CONTROLLING AND COMMUNICATION 9 + 0

Nature and purpose of staffing – man power planning, aims and objectives of HR recruitment, selection and training sources of recruitment, process of recruitment, training methods – performance appraisal methods – communication – importance process – barriers to communications. How to remove obstacles of effective communication – controlling – definition – Characteristics of control – types of control – requirements of effective control – direct and preventive control repairing, control techniques.

Total (45+0)= 45 Periods

COURSE OUTCOMES:

Upon completion of this course, the students will be able to:

CO1 : understand the basic concepts of management
CO2 : explain the contributions and functions, types of business organization
CO3 : list the various types of leadership and evaluate the motivation theories and techniques.
CO4 : select forecasting models for future demands and to make decision in the management processes.

TEXT BOOKS:

1. Herald knootz and Heinz weihrich, —Essentials of Managementǁ, McGraw-Hill Publishing Company, Singapore International Edition, 2007
2. Joseph L, Massie, —Essentials of Managementǁ, Prentice Hall of India Pvt., Ltd (Pearson) Fourth Edition, 2003.

REFERENCE BOOKS:

1. Stephen A. Robbins & David A. Decenzo & Mary Coulter, “Fundamentals of Management” 7th Edition, Pearson Education, 2011.
2. Robert Kreitner & Mamata Mohapatra, “Management”, Biztantra, 2008.
3. Harold Koontz & Heinz Weihrich “Essentials of management” Tata Mc Graw Hill, 1998.
4. Tripathy PC & Reddy PN, “Principles of Management”, Tata McGraw Hill, 1999.

E-REFERENCES:

1. Nptel.ac.in / courses / downloads

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	0	0	0	0	0	0	0	0	0	1	0	3	0	1	3
CO2	0	0	0	0	0	1	0	2	1	0	0	2	0	1	2
CO3	0	0	0	1	0	0	0	0	3	2	0	2	0	1	3
CO4	0	0	0	0	0	1	1	0	2	0	0	1	0	1	2

1- Faintly
2- Moderately
3- Strongly

18MEOE05	PROFESSIONAL ETHICS AND HUMAN VALUES	L	T	P	C
		3	0	0	3

Course Objectives:

1. To create awareness on Engineering Ethics and providing basic knowledge about engineering Ethics, Variety of moral issues and Professional Ideals.
2. To provide basic familiarity about Engineers as responsible Experimenters, Codes of Ethics, Industrial Standards.
3. To inculcate knowledge and exposure on Safety and Risk, Risk Benefit Analysis.

UNIT I HUMAN VALUES 9 + 0

Morals, Values and Ethics – Integrity – Work Ethic – Service Learning – Civic Virtue – Respect for Others – Living Peacefully – caring – Sharing – Honesty – Courage – Valuing Time – Co-operation – Commitment – Empathy – Self-Confidence – Character – Spirituality.

UNIT II ENGINEERING ETHICS 9 + 0

Senses of 'Engineering Ethics' - variety of moral issued - types of inquiry - moral dilemmas - moral autonomy - Kohlberg's theory - Gilligan's theory - consensus and controversy – Models of Professional Roles - theories about right action – Self-interest- customs and religion - uses of ethical theories.

UNIT III ENGINEERING AS SOCIAL EXPERIMENTATION 9 + 0

Engineering as experimentation - engineers as responsible experimenters - codes of ethics - a balanced outlook on law – the challenger case study.

UNIT IV SAFETY, RESPONSIBILITIES AND RIGHTS 9 + 0

Safety and risk - assessment of safety and risk - risk benefit analysis and reducing risk - the three mile island and Chernobyl case studies. Collegiality and loyalty - respect for authority - collective bargaining - confidentiality - conflicts of interest – occupational crime - professional rights - employee rights - Intellectual Property Rights (IPR) - discrimination.

UNIT V GLOBAL ISSUES 9 + 0

Multinational corporations - Environmental ethics - computer ethics - weapons development - engineers as managers consulting engineers-engineers as expert witnesses and advisors -moral leadership-sample code of Ethics like ASME,ASCE, IEEE, Institution of Engineers (India), Indian Institute of Materials Management, Institution of electronics and telecommunication engineers (IETE),India.

Total (45+0) = 45 Periods

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1 : understand the importance of ethics and values in life and society.
CO2 : understood the core values that shape the ethical behavior of an engineer.
CO3 : exposed awareness on professional ethics and human values.

Text Books:

1. Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw-Hill, New York 2005.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, "Engineering Ethics", Prentice Hall of India, New Delhi, 2004.

Reference Books:

1. Tripathi A N, "Human values" , New Age international Pvt. Ltd., New Delhi, 2002.
2. Charles D. Fleddermann, "Engineering Ethics", Pearson Education / Prentice Hall, New Jersey, 2004.
3. Charles E Harris, Michael S. Protchard and Michael J Rabins, "Engineering Ethics – Concepts and Cases", Wadsworth Thompson Learning, United States, 2000.
4. John R Boatright, "Ethics and the Conduct of Business", Pearson Education, New Delhi, 2003.

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	0	0	0	0	0	2	1	3	0	0	1	0	1	1	0
CO2	0	0	0	0	0	0	2	3	0	0	0	0	1	0	0
CO3	0	0	0	0	0	1	1	3	0	0	0	0	1	0	3

1- Faintly
2- Moderately
3- Strongly

22HS201 **UNIVERSAL HUMAN VALUES** **SEMESTER II**

PRE-REQUISITE:

CATEGORY	L	T	P	C
HS	1	0	4	3

Course Objectives:

1. Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence.
2. Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence.
3. Strengthening of self-reflection.
4. Development of commitment and courage to act.

UNIT I **6 0 3 9**

Course Introduction - Need, Basic Guidelines, Content and Process for Value Education. Purpose and motivation for the course, recapitulation from Universal Human Values-I. Self-Exploration-what is it? - Its content and process; 'Natural Acceptance' and Experiential Validation- as the process for self-exploration Continuous Happiness and Prosperity- A look at basic Human Aspirations. Right understanding, Relationship and Physical Facility- the basic requirements for fulfilment of aspirations of every human being with their correct priority. Understanding Happiness and Prosperity correctly- A critical appraisal of the current
scenario Method to fulfil the above human aspirations- understanding and living in harmony at various levels.

UNIT II **6 0 3 9**

Understanding Harmony in the Human Being - Harmony in Myself! Understanding human being as a co-existence of the sentient 'I' and the material 'Body' Understanding the needs of Self ('I') and 'Body' - happiness and physical facility. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer) Understanding the characteristics and activities of 'I' and harmony in 'I' Understanding the harmony of I with the Body: Sanyam and Health;correct appraisal of Physical needs, meaning of Prosperity
in detail Programs to ensure Sanyam and Health.

UNIT III **6 0 3 9**

Understanding Harmony in the Family and Society- Harmony in Human- Human Relationship Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect as the foundational values of relationship. Understanding the meaning of Trust; Difference between intention and competence. Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals. Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family.

UNIT IV **6 0 3 9**

Understanding Harmony in the Nature and Existence - Whole existence as Coexistence. Understanding the harmony in the Nature. Interconnectedness and mutual fulfilment among the four orders of nature- recyclability and selfregulation in nature. Understanding
Existence as Co-existence of mutually interacting units in all- pervasive space. Holistic perception of harmony at all levels of existence.

UNIT V **6 0 3 9**

Implications of the above Holistic Understanding of Harmony on Professional Ethics. Natural acceptance of human values.

Definitiveness of Ethical Human Conduct. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order. Competence in professional ethics, Strategy for transition from the present state to Universal Human Order.

Total (30L + 15T) = 45 Periods

Reference Books:

1. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010

Reference Books:

1. Jeevan Vidya: EkParichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999.
2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.
3. The Story of Stuff (Book)
4. The Story of My Experiments with Truth - by Mohandas Karamchand Gandhi
5. Small is Beautiful - E. F Schumacher.
6. Slow is Beautiful - Cecile Andrews
7. Economy of Permanence - J C Kumarappa
8. Bharat Mein Angreji Raj - PanditSunderlal
9. Rediscovering India - by Dharampal
10. Hind Swaraj or Indian Home Rule - by Mohandas K. Gandhi
11. India Wins Freedom - Maulana Abdul Kalam Azad
12. Vivekananda - Romain Rolland (English)
13. Gandhi - Romain Rolland (English)

COURSE OUTCOMES:

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

CO1 Become more aware of themselves, and their surroundings (family, society, nature) and become more responsible in life

CO2 Handle problems with sustainable solutions, while keeping human relationships and human
nature in mind

CO3 Become sensitive to their commitment towards what they have understood (human values,
human relationship and human society)

CO4 Apply what they have learnt to their own self in different day-to-day settings in real life, at least
a beginning would be made in this direction.

COURSE ARTICULATION MATRIX

CO/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	0	0	1	0	0	1	0	2	0	1	0	3	2	0	1
CO2	0	0	1	0	0	3	0	1	0	1	0	3	1	0	1
CO3	0	0	1	0	0	2	0	1	0	1	0	3	1	0	2
CO4	0	0	2	0	0	1	0	1	0	1	0	3	1	0	1
Avg	**0**	**0**	**1.25**	**0**	**0**	**1.75**	**0**	**1.25**	**0**	**1**	**0**	**3**	**1.25**	**0**	**1.25**

3 / 2 / 1 – indicates strength of correlation (3 – High, 2 - Medium, 1 – Low)

B.E MECHANICAL ENGINEERING - FULL TIME

REGULATION 2022 – SYLLABUS

SEMESTER-I

<table>
<tr><td>22MC101</td><td colspan="2">INDUCTION PROGRAM</td><td colspan="4">SEMESTER I</td></tr>
<tr><td colspan="2" rowspan="2">PRE-REQUISITE</td><td rowspan="2">Category</td><td>MC</td><td colspan="2">Credit</td><td>0</td></tr>
<tr><td rowspan="2">Hours/Week</td><td>L</td><td>T</td><td>P</td><td>TH</td></tr>
<tr><td colspan="2"></td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td colspan="7">INDUCTION PROGRAM (MANDATORY) - 3 WEEKS DURATION</td></tr>
<tr><td colspan="7">LIST OF EXPERIMENTS
• Physical activity.
• Creative Arts.
• Universal Human Values.
• Literary.
• Proficiency Modules.
• Lectures by Eminent People.
• Visits to local Areas.
• Familiarization to Dept./Branch & Innovations.</td></tr>
<tr><td colspan="7">Total = 21Days</td></tr>
<tr><td colspan="7"></td></tr>
</table>

22MC301	INDIAN CONSTITUTION		SEMESTER V			
PREREQUISITE:		**Category**	**MC**	**Credit**		**0**
		Hours/Week	**L**	**0**	**P**	**TH**
			3	**0**	**0**	**3**

COURSE OBJECTIVES:

1.	Learn the salient features of the Indian Constitution.
2.	To study the List the Fundamental Rights and Fundamental Duties.
3.	To study the Present a systematic analysis of all dimensions of Indian Political System.
4.	To study the Understand the power and functions of the Parliament, the Legislature and the Judiciary.

UNIT I		**9**	**0**	**0**	**9**
Union and its Territory – Citizenship–Fundamental Rights–Directive Principles of State Policy–Fundamental Duties					
UNIT II		**9**	**0**	**0**	**9**
The Union–The States–The Union Territories–The Panchayats–The Municipalities					
UNIT III		**9**	**0**	**0**	**9**
The Co-operative Societies–The scheduled and Tribal Areas–Relations between the Union and the States–Finance, Property, Contracts and Suits–Trade and Commerce within the territory of India					
UNIT IV		**9**	**0**	**0**	**9**
Services under the Union, the States – Tribunals – Elections– Special Provisions –Relating to certain Classes					
UNIT V		**9**	**0**	**0**	**9**
Languages–Emergency Provisions – Miscellaneous–Amendment of the Constitution					
Total = 45 Periods					

Reference Books:

1.	Subhash C. Kashyap, Our Constitution, National Book Trust, 2017
2.	Durga Das Basu, Introduction to the Constitution of India, Lexis Nexis, 2015
3.	Granville Austin, The Indian Constitution: Cornerstone of a Nation, Oxford University Press, 1999.
4.	M.V. Pylee, Constitutional History of India, S.Chand publishing, 2010

COURSE OUTCOMES: **On completion of the course the student will be able to**		**Bloom's Taxonomy Mapped**
CO1	Understand the emergence and evolution of the Indian Constitution	Understand
CO2	Explain the key concepts of Indian Political System	Understand
CO3	Describe the role of constitution in a democratic society.	Understand
CO4	Present the structure and functions of the Central and State Governments, the Legislature and the Judiciary	Apply

22MEPE34	PROFESSIONAL ETHICS AND HUMAN VALUES				SEMESTER VI	
PREREQUISITES		**CATEGORY**	**PE**	**Credit**		**3**
1.Human Rights		**Hours/Week**	**L**	**T**	**P**	**TH**
2. Product life Cycle Management			**3**	**0**	**0**	**3**

COURSE OBJECTIVES:

1.	Applying the core values toward the ethical behavior of an engineer.
2.	Applying the ethical and moral principles in engineering experimentation.
3.	Applying the ethical and moral principles in engineering for safety.
4.	Applying standard codes of moral conduct toward the ethical behavior of an engineer.
5.	Applying ethical and moral principles for engineers as managers, consultants, expert witness. Resolving global issues of ethics concerning weapon development and multinational companies.

UNIT I	**ENGINEERING ETHICS**	**9**	**0**	**0**	**9**

Senses of 'Engineering Ethics' – Variety of moral issues – Types of inquiry – Moral dilemmas – Moral Autonomy – Kohlberg's theory – Gilligan's theory – Consensus and Controversy – Professions and Professionalism – Professional Ideals and Virtues – Uses of Ethical Theories.

UNIT II	**ENGINEERING AS SOCIAL EXPERIMENTATION**	**9**	**0**	**0**	**9**

Engineering as Experimentation – Engineers as responsible Experimenters – Research Ethics Codes of Ethics – Industrial Standards - A Balanced Outlook on Law – The Challenger Case Study.

UNIT III	**ENGINEERING FOR SAFETY**	**9**	**0**	**0**	**9**

Safety and Risk – Assessment of Safety and Risk – Risk Benefit Analysis – Reducing Risk – The Government Regulator's Approach to Risk - Chernobyl Case Studies and Bhopal.

UNIT IV	**ENGINEER'S RESPONSIBILITIES AND RIGHTS**	**9**	**0**	**0**	**9**

Collegiality and Loyalty – Respect for Authority – Collective Bargaining – Confidentiality – Conflicts of Interest – Occupational Crime – Professional Rights – Employee Rights – Intellectual Property Rights (IPR) – Discrimination.

UNIT V	**GLOBAL ISSUES**	**9**	**0**	**0**	**9**

Multinational Corporations – Business Ethics - Environmental Ethics – Computer Ethics – Role in Technological Development – Weapons Development – Engineers as Managers – Consulting Engineers – Engineers as Expert Witnesses and Advisors – Honesty – Moral Leadership – Sample Code of Conduct

Total(45L) = 45 Periods

TEXT BOOKS:

1.	Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw-Hill, New York 2017.
2.	Govindarajan M, Natarajan S, Senthil Kumar V. S, "Engineering Ethics", Prentice Hall of India, New Delhi, 2004

REFERENCES:

1	Charles D Fleddermann, "Engineering Ethics", Prentice Hall, New Mexico, 1999.
2	David Ermann and Michele S Shauf, "Computers, Ethics and Society", Oxford University Press, 2003
3	Edmund G Seebauer and Robert L Barry, "Fundamentals of Ethics for Scientists and Engineers", Oxford University Press, 2001.
4	John R Boatright, "Ethics and the Conduct of Business", Pearson Education, 2003.
5	Prof. (Col) P S Bajaj and Dr. Raj Agrawal, "Business Ethics – An Indian Perspective", Biztantra, New Delhi, 2004.

E-REFERENCES:

1.	Value Education websites, http://uhv.ac.in, http://www.uptu.ac.in
2.	IIT Delhi, Modern Technology – the Untold Story

3.	Gandhi A., Right Here Right Now, Cyclewala Productions

COURSE OUTCOMES: Upon completion of this course, the students will be able to:		**Bloom Taxonomy Mapped**
CO1	Understand the core values toward the ethical behavior of an engineer.	Understand
CO2	Apply the ethical and moral principles in engineering experimentation	Understand
CO3	Expose the ethical and moral principles in engineering for safety.	Apply
CO4	Apply standard codes of moral conduct toward the ethical behavior of an engineer	Apply
CO5	Apply ethical and moral principles for engineers as managers, consultants, expert witness. Resolve global issues of ethics concerning weapon development and multinational companies.	Understand

COURSE ARTICULATION MATRIX

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	0	0	0	0	0	0	3	1	3	0	0	2	1	0	0
CO2	0	0	0	0	0	0	2	2	3	0	0	2	1	2	0
CO3	0	0	0	0	0	0	3	2	3	0	0	2	1	2	0
CO4	0	0	0	0	0	0	3	3	2	0	0	2	1	2	0
CO5	0	0	0	0	0	0	2	2	3	0	0	2	1	0	0
Avg	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.6**	**2**	**2.8**	**0.0**	**0.0**	**2.0**	**1.0**	**1.2**	**0.0**

3/2/1 – indicates strength of correlation (3 – high, 2- medium, 1- low)

22MEOE05	PRINCIPLES OF MANAGEMENT		SEMESTER VI/VIII			
		CATEGORY	OE	Credit		3
		Hours/Week	L	T	P	TH
			3	0	0	3

COURSE OBJECTIVES

1.	To understand the management basic features of management.
2.	Principles usages in all walks of life and industrial growth.
3.	Able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling.
4.	To gain some basic knowledge in international aspect of management.

UNITI	MANAGEMENT ANINTRODUCTIONANDOVERVIEW	9	0	0	9

Definitions of management – features of management – Management thoughts – different schools of management – Scientific management – Arts or Science, Management Vs administration – Principles of Management.

UNIT II	FUNCTIONS OF MANAGEMENT	9	0	0	9

Role of managers. Functions approach to management, Management functions, Management levels –, reconciling functions and role, responsibility of managers – towards subordinates, peers, supervisors, customers, government, company, creditors, shareholders, competitors etc.

UNIT III	MANAGERIAL PLANNING AND DECISION MAKING	9	0	0	9

Planning fundamentals, objectives. Management by objectives – Changes in objectives – goal distortions – major types of planning, policies and objectives, procedures – methods, rules, programmes and schedule, projects, budgets – importance of decision making, types of decisions, decision making process – decision theory – quantitative techniques – decision making conditions – Operation Research (OR), Definition, successful areas of operation research - Decision tree.

UNIT IV	ORGANIZATION	9	0	0	9

Organization: Basic concepts – organization as a structure – as a process – as a group property of modern organization – typology, importance of organization – business /industrial organization – sole trading, partnership company, co – operative, public enterprise line (military), line and staff, functional, matrix committee-based organization - departmentalization – need, bases of departmentation – career planning and management.

UNIT V	STAFFING, CONTROLLING AND COMMUNICATION	9	0	0	9

Nature and purpose of staffing – man power planning, aims and objectives of HR recruitment, selection and training sources of recruitment, process of recruitment, training methods – performance appraisal methods – communication – importance process – barriers to communications. How to remove obstacles of effective communication – controlling – definition – Characteristics of control – types of control – requirements of effective control – direct and preventive control repairing, control techniques.

Total (45L) = 45Periods

REFERENCE BOOKS:

1	HeraldknootzandHeinzweihrich,EssentialsofManagementǁ,McGraw-HillPublishingCompany, SingaporeInternationalEdition,2007
2	JosephL,Massie,EssentialsofManagement. PrenticeHallofIndiaPvt.,Ltd(Pearson)FourthEdition, 2003.
3	StephenA. Robbins &David A. Decenzo &Mary Coulter, “Fundamentals of Management”

	7thEdition,PearsonEducation,2011.
4	RobertKreitner&MamataMohapatra,"Management",Biztantra,2008.
5	HaroldKoontz &HeinzWeihrich"Essentialsof management"TataMcGrawHill,1998.
6	TripathyPC &ReddyPN,"Principles of Management", Tata McGrawHill, 1999.
7	R.S.N. Pillai&S. Kala "Principles and Practice of Management", S Chand & company, 2014.
E-REFERENCES:	
1.	https://nptel.ac.in/courses/110105146
2.	https://nptel.ac.in/courses/122106031

COURSE OUTCOMES: Upon completion of this course, the students will be able to:		**Bloom Taxonomy Mapped**
CO1	Understand the basic concept so management	Understand
CO2	Familiarize the contribution sand functions, types of business organization	Understand
CO3	List the various types of leadership and evaluate the motivation the oriesand techniques.	Evaluate
CO4	Select forecasting models for future demands and to make decision in the management processes.	Evaluate

COURSE ARTICULATION MATRIX

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	0	0	0	0	0	0	1	3	1	0	2	2	1	1
CO2	0	0	0	0	0	0	1	1	2	0	3	2	1	1
CO3	0	0	0	0	0	0	0	1	2	0	1	1	1	1
CO4	0	0	0	0	0	0	2	1	2	0	2	1	1	1
Avg	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1.5**	**1.75**	**0**	**2**	**1.5**	**1**	**1**

3/2/1 – indicates strength of correlation (3 – high, 2- medium, 1- low)

22MEOE06	PROFESSIONAL ETHICS IN ENGINEERING	SEMESTER VI/VIII			
	CATEGORY	OE	Credit		3
	Horus/Week	L	T	P	TH
		3	0	0	3

COURSE OBJECTIVES	
1	To create awareness on Engineering Ethics and providing basic knowledge about engineering Ethics, Variety of moral issues and Professional Ideals.
2	To provide basic familiarity about Engineers as responsible Experimenters, Codes of Ethics, Industrial Standards.
3	To inculcate knowledge and exposure on Safety and Risk, Risk Benefit Analysis.

UNITI	HUMAN VALUES	9	0	0	9

Morals, Values and Ethics – Integrity – Work Ethic – Service Learning – Civic Virtue – Respect for Others – Living Peacefully – caring – Sharing – Honesty – Courage – Valuing Time – Co-operation – Commitment – Empathy – Self-Confidence – Character – Spirituality.

UNITII	ENGINEERING ETHICS	9	0	0	9

Senses of 'Engineering Ethics' - variety of moral issued - types of inquiry - moral dilemmas - moral autonomy - Kohlberg's theory - Gilligan's theory - consensus and controversy – Models of Professional Roles - theories about right action – Self-interest- customs and religion - uses of ethical theories.

UNITIII	ENGINEERING AS SOCIAL EXPERIMENTATION	9	0	0	9

Engineering as experimentation - engineers as responsible experimenters - codes of ethics - a balanced outlook on law – the challenger case study.

UNITIV	SAFETY, RESPONSIBILITIES AND RIGHTS	9	0	0	9

Safety and risk - assessment of safety and risk - risk benefit analysis and reducing risk - the three-mile island and Chernobyl case studies. Collegiality and loyalty - respect for authority - collective bargaining - confidentiality - conflicts of interest – occupational crime - professional rights - employee rights - Intellectual Property Rights (IPR) - discrimination.

UNITV	GLOBAL ISSUES	9	0	0	9

Multinational corporations - Environmental ethics - computer ethics - weapons development - engineers as managers consulting engineers-engineers as expert witnesses and advisors -moral leadership-sample code of Ethics like ASME,ASCE, IEEE, Institution of Engineers (India), Indian Institute of Materials Management, Institution of electronics and telecommunication engineers (IETE),India.

Total(45L) = 45Periods

REFERENCE BOOKS:	
1	Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw-Hill, New York 2005.
2	Govindarajan M, Natarajan S, Senthil Kumar V. S, "Engineering Ethics", Prentice Hall of India, New Delhi, 2004.
3	Tripathi A N, "Human values", New Age international Pvt. Ltd., New Delhi, 2002.
4	Charles D. Fleddermann, "Engineering Ethics", Pearson Education / Prentice Hall, New Jersey, 2004.
5	Charles E Harris, Michael S. Protchard and Michael J Rabins, "Engineering Ethics – Concepts and Cases", Wadsworth Thompson Learning, United States, 2000.

6	John R Boatright, “Ethics and the Conduct of Business”, Pearson Education, New Delhi, 2003.
7	R S Naagarazan, “A Textbook on Professional Ethics and Human Values” New age international (p) limited, publishers, New Delhi – 110002, 2006.

COURSE OUTCOMES: Upon completion of this course, the students will be able to:		**Bloom Taxonomy Mapped**
CO1	Understand the importance of ethics and values in life and society.	Understand
CO2	Understood the core values that shape the ethical behavior of an engineer.	Understand
CO3	Exposed awareness on professional ethics and human values.	Remember

COURSE ARTICULATION MATRIX

COs/POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	0	0	0	2	1	3	2	0	1	0	0	1
CO2	0	0	0	0	0	1	1	3	1	0	1	0	0	1
CO3	0	0	0	0	0	2	1	3	1	0	1	0	0	1
Avg	**0**	**0**	**0**	**0**	**0**	**1.66**	**1**	**3**	**1.33**	**0**	**1**	**0**	**0**	**1**

3/2/1 – indicates strength of correlation (3 – high, 2- medium, 1- low)

22MEOE09	TOTAL QUALITY MANAGEMENT	SEMESTER VI/VIII

	CATEGORY	OE	Credit		3
	Hours/Week	L	T	P	TH
		3	0	0	3

COURSEOBJECTIVES

1.	Teach the need for quality, its evolution, basic concepts, contribution of quality gurus, TQM framework, Barriers and Benefits of TQM.
2.	Explain the TQM Principles for application.
3.	Define the basics of six sigma and apply traditional tools, new tools, Benchmarking and FMEA.
4.	Describe Taguchi's Quality Loss Function, Performance measures and apply techniques like QFD, TPM, COQ and BPR.
5.	Illustrate and apply QMS and EMS in any organization.

UNITI	INTRODUCTION	9	0	0	9

Definition of Quality - Dimensions of Quality - Quality planning - Quality costs, Analysis techniques for quality costs- Basic concepts of total quality management (TQM)-Historical review- Principles of TQM- Leadership- Roleofseniormanagement-Qualitycouncil,Qualitystatements- Strategic planning- Deming philosophy-Barriers to TQM implementation

UNITII	TQM PRINCIPLES	9	0	0	9

Customer satisfaction - Customer perception of quality, Customer complaints, Service quality, Customer Retention, Employee involvement - Motivation, Empowerment, Teams, Recognition and reward, Performance appraisal - Continuous process improvement – Juran Trilogy, PDSA Cycle, 5S, Kaizen - Supplier Partnership, Sourcing, Supplier selection, Supplier rating, Relationship development - Performance measures, Basic concepts, Strategy

UNITIII	STATISTICAL PROCESS CONTROL (SPC)	9	0	0	9

The seven tools of quality, Statistical fundamentals – Measures of central tendency and dispersion, Population and sample, Normal curve - Control charts for variables and attributes, Process capability - Concept of six sigma, new seven Management tools.

UNITIV	TQM TOOLS	9	0	0	9

Benchmarking – Reasons to benchmark, Benchmarking process, Quality function deployment (QFD) process – House of quality, Benefits - Taguchi quality loss function - Total productive maintenance (TPM) concept, Improvement needs - FMEA – Stages of FMEA.

UNITV	QUALITY MANAGEMENT SYSTEMS	9	0	0	9

Need for ISO 9000 and other quality systems, benefits of ISO registration, ISO 9001:2008 quality system – Elements, Implementation of quality system, Documentation, Quality auditing, AS 9100,TS 16949:2002 and TL 9000

Total (45L) = 45Periods

REFERENCE BOOKS:

1	Dale H.Besterfiled, Carol B.Michna,Glen H. Bester field,MaryB.Sacre,HemantUrdhwareshe and RashmiUrdhwareshe, “Total Quality Management”, Pearson Education Asia, Revised Third Edition, Indian Reprint, Sixth Impression,2013.
2	Feigenbaum.A.V. “Total Quality Management”, McGraw Hill, 1991.

3	Joel.E. Ross, "Total Quality Management – Text and Cases",Routledge.,2017.
4	Kiran.D.R, "Total Quality Management: Key concepts and case studies, Butterworth – Heinemann Ltd, 2016.
5	Oakland, J.S. "TQM – Text with Cases", Butterworth – Heinemann Ltd., Oxford, Third Edition, 2003.
6	Suganthi,L and Anand Samuel, "Total Quality Management", Prentice Hall (India) Pvt. Ltd., 2006
7	Narayana V and Sreenivasan, N.S, "Quality Management – Concepts and Tasks", New Age International,1996.
E-REFERENCES:	
1.	https://www.oreilly.com/library/view/total-quality-management/9780815330486/xhtml/Reference1.xhtml
2.	https://www.sanfoundry.com/best-reference-books-total-quality-management/
3.	https://www.routledge.com/Total-Quality-Management-TQM-Principles-Methods-and-Applications/Luthra-Garg-Agarwal-Mangla/p/book/9780367512835

COURSE OUTCOMES: Upon completion of this course, the students will be able to:		**Bloom Taxonomy Mapped**
CO1	Ability to apply TQM concepts in a selected enterprise.	Apply
CO2	Ability to apply TQM principles in a selected enterprise.	Apply
CO3	Ability to understand Six Sigma and apply Traditional tools, new tools, Benchmarking and FMEA.	Understand
CO4	Ability to understand Taguchi's Quality Loss Function, Performance Measures and apply QFD, TPM, COQ and BPR.	Understand
CO5	Ability to apply QMS and EMS in any organization.	Apply

COURSE ARTICULATION MATRIX

COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	1	3	0	0	2	0	1	0	2	0	0	2	1	2
CO2	1	2	0	0	0	0	0	0	2	0	0	2	0	0
CO3	1	2	2	0	1	0	0	1	0	0	0	2	1	0
CO4	1	2	0	0	2	3	0	2	0	3	0	2	2	2
CO5	1	2	2	0	2	2	1	2	2	3	0	2	2	2
Avg	**1**	**2.2**	**0.8**	**0**	**1.4**	**1**	**0.4**	**1**	**1.2**	**1.2**	**0**	**2**	**1.2**	**1.2**

3/2/1 – indicates strength of correlation (3 – high, 2- medium, 1- low)

18MEPE32	PROFESSIONAL ETHICS AND HUMAN VALUES	L	T	P	C
		3	0	0	3

Course Objectives:

1. To create awareness on Engineering Ethics and providing basic knowledge about engineering Ethics, Variety of moral issues and Professional Ideals.
2. To provide basic familiarity about Engineers as responsible Experimenters, Codes of Ethics, Industrial Standards.
3. To inculcate knowledge and exposure on Safety and Risk, Risk Benefit Analysis.

UNIT I HUMAN VALUES **9 + 0**

Morals, Values and Ethics – Integrity – Work Ethic – Service Learning – Civic Virtue – Respect for Others – Living Peacefully – caring – Sharing – Honesty – Courage – Valuing Time – Co-operation – Commitment – Empathy – Self-Confidence – Character – Spirituality.

UNIT II ENGINEERING ETHICS **9 + 0**

Senses of 'Engineering Ethics' - variety of moral issued - types of inquiry - moral dilemmas - moral autonomy - Kohlberg's theory - Gilligan's theory - consensus and controversy – Models of Professional Roles - theories about right action – Self-interest- customs and religion - uses of ethical theories.

UNIT III ENGINEERING AS SOCIAL EXPERIMENTATION **9 + 0**

Engineering as experimentation - engineers as responsible experimenters - codes of ethics - a balanced outlook on law – the challenger case study.

UNIT IV SAFETY, RESPONSIBILITIES AND RIGHTS **9 + 0**

Safety and risk - assessment of safety and risk - risk benefit analysis and reducing risk - the three mile island and Chernobyl case studies. Collegiality and loyalty - respect for authority - collective bargaining - confidentiality - conflicts of interest – occupational crime - professional rights - employee rights - Intellectual Property Rights (IPR) - discrimination.

UNIT V GLOBAL ISSUES **9 + 0**

Multinational corporations - Environmental ethics - computer ethics - weapons development - engineers as managers consulting engineers-engineers as expert witnesses and advisors -moral leadership-sample code of Ethics like ASME,ASCE, IEEE, Institution of Engineers (India), Indian Institute of Materials Management, Institution of electronics and telecommunication engineers (IETE),India.

Total (45+0) = 45 Periods

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1 : understand the importance of ethics and values in life and society.
CO2 : understood the core values that shape the ethical behavior of an engineer.
CO3 : exposed awareness on professional ethics and human values.

Text Books:

1. Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw-Hill, New York 2005.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, "Engineering Ethics", Prentice Hall of India, New Delhi, 2004.

Reference Books:

1. Tripathi A N, "Human values" , New Age international Pvt. Ltd., New Delhi, 2002.
2. Charles D. Fleddermann, "Engineering Ethics", Pearson Education / Prentice Hall, New Jersey, 2004.
3. Charles E Harris, Michael S. Protchard and Michael J Rabins, "Engineering Ethics – Concepts and Cases", Wadsworth Thompson Learning, United States, 2000.
4. John R Boatright, "Ethics and the Conduct of Business", Pearson Education, New Delhi, 2003.

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	0	0	0	0	0	3	2	3	0	0	0	0	0	0	3
CO2	0	0	0	0	0	3	2	3	0	0	0	0	0	0	3
CO3	0	0	0	0	0	3	2	3	0	0	0	0	0	0	3

1- Faintly
2- Moderately
3- Strongly

18MEOE03	TOTAL QUALITY MANAGEMENT	L	T	P	C
		3	0	0	3

Course Objectives:

1. Understand the philosophy and core values of Total Quality Management (TQM)
2. Explain the salient contributions of Quality Gurus like Deming, Juran and Crosby.
3. Determine the voice of the customer and convert into quality terms to enhance the economic performance and long-term business success of an organization.

UNIT I INTRODUCTION **9 + 0**

Definition of Quality - Dimensions of Quality - Quality planning - Quality costs, Analysis techniques for quality costs - Basic concepts of total quality management (TQM) - Historical review - Principles of TQM - Leadership - Role of senior management - Quality council, Quality statements - Strategic planning - Deming philosophy - Barriers to TQM implementation.

UNIT II TQM PRINCIPLES **9 + 0**

Customer satisfaction - Customer perception of quality, Customer complaints, Service quality, Customer Retention, Employee involvement - Motivation, Empowerment, Teams, Recognition and reward, Performance appraisal - Continuous process improvement – Juran Trilogy, PDSA Cycle, 5S, Kaizen - Supplier Partnership, Sourcing, Supplier selection, Supplier rating, Relationship development - Performance measures, Basic concepts, Strategy.

UNIT III STATISTICAL PROCESS CONTROL (SPC) **9 + 0**

The seven tools of quality, Statistical fundamentals – Measures of central tendency and dispersion, Population and sample, Normal curve - Control charts for variables and attributes, Process capability - Concept of six sigma, new seven Management tools.

UNIT IV TQM TOOLS **9 + 0**

Benchmarking – Reasons to benchmark, Benchmarking process, Quality function deployment (QFD) process – House of quality, Benefits - Taguchi quality loss function - Total productive maintenance (TPM) concept, Improvement needs - FMEA – Stages of FMEA.

UNIT V QUALITY MANAGEMENT SYSTEMS **9 + 0**

Need for ISO 9000 and other quality systems, ISO 9001:2008 quality system – Elements, Implementation of quality system, Documentation, Quality auditing, TS 16949:2002.

Total (45 + 0) = 45 Periods

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1 : Identify customer needs and convert those as quality index that will be used as inputs in TQM methodologies.

CO2 : Measure the performance quality i.e. cost of poor quality, process effectiveness and efficiency to identify areas for improvement.

CO3 : Determine the set of performance indicators that will align people with the objectives of an organization.

CO4 : Apply various TQM tools as a means to improve quality

CO5 : Explain ISO standards & quality systems, procedure for implementation, documentation and auditing

Text Books:

1. Dale H. Besterfiled et al., “Total Quality Management”, Pearson Education Asia, 1999.
2. Feigenbaum.A.V. “Total Quality Management”, McGraw Hill, 1991.

Reference Books:

1. Oakland.J.S, “Total Quality Management”, Butterworth – Hcinemann Ltd., Oxford. 1989.

2. Narayana V and Sreenivasan, N.S, “Quality Management – Concepts and Tasks”, New Age International, 1996.
3. James R.Evans and William M.Lidsay, “The Management and Control of Quality”, 5th Edition, South-Western, 2002.
4. Zeiri, “Total Quality Management for Engineers”, Wood Head Publishers, 1991.

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	0	0	0	0	0	2	1	0	0	1	3	1	1	1	2
CO2	0	0	1	2	0	1	1	0	0	0	1	2	0	1	1
CO3	0	0	0	0	3	0	1	1	0	0	2	0	1	2	2
CO4	0	2	0	0	3	0	0	0	2	2	3	0	0	1	1
CO5	0	0	2	1	2	0	0	0	2	0	3	0	0	1	1

1- Faintly
2- Moderately
3- Strongly

18MEOE04	PRINCIPLES OF MANAGEMENT	L	T	P	C
		3	0	0	3

COURSE OBJECTIVES:

1. To understand the term management basic features of management, principles usages in all walks of life and industrial growth.
2. Knowledge on the principles of management is essential for all kinds of people in all kinds of organizations. After studying this course, students will be able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling.
3. Students will also gain some basic knowledge in international aspect of management.

UNIT I MANAGEMENT AN INTRODUCTION AND OVERVIEW 9 + 0

Definitions of management – features of management – Management thoughts – different schools of management – Scientific management – Arts or Science, Management Vs administration – Principles of Management.

UNIT II FUNCTIONS OF MANAGEMENT 9 + 0

Role of managers. Functions approach to management, Management functions, Management levels –, reconciling functions and role, responsibility of managers – towards subordinates, peers, supervisors, customers, government, company, creditors, shareholders, competitors etc..

UNIT III MANAGERIAL PLANNING AND DECISION MAKING 9 + 0

Planning fundamentals, objectives. Management by objectives – Changes in objectives – goal distortions – major types of planing, policies and objectives, procedures – methods, rules, programmes and schedule, projects, budgets – importance of decision making, types of decisions, decision making process – decision theory – quantitative techniques – decision making conditions – Operation Research (OR), Definition, successful areas of operation research - Decision tree.

UNIT IV ORGANIZATION 9 + 0

Organization: Basic concepts – organization as a structure – as a process – as a group properties of modern organization – typology, importance of organization – business /industrial organization – sole trading, partnership company, co – operative , public enterprise line (military), line and staff, functional , matrix committee based organization - departmentalization – need, bases of departmentation – career planning and management.

UNIT V STAFFING, CONTROLLING AND COMMUNICATION 9 + 0

Nature and purpose of staffing – man power planning, aims and objectives of HR recruitment, selection and training sources of recruitment, process of recruitment, training methods – performance appraisal methods – communication – importance process – barriers to communications. How to remove obstacles of effective communication – controlling – definition – Characteristics of control – types of control – requirements of effective control – direct and preventive control repairing, control techniques.

Total (45+0)= 45 Periods

COURSE OUTCOMES:

Upon completion of this course, the students will be able to:

CO1 : understand the basic concepts of management
CO2 : explain the contributions and functions, types of business organization
CO3 : list the various types of leadership and evaluate the motivation theories and techniques.
CO4 : select forecasting models for future demands and to make decision in the management processes.

TEXT BOOKS:

1. Herald knootz and Heinz weihrich, —Essentials of Managementǁ, McGraw-Hill Publishing Company, Singapore International Edition, 2007
2. Joseph L, Massie, —Essentials of Managementǁ, Prentice Hall of India Pvt., Ltd (Pearson) Fourth Edition, 2003.

REFERENCE BOOKS:

1. Stephen A. Robbins & David A. Decenzo & Mary Coulter, “Fundamentals of Management” 7th Edition, Pearson Education, 2011.
2. Robert Kreitner & Mamata Mohapatra, “Management”, Biztantra, 2008.
3. Harold Koontz & Heinz Weihrich “Essentials of management” Tata Mc Graw Hill, 1998.
4. Tripathy PC & Reddy PN, “Principles of Management”, Tata McGraw Hill, 1999.

E-REFERENCES:

1. Nptel.ac.in / courses / downloads

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	0	0	0	0	0	0	0	0	0	1	0	3	0	1	3
CO2	0	0	0	0	0	1	0	2	1	0	0	2	0	1	2
CO3	0	0	0	1	0	0	0	0	3	2	0	2	0	1	3
CO4	0	0	0	0	0	1	1	0	2	0	0	1	0	1	2

1- Faintly
2- Moderately
3- Strongly

18MEOE05	PROFESSIONAL ETHICS AND HUMAN VALUES	L	T	P	C
		3	0	0	3

Course Objectives:

1. To create awareness on Engineering Ethics and providing basic knowledge about engineering Ethics, Variety of moral issues and Professional Ideals.
2. To provide basic familiarity about Engineers as responsible Experimenters, Codes of Ethics, Industrial Standards.
3. To inculcate knowledge and exposure on Safety and Risk, Risk Benefit Analysis.

UNIT I HUMAN VALUES 9 + 0

Morals, Values and Ethics – Integrity – Work Ethic – Service Learning – Civic Virtue – Respect for Others – Living Peacefully – caring – Sharing – Honesty – Courage – Valuing Time – Co-operation – Commitment – Empathy – Self-Confidence – Character – Spirituality.

UNIT II ENGINEERING ETHICS 9 + 0

Senses of 'Engineering Ethics' - variety of moral issued - types of inquiry - moral dilemmas - moral autonomy - Kohlberg's theory - Gilligan's theory - consensus and controversy – Models of Professional Roles - theories about right action – Self-interest- customs and religion - uses of ethical theories.

UNIT III ENGINEERING AS SOCIAL EXPERIMENTATION 9 + 0

Engineering as experimentation - engineers as responsible experimenters - codes of ethics - a balanced outlook on law – the challenger case study.

UNIT IV SAFETY, RESPONSIBILITIES AND RIGHTS 9 + 0

Safety and risk - assessment of safety and risk - risk benefit analysis and reducing risk - the three mile island and Chernobyl case studies. Collegiality and loyalty - respect for authority - collective bargaining - confidentiality - conflicts of interest – occupational crime - professional rights - employee rights - Intellectual Property Rights (IPR) - discrimination.

UNIT V GLOBAL ISSUES 9 + 0

Multinational corporations - Environmental ethics - computer ethics - weapons development - engineers as managers consulting engineers-engineers as expert witnesses and advisors -moral leadership-sample code of Ethics like ASME,ASCE, IEEE, Institution of Engineers (India), Indian Institute of Materials Management, Institution of electronics and telecommunication engineers (IETE),India.

Total (45+0) = 45 Periods

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1 : understand the importance of ethics and values in life and society.
CO2 : understood the core values that shape the ethical behavior of an engineer.
CO3 : exposed awareness on professional ethics and human values.

Text Books:

1. Mike Martin and Roland Schinzinger, "Ethics in Engineering", McGraw-Hill, New York 2005.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, "Engineering Ethics", Prentice Hall of India, New Delhi, 2004.

Reference Books:

1. Tripathi A N, "Human values" , New Age international Pvt. Ltd., New Delhi, 2002.
2. Charles D. Fleddermann, "Engineering Ethics", Pearson Education / Prentice Hall, New Jersey, 2004.
3. Charles E Harris, Michael S. Protchard and Michael J Rabins, "Engineering Ethics – Concepts and Cases", Wadsworth Thompson Learning, United States, 2000.
4. John R Boatright, "Ethics and the Conduct of Business", Pearson Education, New Delhi, 2003.

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	0	0	0	0	0	2	1	3	0	0	1	0	1	1	0
CO2	0	0	0	0	0	0	2	3	0	0	0	0	1	0	0
CO3	0	0	0	0	0	1	1	3	0	0	0	0	1	0	3

1- Faintly
2- Moderately
3- Strongly