

DEPARTMENT OF MECHANICAL ENGINEERING
MINUTES OF THE MEETING

The Meeting of the Board of Studies in Mechanical Engineering was held on 30.07.2020 at 2.00 PM under the chairmanship of..... Dr Vincent H Wilson

The following Members were present for the meeting:

S.No.	Name of the Member	Position	Role
1.	Dr Vincent H Wilson	Professor	Chairman
2.	Dr M SenthilKumar	Professor	Internal member
3.	Dr S Dhanuskodi	Professor	Internal member
4.	Dr T Madhu Sudhan	Professor SJG Institution of technology Bangalore	External member
5.	Mr.A .Leela Vinothan	Addl. GM/BHEL Trichy	External member
6.	Dr TTM Kannan	Associate Professor	Internal member
7.	Dr S Subburaj	Associate Professor	Internal member
8.	M AbdulGani khan	Associate Professor	Internal member
9.	R Tamizhselvan	Associate Professor	Internal member
10.	P Vijayakumar	Associate Professor	Internal member
11.	K Purusothaman	Asst Professor	Internal member
12.	G Brithiviraj	Asst Professor	Internal member

The Chairman, Board of Studies in the Department of Mechanical Engineering welcomed the members and briefed about the existing curriculum and syllabi for various programmes offered by the Department and also the details of feedback on curriculum received from the various stake holders during the Academic year 2019-20.

After thorough scrutiny of the curriculum and Syllabi and the details of feedback on curriculum received from the Stake holders during the Year 2019-20, the members of the Board have unanimously passed the following resolutions:

- Resolved to introduce the following Audit courses in B.Tech (MECHANICAL ENGINEERING)- Full Time curriculum with effect from 2020-21 as per the guidelines of the All India Council for Technical Education:

Sem -I: Induction Training Programme- 2credits

Sem-II: Indian Constitution- 2credits

Sem-III: Introduction to Gender studies- 2credits

Sem IV: Community Engagement– 2credits

Sem V: Innovation and Entrepreneurship– 2credits

Sem VIII: Professional Ethics and Human Value – 2credits

Further resolved to approve the syllabus for the above mentioned Audit Courses as given in **Annexure-**

I

- Resolved to introduce the following Audit courses on Soft skills in the B.Tech (MECHANICAL ENGINEERING)-Full Time curriculum with effect from 2020-21 as per the guidelines of the All India Council for Technical Education:

Year I: Basic Behavioral Etiquette-2 credits

Year II: Technical, General Aptitude and Skill set Development-2 credits

Year III: Technical Training-2 credits

Year IV: Interview Skills Training and Mock Test -2 credits

Further resolved to approve the syllabus for the above mentioned Audit Courses as given in **Annexure-II**

- Resolved to approve the syllabus for the newly introduced Under Graduate Programme B.Tech (MECHANICAL ENGINEERING) with specialization in **Internet of Things** in collaboration with **IBM-ICE** with effect from the year 2020-21 as given in **Annexure –III.**

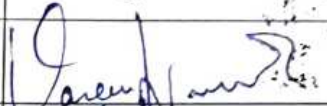

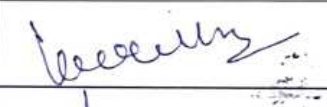
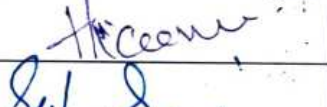
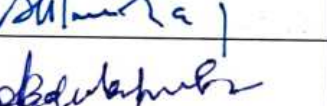
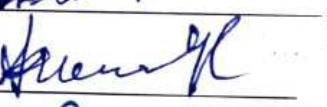
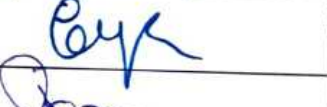



. Resolved to continue with the existing curriculum without any change for the following Programmes for the Academic Year 2020-21:

- B.Tech – Mechanical Engineering- Part Time
- M.Tech-Manufacturing Technology – Full Time
- M.Tech – Manufacturing Technology – Part Time

- The members of the board also scrutinized and updated the panel of examiners and recommended for the Academic Council for its approval.

. The meeting was concluded with thanks from the Board of Studies Chairman

Signature of the members:

S.No.	Name of the Member	Position	Signature
1.	Dr Vincent H Wilson	Professor	
2.	Dr M SenthilKumar	Professor	
3.	Dr S Dhanuskodi	Professor	
4.	Dr T Madhu Sudhan	Professor SJG Institution of Technology Bangalore	
5.	Mr.A .Leela Vinothan	Addl. GM / BHEL Trichy	
6.	Dr TTM Kannan	Associate Professor	
7.	Dr S Subburaj	Associate Professor	
8.	M AbdulGani khan	Associate Professor	
9.	R Tamizhselvan	Associate Professor	
10.	P Vijayakumar	Associate Professor	
11.	K Purusothaman	Asst Professor	
12.	G Brithiviraj	Asst Professor	

Annexure-I

Student Induction Training

The *Induction Program* is designed to make the newly joined students feel comfortable, sensitize them towards exploring their academic interests and activities, reducing competition and making them work for excellence, promote bonding within them, build relations between teachers and students, give a broad view of life, and building of character.

Induction program	3 weeks duration
Induction program for students to be offered right at the start of the first year.	<ul style="list-style-type: none">• Physical activity• Creative Arts• Universal Human Values• Literary• Proficiency Modules• Lectures by Eminent People• Visits to local Areas• Familiarization to Dept./Branch & Innovations

The activities during the Induction Program would have an Initial Phase, a Regular Phase and a Closing Phase. The Initial and Closing Phases would be two days each.

Course on Indian Constitution

Aim:

- To understand the salient features of the Indian Constitution

Objectives:

- To make the students understand about the Democratic Rule and Parliamentary Administration.
- To appreciate the salient features of the Indian Constitution.
- To know the fundamental Rights and Constitutional Remedies.
- To make familiar with powers and positions of the Union Executive, Union Parliament and the Supreme Court.
- To exercise the adult franchise of voting and appreciate the Electoral system of Indian Democracy.

Outcomes

- Democratic values and citizenship Training are gained.
- Awareness on Fundamental Rights are established.
- The functions of union Government and State Governments are learnt.
- The power and functions of the Judiciary learnt thoroughly.
- Appreciation of Democratic Parliamentary Rule is learnt.

UNIT I: The Making Of Indian Constitution

The Constituent Assembly Organization Character – Work – Salient features of the constitution – Written and Detailed Constitution – Socialism – Secularism – Democracy and Republic.

UNIT II: Fundamental Rights And Fundamental Duties Of The Citizens

Right of Equality – Right of Freedom – Right against Exploitation – Right to Freedom of Religion – Cultural and Educational Rights – Right to Constitutional Remedies – Fundamental Duties.

UNIT III: Directive Principles Of State Policy

Socialism Principles – Gandhian Principles – Liberal and General Principles – Differences between Fundamental Rights and Directive principles.

UNIT IV: The Union Executive, Union Parliament And Supreme Court

Powers and positions of the President – Qualification Method of Election of President and vice president – Prime Minister Rajya Sabha- Lok Sabha – The Supreme Court – High Court – Functions and position of Supreme court and High Court.

UNIT V: State Council – Election System And Parliamentary Democracy In India

State council of Ministers – Chief Minister – Election system in India- Main features – Election Commission - Features of Indian Democracy.

References:

1. Palekar S.A. Indian Constitution Government and politics, ABD Publications, India.
2. Aiyer Alladi, Krishnaswami, Constitution and fundamental rights 1955.
3. Markandan K.C. Directive Principles in the Indian Constitution 1966.
4. Kashyap Subash C Our Parliament, National Book, Trust New Delhi 1989.

INTRODUCTION TO GENDER STUDIES

COURSE OUTLINE

Unit-I Concepts

Sex vs. Gender, masculinity, femininity, socialization, patriarchy, public/ private, essentialism, binaryism, power, hegemony, hierarchy, stereotype, gender roles, gender relation, deconstruction, resistance, sexual division of labour.

Unit-II

Feminist Theory

Liberal, Marxist, Socialist, Radical, Psychoanalytic, postmodernist, eco-feminist.

Unit-III

Women's Movements: Global, National and Local

Rise of Feminism in Europe and America.

Women's Movement in India.

Unit-IV

Gender and Language

Linguistic Forms and Gender.

Gender and narratives.

Unit-V

Gender and Representation

Advertising and popular visual media.

Gender and Representation in Alternative Media.

Gender and social media.

Community Engagement

a) Objectives:

- To develop an appreciation of rural culture, life-style and wisdom among students
- To learn about the status of various agricultural and rural development programmes
- To understand causes for rural distress and poverty and explore solutions for the same
- To apply classroom knowledge of courses to field realities and thereby improve quality of learning

b) Learning Outcomes:

After completing this course, student will be able to

- Gain an understanding of rural life, culture and social realities
- Develop a sense of empathy and bonds of mutuality with local community
- Appreciate significant contributions of local communities to Indian society and economy
- Learn to value the local knowledge and wisdom of the community
- Identify opportunities for contributing to community's socio-economic improvements

c) Credit

2 credit, 30 hours, at least 50% in field, compulsory for all students

d) Contents

Divided into four Modules, field immersion is part of each Unit

Course Structure: 2 Credits Course (1 Credit for Classroom and Tutorials and 1 Credit for Field Engagement)

S. No.	Module Title	Module Content	Assignment	Teaching/ Learning Methodology	No. of Classes
1	Appreciation of Rural Society	Rural lifestyle, rural society, caste and gender relations, rural values with respect to community, nature and resources, elaboration of ‘soul of India lies in villages’ (Gandhi), rural infrastructure	Prepare a map (physical, visual or digital) of the village you visited and write an essay about inter-family relations in that village.	- Classroom discussions - Field visit ** - Assignment Map	2 4 2
2	Understanding rural economy & livelihood	Agriculture, farming, land ownership, water management, animal husbandry, non-farm livelihoods and artisans, rural entrepreneurs, rural markets	Describe your analysis of rural household economy, its challenges and possible pathways to address them	- Field visit ** - Group discussions in class - Assignment	3 4 1
3	Rural Institutions	Traditional rural organisations, Self-help Groups, Panchayati raj institutions (Gram Sabha, Gram Panchayat, Standing Committees), local civil society, local administration	How effectively are Panchayati raj institutions functioning in the village? What would you suggest to improve their effectiveness? Present a case study (written or audio-	- Classroom - Field visit ** - Group presentation of assignment	2 4 2

			visual)		
4	Rural Development Programmes	History of rural development in India, current national programmes: SarvaShikshaAbhiyan, BetiBachao, BetiPadhao, Ayushman Bharat, Swatchh Bharat, PM AwaasYojana, Skill India, Gram PanchayatDecentralised Planning, NRLM, MNREGA, etc.	Describe the benefits received and challenges faced in the delivery of one of these programmes in the rural community; give suggestions about improving implementation of the programme for the rural poor.	- Classroom - Each student selects one program for field visit** - Written assignment	2 4 2

INNOVATION AND ENTREPRENEURSHIP

Course Outcomes

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

- Comprehend the role of bounded rationality, framing, causation and effectuation in entrepreneurial decisionmaking.
- Demonstrate an ability to design a business modelcanvas.
- Evaluate the various sources of raising finance for startupventures.
- Understand the fundamentals of developing and presenting business pitching to potential investors.

Course Content

Module – I

Introduction to Entrepreneurship: Entrepreneurs; entrepreneurial personality and intentions-characteristics, traits and behavioral; entrepreneurial challenges.

Module-II

Module Entrepreneurial Opportunities: Opportunities. discovery/ creation, Pattern identification and recognition for venture creation: prototype and exemplar model, reverse engineering.

Module –III

Entrepreneurial Process and Decision Making: Entrepreneurial ecosystem, Ideation, development and exploitation of opportunities; Negotiation, decision making process and approaches, Effectuation and Causation.

Module-IV

Crafting business models and Lean Start-ups: Introduction to business models; Creating value propositions-conventional industry logic, value innovation logic; customer focused innovation; building and analyzing business models; Business model canvas, Introduction to lean startups, Business Pitching.

Module – V

Organizing Business and Entrepreneurial Finance: Forms of business organizations; organizational structures; Evolution of Organisation, sources and selection of venture finance options and its managerial implications. Policy Initiatives and focus; role of institutions in promoting entrepreneurship.

Books for References

- *Ries, Eric(2011), The lean Start-up: How constant innovation creates radically successful businesses, Penguin BooksLimited.*
- *Blank, Steve (2013), The Startup Owner’s Manual: The Step by Step Guide for Building a Great Company, K&S Ranch.*
- *S. Carter and D. Jones-Evans, Enterprise and small business- Principal Practice and Policy, Pearson Education(2006)*
- *T. H. Byers, R. C. Dorf, A. Nelson, Technology Ventures: From Idea to Enterprise, McGraw Hill(2013)*
- *Osterwalder, Alex and Pigneur, Yves (2010) Business ModelGeneration.*
- *Kachru, Upendra, India Land of a Billion Entrepreneurs, Pearson*
- *Bagchi, Subroto, (2008), Go Kiss the World: Life Lessons for the Young Professional, PortfolioPenguin*
- *Bagchi, Subroto, (2012). MBA At 16: a Teenager’s Guide to Business, PenguinBooks*
- *Bansal, Rashmi, Stay Hungry Stay Foolish, CIIE, IIMA Ahmedabad*
- *Bansal, Rashmi, (2013). Follow Every Rainbow, Westland.*
- *Mitra, Sramana (2008), Entrepreneur Journeys (Volume 1), BooksurgePublishing*
- *Abrams, R. (2006). Six-week Start-up, Prentice-Hall of India.*
- *Verstraete, T. and Laffitte, E.J. (2011). a Business Model of Entrepreneurship, Edward ElgarPublishing.*
- *Johnson, Steven (2011). Where Good Ideas comes from, Penguin BooksLimited.*
- *Gabor, Michael E. (2013), Awakening the Entrepreneur Within, Primento.*
- *Guillebeau, Chris (2012), The \$100 startup: Fire your Boss, Do what you love and work better to live more, Pan Macmillan*
- *Kelley, Tom (2011), The ten faces of innovation, CurrencyDoubleday*
- *Prasad, Rohit (2013), Start-up sutra: what the angels won’t tell you about business and life, HachetteIndia.*

PROFESSIONAL ETHICS AND HUMAN VALUES

OBJECTIVE:

- To enable the students to create an awareness on Engineering Ethics and Human Values, to instill Moral and Social Values and Loyalty and to appreciate the rights of others.

UNIT I HUMAN VALUES

Morals, values and Ethics – Integrity – Work ethic – Service learning – Civic virtue – Respect for others – Living peacefully – Caring – Sharing – Honesty – Courage – Valuing time – Cooperation – Commitment – Empathy – Self confidence – Character – Spirituality – Introduction to Yoga and meditation for professional excellence and stress management.

UNIT II ENGINEERING ETHICS

Senses of ‘Engineering Ethics’ – Variety of moral issues – 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

Engineering as Experimentation – Engineers as responsible Experimenters – Codes of Ethics – A Balanced Outlook on Law.

UNIT IV SAFETY, RESPONSIBILITIES AND RIGHTS

Safety and Risk – Assessment of Safety and Risk – Risk Benefit Analysis and Reducing Risk - Respect for Authority – Collective Bargaining – Confidentiality – Conflicts of Interest – Occupational Crime – Professional Rights – Employee Rights – Intellectual Property Rights (IPR)– Discrimination.

UNIT V GLOBAL ISSUES

Multinational Corporations – Environmental Ethics – Computer Ethics – Weapons Development – Engineers as Managers – Consulting Engineers – Engineers as Expert Witnesses and Advisors – Moral Leadership – Code of Conduct – Corporate Social Responsibility.

OUTCOMES:

- Upon completion of the course, the student should be able to apply ethics in society, discuss the ethical issues related to engineering and realize the responsibilities and rights in the society.

TEXT BOOKS:

1. Mike W. Martin and Roland Schinzinger, — Ethics in Engineering, Tata McGraw Hill, New Delhi, 2003.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, — Engineering Ethics, Prentice Hall of India, New Delhi, 2004.

REFERENCES:

1. Charles B. Fleddermann, —Engineering Ethics, Pearson Prentice Hall, New Jersey, 2004.

2. Charles E. Harris, Michael S. Pritchard and Michael J. Rabins, —Engineering Ethics – Concepts and Cases, Cengage Learning, 2009.
3. John R Boatright, —Ethics and the Conduct of Business, Pearson Education, New Delhi, 2003
4. Edmund G Seebauer and Robert L Barry, —Fundamentals of Ethics for Scientists and Engineers, Oxford University Press, Oxford, 2001.
5. Laura P. Hartman and Joe Desjardins, —Business Ethics: Decision Making for Personal Integrity and Social Responsibility, McGraw Hill education, India Pvt. Ltd., New Delhi, 2013.
6. World Community Service Centre, _ Value Education ‘, Vethathiri publications, Erode, 2011.

Web sources:

www.onlineethics.org www.nspe.org www.global.org www.ethics.org

Annexure-II

Year I: Basic Behavioral Etiquette-2 credits

Year II: Technical, General Aptitude and Skill set Development-2 credits

Year III: Technical Training-2 credits

Year IV: Interview Skills Training and Mock Test -2 credits

Annexure-III

BTech – MECHANICAL ENGINEERING - Specialization in Internet of Things							
S. No.	Year	Semester	Course Name	L	T	P	C
1	1st	II	IT Infrastructure Landscape Overview	2	0	0	2
2	1st	II	Introduction to Internet of Things (IOT)	3	0	0	3
3	2nd	III	Python Programming	3	0	2	4
4	2nd	III	Sensor Technology & Instrumentation	3	0	2	4
5	2nd	IV	Wireless Sensor Networks (WSN) & IoT Standards	3	0	2	4
6	3rd	V	Embedded Technology for IOT	3	0	2	4
7	3rd	VI	Analytics for IOT	3	0	2	4
8	3rd	VI	IOT Enterprise Solution Architecture	3	0	4	5
9	4th	VII	IOT for Industries (Use Case Scenarios)	3	0	2	4
	4th	VIII	Project				