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COURSE STRUCTURE

FOR

M.Tech

THERMAL ENGINEERING

(Applicable for Batches Admitted from 2020 - 2021)

Godavari institute of Engg& Technology
Approved By AICTE, NAAC - A+ Grade Recognized by UCG,U/Sec.2(f)&12(B) Permanent affiliation by JNTUK
GIET Campus, Chaitanya Knowledge city,NH-16,Rajahmundry,East Godavari, A.P.
Tel:+91-883-2484828 31 www.giet.ac.in

I-SEMESTER

S.No	Course Code	Category	Course Name	L	T	P	Credits	Internal Marks	External Marks	Total
1		PC	Advanced Thermodynamics	3	0	0	3	30	70	100
2		PC	Computational Fluid Dynamics	3	0	0	3	30	70	100
3		PE	**Program Elective – 1**	3	0	0	3	30	70	100
			Advanced I.C. Engines							
			Gas Dynamics							
			Advanced Fluid Mechanics							
4		PE	**Program Elective – 2**	3	0	0	3	30	70	100
			Gas Turbines							
			Alternative Fuels & Hybrid and Electric Vehicles							
			Energy Conservation and Management							
5		CC	Research Methodology	2	0	0	2	30	70	100
6		LB	Computational Fluid Dynamics Lab	0	0	4	2	30	70	100
7		LB	Thermal Engineering Lab	0	0	4	2	30	70	100
8		AC	**Audit Course-I**	2	0	0	0	30	70	100
			English for Research Paper Writing							
			Disaster Management							
			Value Education							
Total				**16**	**0**	**8**	**18**	**240**	**560**	**800**

University Nominee (Dr. B. Balakrishna)	Subject Expert (Dr. D. Ravi Kumar)	Industrial Expert (Mr. Rajiv Aramadaka)	Internal Member (Dr. P.M.M.S. Sarma)	Special Invitee Member (Dr.M.V.Sekhar Babu)
Internal Member (Dr. T. Jayananda Kumar)	Internal Member (Dr. D. Santha Rao)	Internal Member (Mr. Kedaranath M)	Internal Member (Mr. B.Joga Rao)	Internal Member (Mrs.E. Nirmala Devi)
Internal Member (Mr.M. Balakrishna)	Internal Member (Mr. P.Veera Raju)	Internal Member (Mr. D. Suman)	Internal Member (Mr. G Ramakrishna)	Chairman, BoS (Dr. M. Sreenivasa Rao)

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II-SEMESTER

S. No	Course Code	Category	Course Name	L	T	P	Credits	Internal Marks	External Marks	Total
1		PC	Advanced Heat and Mass Transfer	3	0	0	3	30	70	100
2		PC	Thermal Measurements and Process Controls	3	0	0	3	30	70	100
3		PE	**Program Elective – 3**	3	0	0	3	30	70	100
			Equipment Design for Thermal Systems							
			Advanced Optimization Techniques							
			Combustion, Emissions and Environment							
4		PE	**Program Elective – 4**	3	0	0	3	30	70	100
			Jet Propulsion and Rocket Engineering							
			Automotive Engineering							
			Renewable Energy Technologies							
5		LB	Thermal systems Design Lab	0	0	4	2	30	70	100
6		LB	Advanced Heat Transfer Lab	0	0	4	2	30	70	100
7		MP	Mini Project with Seminar	2	0	4	2	100	--	100
8		AC	**Audit Course-II**	2	0	0	0	30	70	100
			Constitution of India							
			Pedagogy Studies							
			Personality Development Through Life Enlightenment Skills							
			Total	**16**	**0**	**12**	**18**	**310**	**490**	**800**

University Nominee (Dr. B. Balakrishna) | Subject Expert (Dr. D. Ravi Kumar) | Industrial Expert (Mr. Rajiv Aramadaka) | Internal Member (Dr. P.M.M.S. Sarma) | Special Invitee Member (Dr.M.V.Sekhar Babu)

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III-SEMESTER

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S.No	Course Code	Category	Course Name	L	T	P	Credits	Internal Marks	External Marks	Total
1		PE	**Program Elective – 5** Cryogenic Engineering Finite Element Method MOOCS-1 (NPTEL/ SWAYAM) 12 Week program related to the programme which is not listed in the course structure.	3	0	0	3	30	70	100
2		OE	MOOCS-2(NPTEL/ SWAYAM) Any12 Week Course on Engineering/Management/ Mathematics offered by other than parent department. **Open Elective** Composite Materials, Cost Management of Engineering Projects Energy Audit, Conservation & Management Cyber Security Machine Learning	3	0	0	3	30	70	100
3		PJ	**Project /Dissertation Phase-I**	0	0	20	10	-	-	-
			Total	**6**	**0**	**20**	**16**	**60**	**140**	**200**

University Nominee (Dr. B. Balakrishna) | Subject Expert (Dr. D. Ravi Kumar) | Industrial Expert (Mr. Rajiv Aramadaka) | Internal Member (Dr. P.M.M.S. Sarma) | Special Invitee Member (Dr.M.V.Sekhar Babu)

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IV-SEMESTER

S. No	Course Code	Category	Course Name	L	T	P	Credits	Internal Marks	External Marks	Total
1.		PJ	Project /Dissertation Phase-II	0	0	32	16	-	-	-
			Total	**0**	**0**	**32**	**16**	-	-	-

University Nominee (Dr. B. Balakrishna) | Subject Expert (Dr. D. Ravi Kumar) | Industrial Expert (Mr. Rajiv Aramadaka) | Internal Member (Dr. P.M.M.S. Sarma) | Special Invitee Member (Dr.M.V.Sekhar Babu)

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Internal Member (Mr.M. Balakrishna) | Internal Member (Mr. P.Veera Raju) | Internal Member (Mr. D. Suman) | Internal Member (Mr. G Ramakrishna) | Chairman, BoS (Dr. M. Sreenivasa Rao)

COURSE STRUCTURE

FOR

M.Tech

CAD/CAM

(Applicable for Batches Admitted from 2020 - 2021)

Godavari institute of Engg& Technology

Approved By AICTE NAAC'A+' Grade Recognized by UCG,U/Sec.2(f)&12(B) Permanent affiliation by JNTUK
GIET Campus, Chaitanya Knowledge city,NH-16,Rajahmundry,East Godavari, A.P.
Tel:+91-883-2484828-31www.giet.ac.in

I SEMESTER

S.No	Course Code	Category	Course Name	L	T	P	Credits	Internal Marks	External Marks	Total
1	20231101	PC	Geometric Modeling	3	0	0	3	30	70	100
2	20231102	PC	Computer Aided Manufacturing	3	0	0	3	30	70	100
3		PE	**Program Elective – 1**	3	0	0	3	30	70	100
	20231164A		Computational Methods in Engineering							
	20231164B		Composite Materials							
	20231164C		Industrial Robotics							
4		PE	**Program Elective – 2**	3	0	0	3	30	70	100
	20231165A		Mechatronics							
	20231165B		Mechanical Vibrations							
	20231165C		Product Design and Development							
5	20231103	CC	Research Methodology	2	0	0	2	30	70	100
6	20201111	LB	Advanced CAD Lab	0	0	4	2	30	70	100
7	20231112	LB	Manufacturing Lab	0	0	4	2	30	70	100
8		AC	**Audit Course –I**	2	0	0	0	30	70	100
	20231196		English for Research Paper Writing							
	20231196a		Disaster Management							
	20231196b		Value Education							
			Total	**16**	**0**	**8**	**18**	**240**	**560**	**800**

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II SEMESTER

S. No	Course Code	Category	Course Name	L	T	P	Credits	Internal Marks	External Marks	Total
1	20231201	PC	Optimization & Reliability	3	0	0	3	30	70	100
2	20231202	PC	Advanced Manufacturing Processes	3	0	0	3	30	70	100
3		PE	**Program Elective – 3**	3	0	0	3	30	70	100
	20231263A		Additive Manufacturing							
	20231263B		Hydraulic and Pneumatic Systems							
	20231263C		Modeling and Simulation of Manufacturing Systems							
4		PE	**Program Elective – 4**	3	0	0	3	30	70	100
	20231264A		Materials Characterization Techniques							
	20231264B		Automation in Manufacturing							
	20231264C		Finite Element Method							
5	20231211	LB	Simulation of Manufacturing Lab	0	0	4	2	30	70	100
6	20231212	LB	Material Characterization Lab	0	0	4	2	30	70	100
7	20231221	MP	Mini Project With Seminar	2	0	0	2	100	--	100
8		AC	**Audit Course –II**	2	0	0	0	30	70	100
	20231295		Constitution of India							
	20231295a		Pedagogy Studies							
	20231295b		Personality Development Through Life Enlightenment Skills							
Total				**16**	**0**	**8**	**18**	**310**	**490**	**800**

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III SEMESTER

S.No	Course Code	Category	Course Name	L	T	P	Credits	Internal Marks	External Marks	Total
1	20231361A	PE	**Program Elective – 5**	3	0	0	3	30	70	100
			Quality Engineering in Manufacturing							
	20231361B		Green Manufacturing							
	20231361C		MOOCS-1 (NPTEL/ SWAYAM) 12 Week program related to the programme which is not listed in the course structure.							
2	20231361e	OE	MOOCS-2(NPTEL/ SWAYAM) Any12 Week Course on Engineering/Management/ Mathematics offered by other than parent department.	3	0	0	3	30	70	100
			Open Elective							
	20231362a		Composite Materials, Cost Management of Engineering Projects							
	20231362b		Energy Management							
	20231362c		Internet of Things and Applications							
	20231362d		Cyber Security							
3	20231341	PJ	**Dissertation-I/ Industrial Project**	0	0	20	10	-	-	-
			Total	**6**	**0**	**20**	**16**	**60**	**140**	**200**

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Internal Member (Mr.M. Balakrishna) | Internal Member (Mr. P.Veera Raju) | Internal Member (Mr. D. Suman) | Internal Member (Mr. G Ramakrishna) | Chairman, BoS (Dr. M. Sreenivasa Rao)

IV Semester

S. No	Course Code	Category	Course Name	L	T	P	Credits	Internal Marks	External Marks	Total
1	20231441	PJ	Dissertation -II	0	0	32	16	-	-	-
			Total	**0**	**0**	**32**	**16**	-	-	-

University Nominee (Dr. B. Balakrishna) | Subject Expert (Dr. D. Ravi Kumar) | Industrial Expert (Mr. Rajiv Aramadaka) | Internal Member (Dr. P.M.M.S. Sarma) | Special Invitee Member (Dr.M.V.Sekhar Babu)

Internal Member (Dr. T. Jayananda Kumar) | Internal Member (Dr. D. Santha Rao) | Internal Member (Mr. Kedaranath M) | Internal Member (Mr. B.Joga Rao) | Internal Member (Mrs.E. Nirmala Devi)

Internal Member (Mr.M. Balakrishna) | Internal Member (Mr. P.Veera Raju) | Internal Member (Mr. D. Suman) | Internal Member (Mr. G Ramakrishna) | Chairman, BoS (Dr. M. Sreenivasa Rao)

Regulation GRMT-20	Godavari Institute of Engineering & Technology (Autonomous)	I M.Tech I Sem.			
Course Code 20251105	**RESEARCH METHODOLOGY**				
Teaching	Total contact hours-42	L	T	P	C
Prerequisite(s): Basic Engineering Knowledge		2	0	0	2

Course Objective(s):

- Identify an appropriate research problem in their interesting domain.
- Understand ethical issues and preparation of a research project thesis report.
- Understand the law of patent and copyrights.
- Understand the Adequate knowledge on IPR.

Course Outcome(s):

CO-1: Understand the research problem and research process.
CO-2: Understand research ethics
CO-3: Prepare a well-structured research paper and scientific presentations
CO-4: Explore on various IPR components and process of filing.
CO-5: Understand the adequate knowledge on patent and rights

UNIT-1

Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations

UNIT-2

Effective literature studies approaches, analysis Plagiarism, Research ethics, Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

UNIT-3

Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT.

UNIT-4

Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications.

University Nominee
PROFESSOR
Dept. of Computer Science & Engg
J.N.T.U. College of Engineering
KAKINADA - 533 003.

Subject Expert

Industry

BOS-Chairman
Head of the Department
Computer Science & Engineering
Godavari Institute of Engineering & Technology (A)
NH-16, Chaitanya Knowledge City,
RAJAMAHENDRAVARAM, A.P., INDIA-533 296.

UNIT-5

New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc. Traditional knowledge Case Studies, IPR and IITs.

Text Books

1. Stuart Melville and Wayne Goddard, " Research methodology: an introduction for science & engineering students".
2. Ranjit Kumar, 2nd Edition, " Research Methodology: A Step by Step Guide for beginners"

References

1. Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science & engineering students'"
2. Wayne Goddard and Stuart Melville, "Research Methodology: An Introduction"
3. Ranjit Kumar, 2nd Edition, "Research Methodology: A Step by Step Guide for beginners"
4. Halbert, "Resisting Intellectual Property", Taylor & Francis Ltd ,2007.
5. Mayall, "Industrial Design", McGraw Hill, 1992.
6. Niebel, "Product Design", McGraw Hill, 1974.
7. Asimov, "Introduction to Design", Prentice Hall, 1962.
8. (8) Robert P. Merges, Peter S. Menell, Mark A. Lemley, " Intellectual Property in New Technological Age", 2016.
9. T. Ramappa, "Intellectual Property Rights Under WTO", S. Chand, 2008

CO-PO Mapping:

(1: Slight [Low]; 2: Moderate[Medium]; 3: Substantial[High]; '-' : No Correlation)

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

University Nominee

PROFESSOR
Dept. of Computer Science & Engg
J. N. T. U. College of Engineering
KAKINADA - 533 003.

Subject Expert

Industry

BOS-Chairman

Head of the Department
Computer Science & Engineering
Godavari Institute of Engineering & Technology (A)
NH-16, Chaitanya Knowledge City,
RAJAMAHENDRAVARAM, A.P., INDIA-533 296.

GODAVARI INSTITUTE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Approved by AICTE, Accredited by NBA & NAAC 'A' Grade, Recognized under 2(f) and 12(b) of UGC, Permanently Affiliated to JNTUK, Kakinada.

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
2 Years M.Tech. (Power Systems (High Voltage Engineering)) Course
Structure : (2020-21)
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Regulation	GRMT - 20 (M.Tech.)	L	T	P	C
Course/ Code	RESEARCH METHODOLOGY	3	1	0	3
Teaching	Total contact hours - 60				

UNIT-I

Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations

UNIT-II

Effective literature studies approaches, analysis Plagiarism, Research ethics, Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

UNIT-III

Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT.

UNIT-IV

Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications.

University Nominee
(Dr.Y.Srinivasa Kishore Babu)

Subject Expert
(Dr.N.Viswanathan)

Subject Expert
(Dr.B.Ravi Kumar)

Internal Member
(Mr.T.Amar Kiran)

Internal Member
(Mrs B Kavya Santhoshi)

Internal Member
(Mr V Suresh)

Chairman-BOS
(Dr.D.Ravi Kishore)

GODAVARI INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Approved by AICTE, Accredited by NBA & NAAC 'A' Grade, Recognized under 2(f) and 12(b) of UGC, Permanently Affiliated to JNTUK, Kakinada.

UNIT-V

New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc. Traditional knowledge Case Studies, IPR and IITs.

REFERENCES:

1. Stuart Melville and Wayne Goddard, ―Research methodology: an introduction for science & engineering students'
2. Wayne Goddard and Stuart Melville, ―Research Methodology: An Introduction
3. Ranjit Kumar, 2nd Edition, ―Research Methodology: A Step by Step Guide for beginners
4. Halbert, ―Resisting Intellectual Property‖, Taylor & Francis Ltd,2007.
5. Mayall, ―Industrial Design‖, McGraw Hill, 1992.

COURSE OUTCOMES

1. Understand some basic concepts of research and its methodologies
2. Identify appropriate research topics
3. Select and define appropriate research problem and parameters
4. Write a research report, thesis and research proposal (grants)

University Nominee (Dr.Y.Srinivasa Kishore Babu)	Subject Expert (Dr.N.Viswanathan)	Subject Expert (Dr.B.Ravi Kumar)
Internal Member (Mr.T.Amar Kiran)	Internal Member (Mrs B Kavya Santhoshi)	Internal Member (Mr V Suresh)

Chairman-BOS
(Dr.D.Ravi Kishore)

Regulation GRBT-19	Godavari Institute of Engineering & Technology (Autonomous)	I B.Tech.			
Course Code	**PROFESSIONAL ETHICS AND HUMAN VALUES**				
Teaching	Total contact hours - 48	L	T	P	C
Prerequisite(s): Basic Knowledge on Human Values, moral values and ethics.		3	0	0	

Course Objectives:

The objectives of this course on 'Professional Ethics and Human Values' are:
(1) to understand the moral values that ought to guide the Engineering profession,
(2) to resolve the moral issues in the profession, and
(3) to justify the moral judgment concerning the profession.

Course outcomes:

On Completion of the course, the students will be able	
CO1:	Create awareness on professional ethics and Human values
CO2:	Create awareness on engineering ethics providing basic knowledge about engineering ethics , Variety of moral dilemmas Professional ideas and virtues
CO3:	Provide basic familiarity about engineers as responsible experimenters, Research etics, codes of ethics, Industrial standards
CO4:	Inculcate knowledge and exposure on safety and risk, risk benefit analysis and have an idea about collective bargaining, confidentiality, professional, employee, intelluctual property rights
CO5:	Have an adequate knowledge about MNC's Business environment, computer ethics ,moral leadership Sample code of conduct, cyber crime

UNIT I: Human values

Morals, Values and Ethics – Integrity – Work Ethics – Service Learning – Civic Virtue – Respect for others – Living Peacefully – Caring – Sharing – Honesty –Courage – Value time – Co-operation – Commitment – Empathy – Self-confidence – Spirituality- Character.

UNIT II: Engineering ethics:

The History of Ethics-Purposes for Engineering Ethics-Engineering Ethics-Consensus and Controversy –Professional and Professionalism –Professional Roles to be played by an Engineer–Self Interest, Customs and Religion-Uses of Ethical Theories-Professional Ethics-Types of Inquiry – Engineering and Ethics-Kohlberg"s Theory – Gilligan"s Argument – Heinz's Dilemma.

UNIT III: Engineering as social experimentation:

Comparison with Standard Experiments – Knowledge gained – Conscientiousness – Relevant Information – Learning from the Past – Engineers as Managers, Consultants, and Leaders – Accountability – Role of Codes – Codes and Experimental Nature of Engineering.
Globalization- Cross-culture Issues-Environmental Ethics-Computer Ethics-computers as the Instrument of Unethical behaviour-computers as the object of Unethical Acts-autonomous Computers-computer codes of Ethics-Weapons Development-Ethics and Research-Analysing Ethical Problems in Research-Intellectual Property Rights.

UNIT IV: Engineers' responsibility for safety and risk:

Safety and Risk, Concept of Safety – Types of Risks – Voluntary v/s Involuntary Risk- Short term v/s Long term Consequences – Expected Probability - Reversible Effects- Threshold Levels for Risk- Delayed v/s Immediate Risk – Safety and the Engineer - Designing for Safety –Risk - Benefit Analysis-Accidents

UNIT V: Engineer's responsibilities and rights:

Collegiality - Techniques for Achieving Collegiality –Two Senses of Loyalty-obligations of Loyalty – misguided – Loyalty - professionalism and Loyalty- Professional Rights – Professional Responsibilities – confidential and proprietary information-Conflict of Interest-solving conflict problems – Self Interest , Customs and Religion- Ethical egoism-Collective bargaining Confidentiality Acceptance of Bribes/Gifts-when is a Gift and a Bribe-examples of Gifts v/s Bribes-problem solving-interests in other companies-Occupational in other companies- Occupational - price fixing-endangering lives- Whistle Blowing-types of whistle blowing-when should it be attempted-preventing whistle blowing.

TEXT BOOKS

1. "Engineering Ethics includes Human Values" by M.Govindarajan, S.Natarajan and V.S.SenthilKumar-PHI Learning Pvt. Ltd-2009
2. "Professional Ethics and Morals" by Prof.A.R.Aryasri, Dharanikota Suyodhana - Maruthi - Publications
3. "Professional Ethics and Human Values" by A.Alavudeen, R.Kalil Rahman and M.Jayakumaran- Laxmi Publications

Reference:

1. "Ethics in Engineering" by Mike W. Martin and Roland Schinzinger – Tata McGraw-Hill – 2003.
2. "Engineering Ethics" by Harris, Pritchard and Rabins, CENGAGE Learning, India Edition, 2009.
3. "Professional Ethics and Human Values" by Prof.D.R.Kiran-
4. "Indian Culture, Values and Professional Ethics" by PSR Murthy-BS Publication

Web Links:

1. . www.nptel.com

CO-PO Mapping:

(1: Slight [Low]; 2: Moderate[Medium]; 3: Substantial[High],'-' : No Correlation)

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

Regulation	GR - 17 (B.Tech.)	L	T	P	C
Course/ Code	PROFESSIONAL ETHICS AND HUMAN VALUES / 17199106	3	1	0	1
Teaching	Total contact hours - 60				
Prerequisite (s)	Knowledge of Economics, Demand analysis, Production Analysis, Fundamentals of Accounting and Ratio analysis.				

Unit–I

Human values

Morals, Values and Ethics – Integrity – Work Ethics – Service Learning – Civic Virtue – Respect for others – Living Peacefully – Caring – Sharing – Honesty –Courage – Value time – Co-operation – Commitment – Empathy – Self-confidence – Spirituality- Character.

Unit - II

Engineering ethics:

The History of Ethics-Purposes for Engineering Ethics-Engineering Ethics-Consensus and Controversy –Professional and Professionalism –Professional Roles to be played by an Engineer –Self Interest, Customs and Religion-Uses of Ethical Theories-Professional Ethics-Types of Inquiry – Engineering and Ethics-Kohlberg‟s Theory – Gilligan‟s Argument – Heinz's Dilemma.

Unit - III

Engineering as social experimentation:

Comparison with Standard Experiments – Knowledge gained – Conscientiousness – Relevant Information – Learning from the Past – Engineers as Managers, Consultants, and Leaders – Accountability – Role of Codes – Codes and Experimental Nature of Engineering.

Globalization- Cross-culture Issues-Environmental Ethics-Computer Ethics-computers as the Instrument of Unethical behaviour-computers as the object of Unethical Acts-autonomous Computers-computer codes of Ethics-Weapons Development-Ethics and Research-Analysing Ethical Problems in Research-Intellectual Property Rights.

Unit - IV

Engineers' responsibility for safety and risk:

Safety and Risk, Concept of Safety – Types of Risks – Voluntary v/s Involuntary Risk- Short term v/s Long term Consequences – Expected Probability - Reversible Effects- Threshold Levels for Risk- Delayed v/s Immediate Risk – Safety and the Engineer - Designing for Safety – Risk - Benefit Analysis-Accidents

Unit - V

Engineer's responsibilities and rights:

Collegiality - Techniques for Achieving Collegiality –Two Senses of Loyalty-obligations of Loyalty – misguided – Loyalty - professionalism and Loyalty- Professional Rights – Professional Responsibilities – confidential and proprietary information-Conflict of Interest-solving conflict problems – Self Interest , Customs and Religion- Ethical egoism-Collective bargaining Confidentiality Acceptance of Bribes/Gifts-when is a Gift and a Bribe-examples of Gifts v/s Bribes-problem solving-interests in other companies-Occupational in other companies-Occupational - price fixing-endangering lives- Whistle Blowing-types of whistle blowing-when should it be attempted-preventing whistle blowing.

Course Outcomes

After completion of this course, a successful student will be able to:

CO-1. Equip the students with moral values which help them in engineering profession.

CO-2. Develop reasoning and analytical skills among engineering students.

CO-3. Make the engineering students aware of the safety measures, risk factors and risk analysis.

CO-4. Make the students to identify issues in engineering and management areas

Text Books

1. "Engineering Ethics includes Human Values" by M.Govindarajan, S.Natarajan and V.S.SenthilKumar-PHI Learning Pvt. Ltd-2009
2. "Professional Ethics and Morals" by Prof.A.R.Aryasri, Dharanikota Suyodhana - Maruthi - Publications
3. "Professional Ethics and Human Values" by A.Alavudeen, R.Kalil Rahman and M.Jayakumaran- Laxmi Publications
4. "Professional Ethics and Human Values" by Prof.D.R.Kiran-
5. "Indian Culture, Values and Professional Ethics" by PSR Murthy-BS Publication

Reference Books

1. "Ethics in Engineering" by Mike W. Martin and Roland Schinzinger – Tata McGraw-Hill – 2003.
2. "Engineering Ethics" by Harris, Pritchard and Rabins, CENGAGE Learning, India