CHAITANYA

(DEEMED TO BE UNIVERSITY)

(Declared u/s. 3 of UGC act. 1956 by MHRD, Govt. of India)
Hyderabad, Telengana, INDIA

www.chaitanya.edu.in

Department of Mechanical Engineering

1. About the Department

The Department of Mechanical Engineering was established in the year 2010. At present, the department offers Graduate, and Doctoral degree courses. Mechanical Engineering Department is highly reputed for producing eminent engineers as professionals, researchers and entrepreneurs. Department has strong industry-institute collaboration and has well-equipped laboratories such as Refrigeration and Air Conditioning, Fluid Power and Fluid Machinery, Fuel testing, IC Engines, etc. Many of its alumni occupy key positions in industries and institutions in India and abroad. The department is proud to be collaborated with well-known industries in niche areas.

Head of Department : Prof. Banoth Mohan

Email ID : mohan_mech@chaitanya.edu.in

2. Courses Offered / Syllabus

- Courses Offered: 1: B.Tech in Mechanical Engineering, Sanctioned Strength – 30

  2: Ph.D in Mechanical Engineering

- Syllabus for B.Tech in Mechanical Engineering

DETAILED 4-YEAR CURRICULUM CONTENTS

Semester III (Second year): Curriculum Branch/Course:Mechanical Engineering

Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
1	Basic Science Courses	BSC- 301	Mathematics III (Statistics, Probability, And Numerical Techniques)	3	1	0	4

2	Professional Core Courses	PCC- ME301	Thermodynamics	3	1	0	4
3	Professional Core courses	PCC-ME302	Manufacturing Technology- 1	3	1	0	4
4	Humanities and Social Sciences including Management courses	HSMC301	Humanities–I (Law and Ethics)	3	0	0	3
5	Engineering Science Course	ESC-301	Engineering Mechanics	3	1	0	4
6	Engineering Science Course	ESC 302	Python Programming	3	0	0	3
7	Mandatory Course	MC-II	NSS/Sports	2	0	0	0
8	Professional Core Course Lab	PCC-ME302L	Manufacturing Technology-1 Lab	0	0	2	1
9	Engineering Science Course Lab	ESC 302L	Python Programming Lab	0	0	2	1
10	Seminars			0	0	2	1
Total Credits							**25**

DETAILED 4-YEAR CURRICULUM CONTENTS

Semester IV (Second year) Curriculum
Branch/Course: Mechanical Engineering

Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
1	Professional Core courses	PCC- ME405	Instrumentation & Control system	3	1	0	4
2	Professional Core courses	PCC -ME404	Manufacturing Technology -2	3	0	0	3
3	Professional Core courses	PCC- ME 401	Strength of Materials	3	1	0	4

4	Professional Core courses	PCC- ME 402	Applied Thermodynamics	3	1	0	4
5	Humanities and Social Sciences including Management courses	HSMC401	Humanities-II (Operation Research)	3	0	0	3
6	Professional Core courses	PCC-ME403	Machine Drawing Practice	1	0	4	3
7	Mandatory courses	MC-III	Environmental Science	2	0	0	0
8	Professional Core courses Lab	PCC- ME 401L	Strength of Materials Lab	0	0	2	1
9	Professional Core courses Lab	PCC - ME404L	Manufacturing Technology -2 Lab	0	0	2	1
10	Seminars			0	0	2	1
			Total Credits				**24**

DETAILED 4-YEAR CURRICULUM CONTENTS

Semester V (Third year) Curriculum
Branch/Course: Mechanical Engineering

Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
1	Professional Core courses	PCC-ME501	Internal Combustion Engine	3	1	0	4
2	Professional Core courses	PCC-ME502	Kinematics of Machinery	3	1	0	4
3	Professional Core courses	PCC-ME503	Design of Machine Elements-I	3	1	0	4
4	Professional Core courses	PCC-ME504	Fluid Mechanics and Hydraulic Machines	3	1	0	4

5	Professional Elective Course	PEC-MEL 511-513	PEC Elective -I	3	0	0	3
6	Humanities and Social Sciences including Management courses	HSMC-501	Management-I ("Management Economics and Accountancy)	3	0	0	3
7	Professional Core courses	PCC-ME501L	Internal Combustion Engine Lab	0	0	2	1
8	Professional Core courses	PCC-ME504L	Fluid Mechanics and Hydraulic Machines Lab	0	0	2	1
9	Seminar			0	0	1	1
						Total Credits	25

Semester VI (Third year) Curriculum
Branch/Course: Mechanical Engineering

Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
1	Professional Core courses	PCC-ME601	Heat Transfer	3	1	0	4
2	Professional Core courses	PCC- ME602	Design of Machine Elements-II	3	1	0	4
3	Professional Core courses	PCC- ME603	Introduction to Physical Metallurgy	3	0	0	3
4	Professional Elective courses	PEC-MEL 621-623	PEC Elective-II	3	0	0	3
5	Open Elective courses	OEC 401-403	Open Elective-I	3	0	0	3
6	Mandatory Course	MC – IV	Essence of Indian Knowledge Tradition	0	0	0	0

7	Professional Core courses	PCC-ME603L	Physical Metallurgy Lab	0	0	2	1
8	Professional Core courses	PCC-ME601L	Heat Transfer Lab	0	0	2	1
9	Project (Summer Internship)	PROJ-ME601	Project-I	0	0	6	3
10	Seminar			0	0	1	1
						Total Credits	**23**

DETAILED 4-YEAR CURRICULUM CONTENTS

PROFESSIONAL ELECTIVE COURSES

PROFESSIONAL ELECTIVE COURSES [PEC]

Sl. No.	**Code No.**	**Course Title**	**Hours per week**			**Total Credits**	**Semester**
			Lecture	Tutorial	Practical		
1	PEC-MEL 511	Computational Fluid Dynamics	3	0	0	3	5
2	PEC-MEL 512	Tool Design	3	0	0	3	5
3	PEC-MEL 513	Composite Materials	3	0	0	3	5
4	PEC-MEL 621	Mechatronic systems	3	0	0	3	6
5	PEC-MEL 622	Machine Tool and Metrology	3	0	0	3	6
6	PEC-MEL 623	Total Quality Management	3	0	0	3	6

DETAILED 4-YEAR CURRICULUM CONTENTS

OPEN ELECTIVE COURSES [OEC]

OPEN ELECTIVE COURSES

Sl. No.	Code No.	Course Title	Hours per week			Total Credits
			Lecture	Tutorial	Practical	
1		Cyber Security	3	0	0	3
2		Internet of Things	3	0	0	3
3		Sensor Networks	3	0	0	3
4		Machine Learning	3	0	0	3
5		Block Chain Technology	3	0	0	3
6		Non conventional energy sources	3	0	0	3
7		Electric vehicles	3	0	0	3
8		Smart grid technologies	3	0	0	3
9		Power electronics	3	0	0	3
10		Special electrical machines	3	0	0	3
11		Disaster Management	3	0	0	3
12		Remote sensing and GIS	3	0	0	3
13		Environmental impact Assessment	3	0	0	3
14		Road safety and management	3	0	0	3
15		Intelligent transportation system	3	0	0	3
16		Embedded Systems	3	0	0	3
17		Digital Image & Video Pprocessing	3	0	0	3
18		VLSI	3	0	0	3
19		Wireless Sensor Networks	3	0	0	3

20		Bio-Medical Electronics	3	0	0	3
21		Microprocessor & Microcontrollers	3	0	0	3
22		Fluid mechanics and hydraulic mechanics	3	0	0	3
23		Power plant Engineering	3	0	0	3
24		Elements of Mechanical Engineering	3	0	0	3
25		Instrumentation & control system	3	0	0	3

DETAILED 4-YEAR CURRICULUM CONTENTS

MANDATORY COURSES

Mandatory Courses: [MC] -Non-Credit

Sl. No.	Category	Course code	Course Title	Hours per Week			Credits	Semester
				L	T	P		
1	Mandatory Course	MC-IV	Essence of Indian Knowledge Tradition	-	-	-	0	5

- Syllabus for Ph.D in Mechanical Engineering

Course Structure and Syllabus For Pre Ph.D. DEPARTMENT OF MECHANICAL ENGINEERING

PAPER – I: RESEARCH METHODOLGY

(Common for all Specializations) (Effective from the admitted batch 2021–22)

PAPER – II

Choose any **one** subject of the following

Sl. .NO	PAPER	PAPER CODE
1	Thermal Engineering	20PH03101
2	Mechanical Engineering Design	20PH03102
3	Industrial Engineering	20PH03103
4	Advanced Production Technology	20PH03104
5	Material Technology	20PH03105
6	Refrigeration Equipment and Cryogenic Engineering	20PH03106
7	Heat and Mass Transfer	20PH03107
8	I.C. Engines and Alternative Fuels	20PH03108
9	CAD Theory and Practice	20PH03109
10	Mechanical Vibrations and Condition Monitoring	20PH03110
11	Design for Manufacture	20PH03111
12	Special Manufacturing Processes	20PH03112
13	Industrial Robotics	20PH03113
14	Simulation Modeling and Analysis of Manufacturing Systems	20PH03114
15	Advanced Optimization Techniques	20PH03115
16	Logistics and Supply Chain Management	20PH03116

17	Advanced Operations Management	20PH03117
18	Mechanics of Composite materials	20PH03118
19	Energy Conservation	20PH03119
20	Computational Methods	20PH03120

3. HoD/BoS Chairperson and BoS Members

BOARD OF STUDIES MEMBERS DETAILS IN THE DEPARTMENT OF MECHANICAL ENGINEERING OF CHAITANYA (DEEMED TO BE UNIVERSITY**)**

S. No.	Name	Position
1	Prof.B.Mohan, Professor and HOD	Chairman
2	Dr. M.Srinivasnaik, Associate Professor	Member
3	Dr. G. Suresh, Associate Professor	Member
4	Dr. Sudipta Chand, Assistant Professor	Member
5	Mr.B.Raj Kumar, Assistant Professor	Member
6	Mr.S. Raju, Assistant Professor	Member
7	Mr.B. Srinath, Assistant Professor	Member
8	Mr.U. Raghupathi, Assistant Professor	Member
9	Dr.V.Nagabhushan Rao, Assistant Professor, IIT Madras	Co-opted Member & Subject Expert
10	Prof..B.Balunaik, Professor, JNTUH	Co-opted Member & Subject Expert

External Member:

1. Dr. V.Nagabhushan Rao
Assistant Professor
Department of Aerospace Engineering
Indian Institute of Technolgy, Madras
Chennai, Tamil Nadu, 600036

2. Prof. B.Balunaik
Senior Professor & Director of University Foreign Relations,
Department of Mechanical Engineering
Jawaharlal Nehru Technological University Hyderabad
Kukatpally, Hyderabad - 500 085, Telangana, India

4. Departmental Research Committee

Approval of the constitution of Departmental Research Committee

Chairman of the Board of Studies places the Departmental Research Committee. The research activity of all the scholars in a department shall be monitored from time-to-time by theduly constituted DRC with the following members:

a. Dean of the faculty concerned - Chairman
b. Research Supervisors in the Department Members
c. Chairman, Board of Studies concerned Member– Convener

FUNCTIONS OF DRC:

i) To review the research proposal and finalize the topic of research;
ii) To guide the research scholar to develop the study design and methodology of research
iii) To periodically review and assist in the progress of the research work of the research scholar.
iv) To make suggestions before the submission of the thesis/dissertation.

Departmental Research Committee of Department of Mechanical Engineering

Sl. .No	Name	Designation
1	Prof. G. Shankar Lingam, Dean, Faculty of Engineering & Technology	Chairman
2	Dr.B.Mohan, Head, BoS Chairman	Convener
3	Dr.M.Srinivasnaik	Member
4	Dr.G. Suresh	Member
5	Dr. Sudipta Chand	Member

5. Faculty in Department of Mechanical Engineering

S.No.	Name	Date of Joining	Designation	Department
1	Prof. MOHAN BANOTH	6/26/2010	PROFESSOR	MECHANICAL ENGINEERING
2	Dr. SUDIPTA CHAND	6/23/2021	ASST PROFESSOR	MECHANICAL ENGINEERING
3	Dr. SURESH GUDIPUDI	6/16/2021	ASSOCIATE PROFESSOR	MECHANICAL ENGINEERING
4	Mr. RAGHUPATHI UDUTHA	8/17/2016	ASST PROFESSOR	MECHANICAL ENGINEERING
5	Mr. RAJU SURAM	3/9/2017	ASST PROFESSOR	MECHANICAL ENGINEERING
6	Mr. SRINATH BANDARI	7/10/2018	ASST PROFESSOR	MECHANICAL ENGINEERING
7	Mr. SAGAR GUDURU	1/10/2016	ASST PROFESSOR	MECHANICAL ENGINEERING
8	Ms. SHRAVANI BOKKALA	1/25/2017	ASST PROFESSOR	MECHANICAL ENGINEERING

6. Non-teaching Staff

Sl.No	Name	Designation
1	K.Eshwar	Lab Technician
2	Chandu	Lab Technician

7. Seminars/Conferences/Workshops/FDPs

- **Faculty Development Programs: 8**

S.NO	Faculty	Name of the FDP	Organized By	No. of Days	Year	ATAL/STTP/AICTE
1	Dr. Sudipta Chand, Dr. Suresh	Universal Human Values(UHV) FDP	AICTE	5	2022	AICTE

	Gudipudi					
2	Dr. Sudipta Chand, Dr. Suresh Gudipudi	Universal Human Values (UHV) Refresher -1 FDP	AICTE	5	2022	AICTE
3	Dr. Sudipta Chand, Dr. Suresh Gudipudi	Universal Human Values (UHV)- 2 FDP	AICTE	6	2022	AICTE
4	Dr. Sudipta Chand, Prof. B. Mohan	Advances in Manufacturing	NIT Surat	5	2021	ATAL
5	Dr. Sudipta Chand, Dr. Suresh Gudipudi	Processing of Novel Materials (Elementary)	IIT BHU, Varanasi	5	2021	ATAL
6	Dr. Sudipta Chand, Prof. B. Mohan	Processing of Novel Materials (Advanced)	IIT BHU, Varanasi	5	2021	ATAL
7	Dr. Sudipta Chand, Dr. Suresh Gudipudi, Prof. B. Mohan	Innovative Techniques In Product Design, Numerical Simulation And Additive Manufacturing	University Collegeof Engineering, Nagercoil	5	2021	ATAL
8	Dr. Sudipta Chand, Dr. Suresh Gudipudi, Prof. B. Mohan	Advances in Manufacturing Systems	Madhav Institute of Technology and Science, Gwalior	6	2021	AICTE-STTP

- **Webinars/Seminars: 6**

Sl. no	Faculty	Webinar/Seminar Title		Days	Year
1	Dr. Sudipta Chand,	Advanced Manufacturing for Biomedical Applications	Organized at Department of	1	2022

	Prof. B. Mohan		Mechanical Engineering ,CDU		
2	Dr. Sudipta Chand, Prof. B. Mohan	An Overview of Super Thermal Power Plants	Organized at Department of Mechanical Engineering ,CDU	1	2022
3	Dr. Sudipta Chand, Prof. B. Mohan	National Education Policy: A way ahead	Participated	1	2021
4	Dr. Sudipta Chand, Prof. B. Mohan	Protecting innovation through IPR with focus on copyright, patent and trademark	Participated	1	2021
5	Dr. Sudipta Chand, Prof. B. Mohan	IPR-Patents Design	Participated	1	2021
6	Dr. Sudipta Chand. Prof. B. Mohan	New trends in Biotechnological applications for human welfare	Participated	2	2021

8. Publications

S.No	Author(s)	Title	Journal	ISSN No.	Impact factor (JCR-Thomson Reuters)	Year
1	Dr. Sudipta Chand	Effect of Three-Body Abrasion Wear Behavior Alloy Fabricated on B4C/BN-reinforced	Lecture Notes in Mechanical Engineering	2195-4364	Scopus	2022

		Through Powder Al6061 Metallurgy Method				
2	Dr. M. Srinivasnaik	Production and Performance Characteristics of a Diesel Engine with Chicken Waste-Based Bio Diesel	IOSR Journal of Mechanical and Civil Engineering	2278-1684	NA	2022
3	Dr. M. Srinivasnaik	Analytical Validation For Finding The Best Performance Of C.I Engine Piston Having Coated And Non-Coated Alloy Materials	Dogo Rangsang Research Journal	2347-7180	NA	2022
4	Dr. M. Srinivasnaik	Recent Research In Powder Mixed Electrical Discharge Machining	Juni Khyat	2278-4632	NA	2022
5	Dr. M. Srinivasnaik	Performance Evaluation of Four Stroke Ci Engine Using Coconut Based Bio-Diesel'	Juni Khyat	2278-4632	NA	2022
6	Dr. M. Srinivasnaik	The efficiency analysis of diesel engine by normal and coated piston	Metszet	2061-2710	Scopus	**2022**
7	Dr. M. Srinivasnaik	Performance analysis Engine with crown Non-coated alloy mate	Metszet	2061-2710	Scopus	2022
8	Dr. M. Srinivasnaik	Rate of emission by ch injection time for diffe material addition for bronze c non-coated by CFD Ap	Metszet	2061-2710	Scopus	2022

9	Dr. M. Srinivasnaik	The performance and evaluating of Diesel using alloys of copper bronze coated & materials	Metszet	2061-2710	Scopus	2022
10	Dr. B.Mohan	Fault Detections of Turbo Fan Engine Using Deep Learning (DL)	International Journal of Scientific Research in Engineering and Management	2582-3930	NA	2022

9. Patents

1. Dr. Sudipta Chand " Effective Solar-Thermal Plant with Circulating SolarRadiation" Indian Patent No: 202241008727, 18/02/2022.
2. Dr Mukuloth Srinivasnaik " Fully automatic commercial line vehicle assembly line system " Indian Patent No: 202241007000 A, 25/02/2022.
3. Prof B.Mohan of Mechanical Dept on "Solar Power Based Robotic Autonomous Vehicle Using Raspberry PI with Live Streaming Using IOT Control" (Indian Patent No: 2020 41028499, July 4, 2020)

10. Lab Equipments

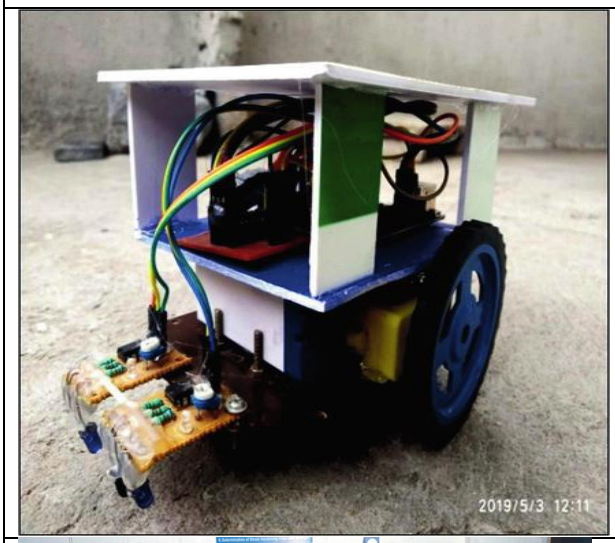
MECHANICAL ENGINEERING	Engg. Work Shop Lab	Arc Welding M/C, Anvils,Bench Vice,CarpentryClam,Drill M/C Height Gauge,Hacksaw M/C
MECHANICAL ENGINEERING	Fluid Mechanics	Calibration Of V Notch, Rectangler Notch, Calibration OfMouth Pieace, Orifices Meter & Venturi Meter
MECHANICAL ENGINEERING	Hydralics And Hydralic Machinery	Centrifugal Pump, ReciprocatingPump, Pelton Wheel Turbaine
MECHANICAL ENGINEERING	Manfacturing ProcessLab	FoundaryShop,Welding Machine

MECHANICAL ENGINEERING	Material Science & Testing Lab	Impact Testing Machine,Brinnel&Vickors Hardness Test,Rockwell HordnessTesting,Youngs Modulas
MECHANICAL ENGINEERING	Material Testing Laboratory	Universal Test Machine, Izod Test, Charpy Test Machine, Brinells And Vickers Hardness Machine
MECHANICAL ENGINEERING	Metallurgy Lab	Microscope,Materials Of Minerals

11. Research Scholars

Admission Number	Name of Student	Year of Admission
D21123	G. Madhu	2021
D21124	B. Srinivas	2021
D21125	Suram Raju	2021
D21126	T. Sai Kiran Goud	2021
D21127	Udutha Raghupathi	2021
D21129	Yarala Vinod Kumar	2021
D22110	Banoth Kavitha	2022
D22111	Deepika Rama	2022
D22112	Ch. Sridevi	2022
D22113	K. Raveena	2022
D22114	B.Ramesh	2022
D22115	M. Ranjith Kumar	2022
D22136	D. Srinivas	2022

12. Achievements of Faculty and Students



Innovations by Faculty and students of Mechanical Engineering Department

1. Electric car converted from Petrol car
2. Solar Powered Tricycle
3. Electronic Bicycle
4. Smart Carrier Vehicle
5. SI engine fueled by Acetylene

6. Compressed Air Vehicle
7. Battery Operated Fertilizer Spray

13. Contact Info

Professor and Head of Department : Prof. Banoth Mohan

Contact : 9908202035 , Email: mohan_mech@chaitanya.edu.in