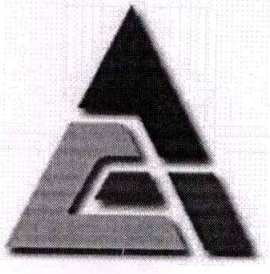
AMRITSAR GROUP OF COLLEGES

Autonomous status conferred by UGC under UGC act-1956, (2f), NAAC-A Grade,
(Formerly Known as Amritsar College of Engineering & Technology | Amritsar Pharmacy College)

17th Meeting of Board of Studies

(14-05-2026)



Department of Mechanical Engineering
Amritsar Group of Colleges, Amritsar

Dr.Upain Bhatia <hodme@acetedu.in>

Invitation to 17th Meeting of Board of Studies, Department of Mechanical Engineering

3 messages

Dr. Upain Kumar Bhatia <hodme@acetedu.in> Mon, May 11, 2026 at 9:39 AM
To: Anish Sachdeva <anishsachdeva@gmail.com>, hitesh.24804@lpu.co.in, hiteshvasudev@yahoo.in, Sarabjeet Sidhu <sarabjeetsidhu74@hotmail.com>, manpreet singh <manpreetsingh515@gmail.com>
Cc: Jagjit Singh <jagjit.me@acetedu.in>, Prabhjit Singh <singhprabhsingh90@gmail.com>, Harmanjit Singh <harmanjit.me@acetedu.in>, harmandeepsingh622@gmail.com, "Dr.Gurbhej Singh" <dr.gurbhej.me@acetedu.in>

Dear Sir,
Greetings of Day@

The 17th meeting of the Board of Studies is scheduled to be held on 14/05/2026 in the Department of Mechanical Engineering at 11:00 am. You are requested to make it convenient to attend the above meeting to discuss the enclosed agenda. Honorarium will be paid as per institute rules.

You are requested to confirm your mode/participation in said meeting.

Regards

Dr. Upain Kumar Bhatia

(Professor & Head, Mechanical Engineering Department)

Amritsar Group of Colleges, Amritsar,

Autonomous college, NBA Accredited (two times) NAAC 'A' Grade

Tel :+91-183-5010434 (Office), 09855861155 (SMS only),

Fax: 91-183-5069535 ,www.acetamritsar.ac.in

Agenda 17th BOS Meeting.pdf
576K

Hitesh 24804 <hitesh.24804@lpu.co.in> Mon, May 11, 2026 at 9:47 AM
To: "Dr. Upain Kumar Bhatia" <hodme@acetedu.in>
Cc: Anish Sachdeva <anishsachdeva@gmail.com>, hiteshvasudev@yahoo.in, Sarabjeet Sidhu <sarabjeetsidhu74@hotmail.com>, manpreet singh <manpreetsingh515@gmail.com>, Jagjit Singh <jagjit.me@acetedu.in>, Prabhjit Singh <singhprabhsingh90@gmail.com>, Harmanjit Singh <harmanjit.me@acetedu.in>, harmandeepsingh622@gmail.com, "Dr.Gurbhej Singh" <dr.gurbhej.me@acetedu.in>

Dear Sir
Good Morning!

I will be available for the meeting in Online mode as the Academic Session closing is near at our University.

Thanks & Regards
प्रो. (डॉ.) हितेश वासुदेव
Prof.(Dr) Hitesh Vasudev
Professor & Head
Department of Research Impact & Outcome,
Research and Development Cell,
Lovely Professional University
Jalandhar - Delhi, Grand Trunk Rd, Phagwara, Punjab 144411
Contact: +91-9646091704
Website: https://tinyurl.com/ 4t7esfev

AMRITSAR GROUP OF COLLEGES NAAC Grade "A" 3rd Cycle | Autonomous College under Autonomous Category | (Since 2014) Conferred by UGC	**Agenda** **17th BOS Meeting**	**Department of Mechanical Engineering**

Agenda for the 17th B.O.S (Board of Studies) Meeting Scheduled on 14/05/2026 at 11:00 AM

1. To approve the minutes of 16th meeting of BoS held on 15.12.2025.
2. To discuss the proposed revised study scheme for 3rd to 8th semester of B. Tech. Mechanical Engineering and to finalize the study scheme for 3rd and 4th Semester of B. Tech Mechanical Engineering to be applicable for 2025 admitted batch and onwards.
3. To discuss and finalize the detailed syllabi and Course Outcomes for 3rd and 4th semester of B. Tech. Mechanical Engineering to be applicable for 2025 admitted batch and onwards.
4. To approve the courses to be offered in online mode through SWAYAM platform for 3rd semester students of B. Tech. Mechanical Engineering (2025 admitted batch).
5. To approve the courses to be offered in online mode through SWAYAM platform for 5th semester students of B. Tech. Mechanical Engineering (2024 admitted batch).
6. To approve the courses to be offered in online mode through SWAYAM platform for 7th semester students of B. Tech. Mechanical Engineering (2023 admitted batch).
7. To discuss the inclusion of the Entrepreneurship Mindset Curriculum course in the 3rd and 4th semesters of B. Tech. Mechanical Engineering, applicable for 2025 admitted batch and onwards, as per the guidelines of IK Gujral Punjab Technical University and the Government of Punjab.
8. To discuss the inclusion of a Non-credit mandatory course on Disaster Management and Preparedness, as prescribed by All India Council for Technical Education, in the curriculum of B. Tech. Mechanical Engineering (2025 admitted batch and onwards), subject to the availability of guidelines and syllabus from AICTE/IKGPTU.
9. To apprise the BoS of the synopsis submission for M. Tech. (Mechanical Engineering) candidates, namely Mr. Harsimran Singh (2412619) and Mr. Sandeep Singh (2412621).
10. To apprise the BoS of the results of Nov 2025 examinations.
11. To apprise the BoS of the new academic initiatives taken during Jan-May 2026.
    a. List of top performers in Nov-2025 examinations.
    b. Major activities/events organized by the department.
12. Any other agenda with the permission of the chair.

08/05/2026

Dr. Upain Kumar Bhatia

Chairman, Board of Studies
Mechanical Engineering, AGC Amritsar

AMRITSAR GROUP OF COLLEGES NAAC Grade "A" 3rd Cycle | Autonomous College under Autonomous Category | (Since 2014) Conferred by UGC	**Invitation** **17thBoS meeting**	**Department of Mechanical Engineering**

Internal Members of Board of Studies
Amritsar Group of Colleges
Amritsar.

Subject: 17th meeting of Board of Studies in Mechanical Engineering, AGC Amritsar.

Dear Sir

The 17th meeting of **Board of Studies** is scheduled to be held on **14/05/2026** in the Department of Mechanical Engineering at 11:00 am in online mode. You are requested to make it convenient to attend the above meeting to discuss the enclosed agenda.

You are further requested to confirm your participation in the said meeting.

Yours Faithfully

08/05/2026

Dr. Upain Kumar Bhatia
Chairman, Board of Studies
Mechanical Engineering, AGC Amritsar

Cc:

OSD Chairman
PA to Principal
Registrar
Dean Academics

AMRITSAR GROUP OF COLLEGES NAAC Grade "A" 3rd Cycle | Autonomous College under Autonomous Category | (Since 2014) Conferred by UGC	**Agenda** **17th BOS Meeting**	**Department of Mechanical Engineering**

Agenda for the 17th B.O.S (Board of Studies) Meeting Scheduled on 14/05/2026 at 11:00 AM

1. To approve the minutes of 16th meeting of BoS held on 15.12.2025.
2. To discuss the proposed revised study scheme for 3rd to 8th semester of B. Tech. Mechanical Engineering and to finalize the study scheme for 3rd and 4th Semester of B. Tech Mechanical Engineering to be applicable for 2025 admitted batch and onwards.
3. To discuss and finalize the detailed syllabi and Course Outcomes for 3rd and 4th semester of B. Tech. Mechanical Engineering to be applicable for 2025 admitted batch and onwards.
4. To approve the courses to be offered in online mode through SWAYAM platform for 3rd semester students of B. Tech. Mechanical Engineering (2025 admitted batch).
5. To approve the courses to be offered in online mode through SWAYAM platform, for 5th semester students of B. Tech. Mechanical Engineering (2024 admitted batch).
6. To approve the courses to be offered in online mode through SWAYAM platform for 7th semester students of B. Tech. Mechanical Engineering (2023 admitted batch).
7. To discuss the inclusion of the Entrepreneurship Mindset Curriculum course in the 3rd and 4th semesters of B. Tech. Mechanical Engineering, applicable for 2025 admitted batch and onwards, as per the guidelines of IK Gujral Punjab Technical University and the Government of Punjab.
8. To discuss the inclusion of a Non-credit mandatory course on Disaster Management and Preparedness, as prescribed by All India Council for Technical Education, in the curriculum of B. Tech. Mechanical Engineering (2025 admitted batch and onwards), subject to the availability of guidelines and syllabus from AICTE/IKGPTU.
9. To apprise the BoS of the synopsis submission for M. Tech. (Mechanical Engineering) candidates, namely Mr. Harsimran Singh (2412619) and Mr. Sandeep Singh (2412621).
10. To apprise the BoS of the results of Nov 2025 examinations.
11. To apprise the BoS of the new academic initiatives taken during Jan-May 2026.
    a. List of top performers in Nov-2025 examinations.
    b. Major activities/events organized by the department.
12. Any other agenda with the permission of the chair.

08/05/2026

Dr. Upain Kumar Bhatia

Chairman, Board of Studies
Mechanical Engineering, AGC Amritsar

AMRITSAR GROUP OF COLLEGES NAAC Grade "A" 3rd Cycle | Autonomous College under Autonomous Category | (Since 2014) Conferred by UGC	**Attendance Sheet** **17thBoS meeting** 14.05.2026	**Department of Mechanical Engineering**

17th B.O.S meeting held on 14/05/2026 in online mode

Sr. No	Name	Designation	Mode/Signature	
1	Dr. Upain Kumar Bhatia	Chairman	Attended Online	
2	Dr. Anish Sachdeva	External Member	Attended Online	
3	Dr. Hitesh Vasudev	External Member	Attended Online	
4	Dr. Sarabjeet Singh Sidhu	External Member	Could not attend	
5	Mr. Manpreet Singh	Industrial Expert	Attended Online	
6	Dr. Gaurav Tejpal	Member	Attended Online	
7	Dr. Paramjit Singh Pannu	Member	Attended Online	
8	Er. Inderjit Singh Sodhi	Member	Attended Online	
9	Er. Rajbir Singh	Member	Attended Online	
10	Dr. Gurbhej Singh	Member	Attended Online	
11	Er. Dharminder Singh	Member	Attended Online	
12	Er. Raman Kumar	Member	Absent	
13	Er. Karambir Singh	Member	Attended Online	
14	Er. Jagjit Singh	Member	Attended Online	
15	Er. Prabhjit Singh	Member	Attended Online	
16	Er. Jagjeet Singh	Member	Attended Online	
17	Er. Harmanjit Singh	Member	Attended Online	
18	Er. Harmandeep Singh	Member	Attended Online	
19	Er. Amandeep Singh	Member	Attended Online	

14/05/26

Dr. Upain Kumar Bhatia
Chairman, Board of Studies
Mechanical Engineering, AGC Amritsar

AMRITSAR GROUP OF COLLEGES

Autonomous status conferred by UGC under UGC act-1956, (2f), NAAC-A Grade,
(Formerly Known as Amritsar College of Engineering & Technology | Amritsar Pharmacy College)

Proceedings

of

17th Meeting

of

Board of Studies

Department of Mechanical Engineering
Amritsar Group of Colleges,
Amritsar

MINUTES OF THE 17th MEETING OF BOARD OF STUDIES

(14-05-2026)

17th Meeting of Board of Studies in Mechanical Engineering, Amritsar Group of Colleges was held on 14.05.2026 (Thursday) at 11:00 am in online mode. The following attended the meeting:

1. Dr. Upain Kumar Bhatia, HoD, DME, AGC Amritsar — in Chair
2. Dr. Anish Sachdeva, Professor, DME, NIT Jalandhar — External Member
3. Dr. Hitesh Vasudev, Prof. LPU Phagwara — External Member
4. Mr. Manpreet Singh, Dy. Manager, SAL Automotive Ltd., Nabha — Industrial Expert
5. Dr. Gaurav Tejpal, Professor DME and Principal AGC Amritsar
6. Dr. P.S. Pannu, Professor DME and Registrar AGC Amritsar
7. Er. IJS Sodhi, Associate Professor, ME, AGC Amritsar
8. Er. Rajbir Singh, Assistant Professor, ME, AGC Amritsar
9. Dr. Gurbhej Singh, Assistant Professor, ME, AGC Amritsar
10. Er. Dharminder Singh, Assistant Professor, ME, AGC Amritsar
11. Er. Harmandeep Singh, Assistant Professor, ME, AGC Amritsar
12. Er. Karambir Singh, Assistant Professor, ME, AGC Amritsar
13. Er. Jagjit Singh, Assistant Professor, ME, AGC Amritsar
14. Er. Prabhjit Singh, Assistant Professor, ME, AGC Amritsar
15. Er. Amandeep Singh, Assistant Professor, ME, AGC Amritsar
16. Er. Harmanjit Singh, Assistant Professor, ME, AGC Amritsar
17. Er. Jagjeet Singh, Assistant Professor, ME, AGC Amritsar

The following member could not attend the meeting:

1. Dr. Sarabjeet Singh Sidhu, Assistant Prof. SBSSU, Gurdaspur (External Member)
2. Er. Raman Kumar, Assistant Professor, ME, AGC Amritsar

Minutes of the meeting are as follows:

1. The minutes of 16th meeting of BoS held on 15.12.2025 were approved as no further comments were received for the same.
2. The members of BoS discussed the proposed revised study scheme for 3rd to 8th semesters of B. Tech. Mechanical Engineering. After detailed deliberations, the study scheme for 3rd and 4th semesters of B. Tech. Mechanical Engineering applicable for 2025 admitted batch and onwards was finalized and recommended for approval. ***(Annexure-I)***
3. The members of BoS discussed and finalized the detailed syllabi and Course Outcomes for 3rd and 4th semesters of B. Tech. Mechanical Engineering applicable for 2025 admitted batch and onwards. ***(Annexure-II)***
4. The members of BoS authorized the Chairperson of the BoS to approve the appropriate SWAYAM courses against upto 40% of the total subjects in a semester to be offered in online mode for 3rd semester students of B. Tech. Mechanical Engineering applicable to 2025 admitted batch.

5. The members of BoS authorized the Chairperson of the BoS to approve the appropriate SWAYAM courses against upto 40% of the total subjects in a semester to be offered in online mode for 5th semester students of B. Tech. Mechanical Engineering applicable to 2024 admitted batch.
6. The members of BoS authorized the Chairperson of the BoS to approve the appropriate SWAYAM courses against upto 40% of the total subjects in a semester to be offered in online mode for 7th semester students of B. Tech. Mechanical Engineering applicable to 2023 admitted batch.
7. The members of BoS discussed the inclusion of the Entrepreneurship Mindset Curriculum course in the 3rd and 4th semesters of B. Tech. Mechanical Engineering applicable for 2025 admitted batch and onwards. The members authorized the chairman BoS to approve the subjects as per Entrepreneurship Mindset Curriculum, as and when released by the Punjab Government through I.K. Gujral Punjab Technical University.
8. Members were apprised of the communication from AICTE through email dated 24.11.2025 regarding inclusion of a non-credit mandatory course on Disaster Management and Preparedness in the curriculum of all AICTE approved UG Programmes w.e.f. January 2026. Since the detailed syllabus is not yet available on AICTE website, the Board resolved to include this course in 5th semester (or later) of B.Tech. Mechanical Engineering, subject to the availability and notification of the prescribed curriculum.
9. The members of BoS were apprised of the synopsis submission for M. Tech. (Mechanical Engineering) candidates namely Mr. Harsimran Singh (2412619) and Mr. Sandeep Singh (2412621). ***(Annexure-III)***
10. The members of BoS were apprised of the results of the Nov 2025 examinations. ***(Annexure-IV)***
11. The members of BoS were apprised of the new academic initiatives taken during Jan–May 2026, which included:

a. **Top performers of Nov-2025 Examinations:** The members of BoS were apprised of the following students who secured top positions in November-2025 examinations.

Semester	Name of Student	Roll No.	Position
3rd	Mayank	2551012	1st
5th	Vansh	2333482	1st
7th	Jaspreet Singh	2233768	1st

b. **Major activities/events**: The members of BoS were apprised of the academic and co-curricular/extracurricular activities organized by the department ***(Annexure-V)***

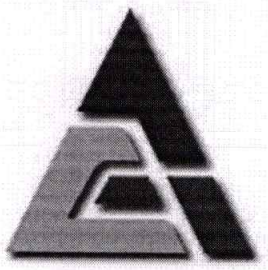
Meeting ended with a note of thanks to the chair.

14/05/26

Dr. Upain Kumar Bhatia
Chairman, Board of Studies
Mechanical Engineering, AGC Amritsar

Scheme and Syllabus

3rd and 4th Semester
B.TECH. (MECHANICAL ENGINEERING)
for Batch 2025-29 and onwards



Department of Mechanical Engineering
Amritsar Group of Colleges, Amritsar

SCHEME OF B.TECH. MECHANICAL ENGINEERING

3rd Semester	B.Tech. (Mechanical Engineering)								
Course code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credit
		L	T	P	Internal	External		
AGME 25301	Applied Thermodynamics-I	3	1	-	40	60	100	4
AGME 25302	Theory of Machines-I	3	1	-	40	60	100	4
AGME 25303	Strength of Materials	3	1	-	40	60	100	4
AGME 25304	Engineering Materials & Metallurgy	3	-	-	40	60	100	3
AGME 25305	Manufacturing Processes	3	-	-	40	60	100	3
AGME 25306	Strength of Materials Lab	-	-	2	50	-	50	1
AGME 25307	Engineering Materials & Metallurgy Lab	-	-	2	50	-	50	1
AGME 25308	Manufacturing Processes Lab	-	-	2	50	-	50	1
AGME 25309	Applied AI Tools Lab	-	-	2	50	-	50	1
***	Entrepreneurship Mindset Curriculum	-	-	4	60	40	100	2
AGMC 25001	Indian Constitution (Mandatory Course)	1	-	-	-	-	-	-
		16	**3**	**12**	**460**	**340**	**800**	**24**
	Contact Hours	**31**						

SCHEME OF B.TECH. MECHANICAL ENGINEERING

4th Semester	B.Tech. (Mechanical Engineering)							
Course code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credit
		L	T	P	Internal	External		
AGME 25401	Applied Thermodynamics-II	3	1	-	40	60	100	4
AGME 25402	Theory of Machines-II	3	1	-	40	60	100	4
AGME 25403	Automobile Engineering	3	-	-	40	60	100	3
AGME 25404	Engineering Mathematics	3	1	-	40	60	100	4
AGME 25405	Intelligent Automation and Robotics (Skill Course - I)	1	-	4	50	-	50	3
AGME 25406	Applied Thermodynamics Lab	-	-	2	50	-	50	1
AGME 25407	Automobile Engineering Lab	-	-	2	50	-	50	1
AGME 25408	Theory of Machines Lab	-	-	2	50	-	50	1
***	Entrepreneurship Mindset Curriculum	-	-	4	60	40	100	2
AGMC 25002	Essence of Indian Knowledge Tradition (Mandatory Course)	1	-	-	-	-	-	-
		14	**2**	**14**	**420**	**280**	**700**	**23**
	Contact Hours=	**30**						

SCHEME OF B.TECH. MECHANICAL ENGINEERING

5th Semester	**B.Tech. (Mechanical Engineering)**							
Course code	**Course Name**	**Load Allocation**			**Marks Distribution**		**Total Marks**	**Credit**
		L	**T**	**P**	**Internal**	**External**		
AGME 25501	Design of Machine Elements-I	3	1	-	40	60	100	4
AGME 25502	Fluid Mechanics	3	1	-	40	60	100	4
AGME 25503	Metrology & Instrumentation	3	-	-	40	60	100	3
AGME 25504X	Professional Elective-I	3	-	-	40	60	100	3
AGME 25505	Additive Manufacturing (Skill Course - II)	1	-	4	50	-	50	3
AGME 25506	Machine Drawing	-	-	2	50	-	50	1
AGME 25507	Fluid Mechanics Lab	-	-	2	50	-	50	1
AGME 25508	Metrology & Instrumentation Lab	-	-	2	50	-	50	1
AGME 25509	Summer Internship	-	-	-	60	40	100	1
***	Entrepreneurship Mindset Curriculum	-	-	4	60	40	100	2
AGMC 25003	Disaster Management and Preparedness	2	-	-	-	-	-	-
		15	**2**	**14**	**480**	**320**	**800**	**23**
	Contact Hours=	**31**						

SCHEME OF B.TECH. MECHANICAL ENGINEERING

6th Semester	**B.Tech. (Mechanical Engineering)**							
Course code	**Course Name**	**Load Allocation**			**Marks Distribution**		**Total Marks**	**Credit**
		L	**T**	**P**	**Internal**	**External**		
AGME 25601	Design of Machine Elements-II	3	1	-	40	60	100	4
AGME 25602	Fluid Machinery	3	1	-	40	60	100	4
AGME 25603	Heat Transfer	3	1	-	40	60	100	4
AGME 25604X	Professional Elective-II	3	-	-	40	60	100	3
AGME 25605	Digital Design and Manufacturing	3	-	-	40	60	100	3
AGME 25606	Fluid Machinery Lab	-	-	2	50	-	50	1
AGME 25607	Heat Transfer Lab	-	-	2	50	-	50	1
AGME 25608	CAD/CAM Lab	-	-	2	50	-	50	1
***	Entrepreneurship Mindset Curriculum	-	-	4	60	40	100	2
		15	**3**	**10**	**410**	**340**	**750**	**23**
	Contact Hours=	**28**						

5th Sem	**PROFESSIONAL ELECTIVE COURSE-I**							
Course code	**Course Name**	**Load Allocation**			**Marks Distribution**		**Total Marks**	**Credit**
		L	**T**	**P**	**Internal**	**External**		
AGME 25504A	Mechatronics	3	-	-	40	60	100	3
AGME 25504B	Advanced Materials and Processes	3	-	-	40	60	100	3
AGME 25504C	Machine Tool Design	3	-	-	40	60	100	3
AGME 25504D	Artificial Intelligence in Manufacturing	3	-	-	40	60	100	3
AGME 25504E	Hybrid Manufacturing Technologies	3	-	-	40	60	100	3

6th Sem	**PROFESSIONAL ELECTIVE COURSE-II**							
Course code	**Course Name**	**Load Allocation**			**Marks Distribution**		**Total Marks**	**Credit**
		L	**T**	**P**	**Internal**	**External**		
AGME 25604A	Non-Traditional Machining	3	-	-	40	60	100	3
AGME 25604B	Renewable Energy Systems	3	-	-	40	60	100	3
AGME 25604C	Power Plant Engineering	3	-	-	40	60	100	3
AGME 25604D	Electric and Hybrid Vehicles	3	-	-	40	60	100	3
AGME 25604E	Smart Manufacturing & Industry 4.0	3	-	-	40	60	100	3

SCHEME OF B.TECH. MECHANICAL ENGINEERING

7th Semester	**B.Tech. (Mechanical Engineering)**							
Course code	**Course Name**	**Load Allocation**			**Marks Distribution**		**Total Marks**	**Credit**
		L	**T**	**P**	**Internal**	**External**		
AGME 25701	Refrigeration & Air Conditioning	3	1	-	40	60	100	4
AGME 25702	Mechanical Vibrations	3	1	-	40	60	100	4
AGME 25703X	Professional Elective-III	3	-	-	40	60	100	3
AGOE 257XX	Open Elective	3	-	-	40	60	100	3
AGME 25704	Major Project	-	-	4	100	-	100	2
AGME 25705	Refrigeration & Air Conditioning Lab	-	-	2	50	-	50	1
AGME 25706	Mechanical Vibrations Lab	-	-	2	50	-	50	1
AGME 25707	MS Office with AI Tools Lab	-	-	2	50	-	50	1
		12	**2**	**10**	**410**	**240**	**650**	**19**
	Contact Hours=	**24**						

SCHEME OF B.TECH. MECHANICAL ENGINEERING

8th Semester	**B.Tech. (Mechanical Engineering)**							
Course code	**Course Name**	**Load Allocation**			**Marks Distribution**		**Total Marks**	**Credit**
		L	**T**	**P**	**Internal**	**External**		
AGME 25801	Semester Training	-	-	-	300	200	500	12
		0	**0**	**0**	**300**	**200**	**500**	**12**
	Contact Hours=	**0**						

List of Professional Elective Courses-III

7th Semester	B. Tech (Mechanical Engineering)							
Course code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credit
		L	T	P	Internal	External		
AGME 25703A	Modern System Design	3	-	-	40	60	100	3
AGME 25703B	Project Management	3	-	-	40	60	100	3
AGME 25703C	Supply Chain Management	3	-	-	40	60	100	3
AGME 25703D	Industrial Safety	3	-	-	40	60	100	3
AGME 25703E	Surface Engineering	3	-	-	40	60	100	3
AGME 25703F	Sustainable Engineering	3	-	-	40	60	100	3

List of Open Elective Courses

7th Semester	B. Tech (All Streams)							
Course code	Course Name	Load Allocation			Marks Distribution		Total Marks	Credit
		L	T	P	Internal	External		
Offered by Department of Civil Engineering								
AGOE 25701	Air Pollution and Control	3	-	-	40	60	100	3
AGOE 25702	Solid Waste Management	3	-	-	40	60	100	3
Offered by Department of Mechanical Engineering								
AGOE 25703	Product Design and Development	3	-	-	40	60	100	3
AGOE 25704	Material Management	3	-	-	40	60	100	3
Offered by Department of Electrical Engineering								
AGOE 25705	Non-Conventional Energy Sources	3	-	-	40	60	100	3
AGOE 25706	Electrical Power Utilization	3	-	-	40	60	100	3
Offered by Department of Computer Science and Engineering								
AGOE 25707	Software |Engineering Methodologies	3	-	-	40	60	100	3
AGOE 25708	Fundamentals of Information Security	3	-	-	40	60	100	3
Offered by Department of Management Studies								
AGOE 25709	Management of Human Resources	3	-	-	40	60	100	3
AGOE 25710	Basics of Management	3	-	-	40	60	100	3

The student shall opt any one of the above courses offered by any department other that his/her parent department

3rd Semester	**AGME 25301: Applied Thermodynamics-I**				
Internal Marks:	**40**		**L**	**T**	**P**
External Marks:	**60**		**3**	**1**	**0**
Total Marks:	**100**		**Credits**		**4**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze combustion processes, knocking, and emissions in IC engines.
CO-2	Apply steam properties, steam tables, and Mollier charts in thermodynamic problems.
CO-3	Evaluate the performance of steam generators and boiler systems.
CO-4	Apply steam nozzle principles for flow and efficiency calculations.
CO-5	Analyze the performance of impulse and reaction steam turbines.
CO-6	Evaluate the performance of steam condensers and cooling systems.

Content	**CO**
Thermodynamics of Combustion of Fuel in IC engines: Principle of Combustion; Stoichiometric and non-stoichiometric combustion; Calculations of air fuel ratio: analysis of combustion, conversion of volumetric analysis into gravimetric analysis and vice versa" Actual weight of air supplied, use of mole for solution of combustion problems; Calorific value of fuel; Enthalpy of formation; Enthalpy of reaction/combustion; Various stages of combustion in IC engines; Pressure-time/crank - Angle diagrams; various phenomenon such as turbulence, squish and swirl, dissociation, pre-ignition/auto- ignition, and after burning etc.; Theory of knocking (i.e., detonation) in SI and CI Engines; Emission from boilers and IC engines (SI and CI) and methods to reduce/control them.	CO-1
Properties of Steam: Pure substance; Steam and its formation at constant pressure: wet, dry, saturated and super-heated steam; Sensible heat (enthalpy), latent heat and total heat (enthalpy) of steam; dryness fraction and its determination; degree of superheat and degree of sub-cool; Entropy and internal energy of steam; Use of Steam Tables and Mollier Chart; Basic thermodynamic processes with steam (isochoric, isobaric, isothermal, isentropic and adiabatic process) and their representation on T-S Chart and Mollier Charts (hs diagrams). Significance of Mollier Charts.	CO-2
Steam Generators: Classification and Applications of Steam Generators; Working and constructional details of fire-tube and water-tube boilers: (Cochran, Lancashire, Babcock and Wilcox boilers); Merits and demerits of fire-tube and water-tube boilers; Modem high pressure boilers (Benson boiler, La Mont boiler) and Super critical boilers (Once through boilers-Tower type); Advantages of forced circulation; Description of boiler mountings and accessories: Different types of Safety Valves, Water level indicator, pressure gauge, Fusible plug, Feed pump, Feed Check Valve, Blow-off Cock, Steam Stop-Valve, Economizer, Superheater; Air pre-heater and Steam accumulators; Boiler performance: equivalent evaporation, boiler. efficiency, boiler trial and heat balance; Types of draught and Calculation of chimney height.	CO-3
Steam Nozzles: Definition. types and utility of nozzles; Flow of steam through nozzles; Condition for maximum discharge through nozzle; Critical pressure ratio. its significance and its effect on discharge Area of throat and at exit for maximum discharge; Effect of friction; Nozzle efficiency; Calculation of Nozzle dimensions (length and diameters of throat and exit).	CO-4

Steam Turbines: Introduction; Classification; Impulse versus Reaction turbines' Simple impulse turbine: pressure and velocity variation, Compounding of impulse turbines: purpose, type and pressure and velocity variation, Velocity diagrams/triangles; Combined velocity diagram /triangles and calculations for force, axial thrust, work, power, blade efficiency, stage efficiency maximum work and maximum efficiency overall efficiency and relative efficiency, effect of blade friction on velocity diagram, effect of speed ratio on blade efficiency, condition for axial discharge' Reaction Turbine: pressure and velocity variation, velocity diagrams/triangles, Degree of reaction, combined velocity diagram/triangle and calculations for force, axial thrust, work, power, blade efficiency, stage efficiency, overall efficiency and relative efficiency, maximum work and maximum efficiency Calculations of blade height; Losses in steam turbines; Co-generation; Economic assessment; Governing of steam turbines.	CO-5
Steam Condensers: Functions Elements of condensing unit; Types of condensers; Dalton's law of partial pressures applied to the condenser problems; Condenser and vacuum efficiencies; Cooling water calculations; Effect of air leakage Methods to check and prevent air infiltration; Description of air pump; Cooling towers: function, types and their operation.	CO-6

References:

- Mahesh M Rathore, Thermal Engineering, McGraw Hill Education Pl't' Ltd'
- D'S.KumarandV.P.Vasandani,Heat Engineering,Metropolitan Book Co.Pvt.Ltd.
- G. Rogers and Y. Mayhew, Engineering Thermodynamics, Pearson'
- W.AJ. Keartan, Steam Turbine: Th6ory and Practice, ELBS Series'
- V. Ganeshan, Internal Combustion Engines, Tata McGraw Hill'

3rd Semester	**AGME 25302: Theory of Machines - I**			
Internal Marks:	**40**	**L**	**T**	**P**
External Marks:	**60**	**3**	**1**	**0**
Total Marks:	**100**	**Credits**		**4**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze displacement, velocity, and acceleration in mechanisms and kinematic chains.
CO-2	Apply principles of belt, rope, and chain drives for power transmission calculations.
CO-3	Analyze cam profiles and follower motions for different cam mechanisms.
CO-4	Apply flywheel concepts for fluctuation of energy and speed calculations.
CO-5	Analyze steering mechanisms, universal joints, and higher pair mechanisms.
CO-6	Evaluate the performance and characteristics of different governors.

Content	**CO**
Basic Concept: Link, Mechanism, Kinematic Pair and Kinematic Chain, Principles of Inversion, Inversion of a Four Bar Chain, Slider-Crank-Chain and Double Slider-Crank-Chain. Graphical and Analytical methods for finding: Displacement, Velocity, and Acceleration of mechanisms (including Coriolis Components).	CO-1
Belt Rope and chain: Material & Types of belt, Flat and V-belts, Rope & Chain Drives, Idle Pulley, Intermediate or Counter Shaft Pulley, Angle and Right Angle Drive, Quarter Turn Drive, Velocity Ratio, Crowning of Pulley, Loose and fast pulley, stepped or cone pulleys, ratio of tension on tight and slack side of belts, Length of belt, Power transmitted by belts including consideration of Creep and Slip, Centrifugal Tensions and its effect on power transmission.	CO-2
Cam: Types of cams and follower, definitions of terms connected with cams. Displacement, velocity and acceleration diagrams for cam followers. Analytical and Graphical design of cam profiles with various motions (SHM, uniform velocity, uniform acceleration and retardation, cycloidal Motion). Analysis of follower motion for circular profile.	CO-3
Flywheels: Turning moment and crank effort diagrams for reciprocating machines' Fluctuations of speed, coefficient of fluctuation of speed and energy, Determination of mass and dimensions of flywheel used for engines and punching machines.	CO-4
Lower and Higher Pair: Universal Joint, Calculation of maximum Torque, Steering Mechanisms including Ackerman and Davis approximate steering mechanism, Engine Indicator, Pentograph, Straight Line Mechanisms, Introduction to Higher Pairs with examples.	CO-5
Governors: Function, types and characteristics of governors. Watt, Porter, Proell and Hartnell governor. Numerical problems related to these governors. Sensitivity, stability, isochronisms and hunting of governors. Governor effort and power, controlling force curve, effect of sleeve friction.	CO-6

References:

- S. S. Rattan, Theory of Machines, Tata McGraw Hill, New Delhi'
- Jagdish Lal, Theory of Mechanisms & Machines, Metropolitan Book Co'
- V.P. Singh, Theory of Machines Dhanpat Rai.
- R S Khurmi, Theory of Machines

3rd Semester	**AGME 25303: Strength of Materials**				
Internal Marks:	**40**		**L**	**T**	**P**
External Marks:	**60**		**3**	**1**	**0**
Total Marks:	**100**		**Credits**		**4**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Apply stress-strain relations and elastic constants for simple stress analysis.
CO-2	Analyze principal stresses and strains using Mohr's circle and stress relations.
CO-3	Analyze shear force and bending moment in different beam loading conditions.
CO-4	Apply bending and shear stress theories for beam and composite section analysis.
CO-5	Evaluate the stability and buckling behavior of columns under different loading conditions.
CO-6	Evaluate torsional behavior, spring applications, and failure theories for machine elements.

Content	**CO**
Simple Stress and Strains: Introduction; Concept of stress and strain; Stress-strain curves for ductile, brittle materials; Generalized Hooke's law, Stress-strain diagram of ductile and brittle material, statically determinate and indeterminate problems, compound and composite bars, thermal stresses. Elastic constants, relations between various elastic constants and its use; Lateral strain, volumetric strain, poisons ratio.	CO-1
Complex stress and strains: Introduction; Normal stress, tangential stress; Rectangular block subjected to normal stress along and across two planes, combination of normal and tangential stress; Concept of principal stress and its computation; Mohr circle; Principal strains, computation of principal stresses from the principal strains.	CO-2
Shear force and Bending moment diagrams: General equilibrium equations , Introduction to the concept of reaction diagrams—shear force and bending moment; Role of sign conventions; Types of load, beams, supports; Shear force and bending moment diagrams: simply supported, overhang and cantilever beams subjected to any combination of point loads, uniformly distributed and varying load, and moment; Relationship between load, shear force and bending moment.	CO-3
Bending and Shear Stresses: Introduction; Assumptions and derivation of flexural formula for straight beams; Centroid of simple and built-up section, second moment of area; Bending stress calculation for beams of simple and built-up section, composite sections; Shear stress; Variation of bending and shear stress along the depth of section.	CO-4
Columns and Struts: Stability of Columns; Buckling load of an axially loaded columns with various end conditions; Euler's and Rankine's formula; Columns under eccentric load, lateral load. **Torsion of Circular shafts**: Torsion, basic assumptions, derivation of torsion equation; Sections under combined bending and torsion, equivalent bending and torsion.	CO-5
Springs: Introduction; Classification; Applications **Failure theories**: Maximum principal stress theory, Maximum shear stress theory, Distortion, Energy theory, Strain Energy theory.	CO-6

References:

- Strength of Material by S. Ramamrutham
- Mechanics of Materials: E .Popov
- Strength of Materials: Rajput
- Strength of Materials: Sadhu Singh
- Strength of Materials by Gere, Cengage Learning.

3rd Semester	**AGME 25304: Engineering Materials & Metallurgy**			
Internal Marks:	**40**	**L**	**T**	**P**
External Marks:	**60**	**3**	**0**	**0**
Total Marks:	**100**	**Credits**		**3**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze crystal structures, defects, diffusion, and plastic deformation in metals.
CO-2	Analyze phase transformations and equilibrium diagrams of alloy systems.
CO-3	Apply the effect of alloying elements on the properties and structure of steels.
CO-4	Apply heat treatment and surface hardening processes for improving steel properties.
CO-5	Evaluate hardenability, surface treatment defects, and their remedies in steels.
CO-6	Evaluate powder metallurgy processes and their industrial applications.

Content	**CO**
Atomic structure of metals, atomic bonding in solids, crystal structures, crystal lattice of body centered cubic, and face centered cubic, closed packed hexagonal; crystalline and non-crystalline materials; imperfection in solids: theoretical yield strength, point defects, line defects and dislocations, interfacial defects, bulk or volume defects. Diffusion: Diffusion mechanisms, steady-state and non-steady-state diffusion, factors affecting diffusion. Theories of plastic deformation, recovery, re-crystallization.	CO-1
General principles of phase transformation in alloys, phase rule and equilibrium diagrams, Equilibrium diagrams of Binary systems. Iron carbon equilibrium diagram and various phase transformations. Time temperature transformation curves (TTT curves): fundamentals, construction and applications.	CO-2
Introduction, classification, composition of alloys, effect of alloying elements (Si, Mn, Ni, Cr, Mo, W, Al) on the structures and properties of steel.	CO-3
Principles and applications. Processes viz. annealing, normalizing, hardening, tempering. Surface hardening of steels: Principles of induction and oxyacetylene flame hardening. Procedure for carburising, nitriding and cyaniding. Harden-ability: determination of harden-ability. Jominy end-quench test. Defects due to heat treatment and their remedies.	CO-4
Procedure for carburising, nitriding and cyaniding, Cladding. Harden-ability: determination of harden-ability. Jominy end-quench test. Defects due to heat treatment and their remedies.	CO-5
Introduction, advantages, limitations, and applications methods of producing metal powders, briquetting and sintering.	CO-6

References:

- B. Zakharov, Heat Treatment of Metals, University Press.
- T. Goel and R.S. Walia, Engineering Materials & Metallurgy.
- Sidney H Avner, Introduction to Physical Metallurgy, Tata Mcgraw-Hill.
- V. Raghavan, Physical Metallurgy: Principles and Practice, PHI Learning.
- Y. Lakhin, Engineering Physical Metallurgy, Mir Publishers.

3rd Semester	**AGME-25305: Manufacturing Processes**			
Internal Marks:	**40**	**L**	**T**	**P**
External Marks:	**60**	**3**	**0**	**0**
Total Marks:	**100**	**Credits**		**3**

Course Outcomes: After studying the course, students will be able to:	
CO1	Apply manufacturing process selection criteria for engineering applications.
CO2	Analyze metal casting processes, mould design, and casting operations.
CO3	Analyze welding processes, welding techniques, and joining operations.
CO4	Evaluate casting and welding defects using destructive and non-destructive testing methods.
CO5	Apply machining principles, cutting tool geometry, and tool materials in manufacturing operations.
CO6	Analyze the working and operations of various machine tools and machining processes.

Content	**CO**
Classification of manufacturing processes, selection criteria for manufacturing processes, general trends in manufacturing.	CO-1
Introduction to metal casting. Patterns: types, materials and allowances. Moulding materials: moulding sand compositions and properties, types of moulds, moulding machines. Cores: function, types, core making process, core-prints, chaplets. Elements of gating system and risers and their design. Melting furnaces, cupola furnace, charge calculations, induction furnaces. Casting processes: sand casting, shell mould casting, investment casting, permanent mould casting, full mould casting, vacuum casting, die casting, centrifugal casting, and continuous casting. Cleaning and finishing of castings.	CO-2
Introduction and classification of welding processes, to welding processes, weldability, welding terminology, general principles, welding positions, and filler metals. Gas welding: principle and practice, oxy-acetylene welding equipment, oxy-hydrogen welding. Flame cutting. Electric arc welding: principle, equipment, relative merits of AC & DC arc welding. Welding processes: manual metal arc welding, MIG welding, TIG welding, plasma arc welding, submerged arc welding. Resistance welding: principle and their types i.e. spot, seam, projection, up-set and flash. Spot welding machine. Advanced welding processes: friction welding, friction stir welding, ultrasonic welding, laser beam welding, plasma arc welding, electron beam welding, atomic hydrogen welding, explosive welding, thermit welding, and electro slag welding. Other joining processes: soldering, brazing.	CO-3
Casting defects, their causes and remedies. Welding defects, their causes and remedies. Destructive and non-destructive testing: visual inspection, x-ray radiography, magnetic particle inspection, dye penetrate test, ultrasonic inspection, eddy current testing, hardness testing, and micro hardness testing.	CO-4
Introduction to machining processes, classification, Mechanics of chip formation process, tool wear, tool life, machinability. Cutting tools: types, geometry of single point cutting tool, twist drill and milling cutter, tool signature. Cutting tool materials: high carbon steels, alloy carbon steels, high speed steel, cast alloys, cemented carbides, ceramics and diamonds, and CBN. Coolants and lubricants: classification, purpose, function and properties.	CO-5

Lathe: classification, description and operations, kinematic scheme of lathe, and lathe attachments. Shaping and planning machine: classification, description and operations, drive mechanisms. Milling machine: classification, description and operations, up milling and down milling. Drilling machine: classification, description and operations. Boring machine: classification, description and operations. Grinding machines: classification, description and operations, dressing and truing of grinding wheels.	CO-6

References:

- B. L. Juneja and G. S. Sekhon, Fundamentals of Metal Cutting & Machine Tools, New Age International (P) Ltd.
- H.S. Shan, Manufacturing Processes, Vol. I&II, , Pearson Publishers
- PC Sharma, A Text Book of Production Technology, S. Chand & Company Ltd.
- M. P. Groover, Fundamentals of Modern manufacturing, Wiley
- A. Manna, A Textbook of Manufacturing Science and Technology, PHI Publishers.
- P. N. Rao, Manufacturing Technology, Foundry, Forming & Welding, Tata McGraw Hill.
- R.S. Parmar, Welding Engineering & Technology, Khanna Publishers.
- Serope Kalpakjian and Steven R. Schmid, Manufacturing Engineering and Technology, Pearson Publishers.

3rd Semester	**AGME 25306: Strength of Materials Lab**				
Internal Marks:	**50**		**L**	**T**	**P**
External Marks:	**-**		**0**	**0**	**2**
Total Marks:	**50**		**Credits**		**1**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze stress-strain behavior of ductile and brittle materials under tensile loading.
CO-2	Analyze stress-strain behavior of ductile and brittle materials under compressive loading.
CO-3	Apply impact testing methods to determine material toughness using Izod and Charpy tests.
CO-4	Apply hardness testing methods for evaluation of material hardness properties.
CO-5	Analyze shear stress and shear strain characteristics in torsion testing of materials.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

Experiment	**CO**
Draw Stress Strain curve for Ductile and Brittle material in tension.	CO-1
Draw Stress Strain curve for Ductile and Brittle material in compression.	CO-2
To determine the impact strength by Izod and Charpy test.	CO-3
To determine hardness of given material by Rockwell & Brinell hardness testing machine.	CO-4
Draw shear stress, shear strain curve for ductile / brittle material in torsion strength test.	CO-5
To make a mini project that demonstrates a concept, based on the content of AGME 25303 (Strength of Materials)	CO-6

3rd Semester	**AGME 25307: Engineering Materials & Metallurgy Lab**				
Internal Marks:	**50**		**L**	**T**	**P**
External Marks:	**-**		**0**	**0**	**2**
Total Marks:	**50**		**Credits**		**1**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze the effect of annealing temperature and time on steel hardness.
CO-2	Analyze the effect of quenching media on hardness during steel hardening.
CO-3	Apply metallographic specimen preparation techniques for material analysis.
CO-4	Analyze microstructures of engineering materials and identify phase constituents.
CO-5	Apply Jominy End Quench Test for determination of steel hardenability.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

Experiment	**CO**
Annealing the steel specimen and study the effect of annealing time and temperature on hardness of steel.	CO-1
Hardening the steel specimen and study the effect of quenching medium on hardness of steel.	CO-2
Practice of specimen preparation (cutting, mounting, polishing, and etching) of mild steel, aluminium and hardened steel specimens.	CO-3
Study of the microstructure of prepared specimens of mild steel, Aluminium and hardened steel and Identification of ferrite and pearlite constituents in given specimen of mild steel.	CO-4
Determination of hardenability of steel by Jominy End Quench Test.	CO-5
To make a mini project that demonstrates a concept, based on the content of AGME 25304 (Engineering Materials & Metallurgy)	CO-6

3rd Semester	**AGME 25308: Manufacturing Processes Lab**				
Internal Marks:	**50**		**L**	**T**	**P**
External Marks:	**-**		**0**	**0**	**2**
Total Marks:	**50**		**Credits**		**1**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze the constructional features and working of manufacturing machines and equipment.
CO-2	Apply tool grinding techniques for single-point and multi-point cutting tools.
CO-3	Apply lathe operations for machining jobs with specified tolerances and thread cutting.
CO-4	Apply shaper machine operations for machining plane surfaces.
CO-5	Analyze milling operations for generation of surfaces and gear manufacturing.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

Experiment	**CO**
To study constructional features of following machines through drawings/ sketches: a. Grinding machines (Surface, Cylindrical) b. Hydraulic Press c. Draw Bench d. Drawing and Extrusion Dies e. Rolling Mills	CO-1
To grind single point and multipoint cutting tools.	CO-2
To prepare job on Lathe involving specified tolerances; cutting of V- threads and square threads.	CO-3
To prepare job on shaper involving plane surface.	CO-4
Use of milling machines for generation of plane surfaces, spur gears and helical gears; use of end mill cutters.	CO-5
To make a mini project that demonstrates a concept, based on the content of AGME 25305 (Manufacturing Processes)	CO-6

3rd Semester	**AGME 25309: APPLIED AI TOOLS LAB**			
Internal Marks:	**50**	**L**	**T**	**P**
External Marks:	**-**	**0**	**0**	**2**
Total Marks:	**50**	**Credits**		**1**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Identify and explore different AI tools and their applications.
CO-2	Apply AI tools for summarization, communication, and basic data analysis tasks.
CO-3	Demonstrate prompt engineering techniques for generating effective AI-based content.
CO-4	Create AI-assisted presentations, images, and multimedia content using generative AI tools.
CO-5	Analyze speech, text, and video outputs generated through AI-powered multimedia tools
CO-6	Design and develop a professional resume and LinkedIn profile using AI-powered tools.

Experiment	**CO**
Machine Exercise 1: Exploring AI Tools in Daily Life and Professional Applications 1. Access different AI tools and explore their interfaces. 2. Use AI tools to perform the following activities: a. Generate study notes using NotebookLM b. Draft an email c. Create a short article d. Prepare a daily planner 3. Use an AI tool to create a professional event plan for a seminar, workshop, cultural fest, startup event, or awareness campaign including objectives, schedule, and promotional ideas. 4. Use AI tools to prepare awareness content such as posters, slogans, or short write-ups on cyber safety, environmental conservation, women empowerment, or digital literacy etc. **Suggested Tools: ChatGPT, Claude AI, Google Gemini and NotebookLM**	CO-1
Machine Exercise 2: AI Tools for Analysis and Communication 1. Use AI tools to summarize lengthy articles, reports, research papers, or government schemes and compare the summarized output with the original content. 2. Use AI tools to analyze simple datasets such as sales reports, survey data, sports statistics, weather data, class result analysis or healthcare records, and identify trends and observations from the data. **Suggested Tools: ChatGPT, Claude AI, Google Gemini, NotebookLM and Microsoft Copilot**	CO-2
Machine Exercise 3: Prompt Engineering for Smart Content Creation 1. Study the structure of effective prompts and identify the key elements that improve AI-generated responses. 2. Create prompts for applications such as resume summary, invitation letter, presentation outline, and generate outputs using AI tools. 3. Perform Zero-shot and Few-shot prompting on the same topic and compare the quality and accuracy of the generated responses.	CO-3

4. Use role-based prompting techniques such as "Act as a career counsellor," "Act as a travel guide," and "Act as a teacher" to generate different styles of responses. 5. Refine prompts to improve output quality and generate responses in bullet, table, and paragraph formats while documenting prompt variations and outputs. **Suggested Tools: ChatGPT, Claude AI, Google Gemini and Microsoft Copilot**	
Machine Exercise 4: AI-Based Presentation and Image Generation 1. Create an AI-generated presentation on a social, educational, or environmental topic using Gamma AI or Canva AI. 2. Generate AI-based images from text prompts related to smart cities, healthcare, tourism, education, or sustainable development. 3. Modify and refine text prompts to improve the quality and creativity of generated images and presentation content. 4. Document prompts used and generated outputs **Suggested Tools: Canva AI and Gamma AI**	CO-4
Machine Exercise 5: AI Tools for Speech and Video Content Creation 1. Convert written text into speech using AI voice-generation tools 2. Perform speech-to-text conversion using AI tools and compare the accuracy of generated transcripts. 3. Create a short educational, promotional, or awareness video using AI video-generation tools. **Suggested Tools: Wispr Flow, HeyGen, Elevenlabs and Speechify**	CO-5
Machine Exercise 6: AI-Assisted Resume Building and LinkedIn Profile Optimization 1. Create and design a professional resume using AI-powered design tools such as Canva and refine the content using ChatGPT, Gemini, Claude, or Microsoft Copilot. 2. Develop or optimize a LinkedIn profile by generating AI-assisted profile headlines, summaries, skills, experience descriptions **Suggested Tools: ChatGPT, Claude AI, Google Gemini, Microsoft Copilot and LinkedIn**	CO-6

Note: The AI tools mentioned in this syllabus are suggestive in nature. Equivalent or related AI tools/platforms may also be used for demonstrating and performing the prescribed activities and concepts. Open Source Platforms to be preferred

3rd Semester	**AGMC 25001: Indian Constitution (Mandatory Course)**				
Internal Marks:	-		**L**	**T**	**P**
External Marks:	-		**1**	**0**	**0**
Total Marks:	-		**Credits**		**0**

Content	**CO**
• Meaning of the constitution law and constitutionalism. • Historical perspective of the Constitution of India. • Salient features and characteristics of the Constitution of India. • Scheme of the fundamental rights. • The scheme of the Fundamental Duties and its legal status. • The Directive Principles of State Policy – Its importance and implementation. • Federal structure and distribution of legislative and financial powers between the Union and the States. • Parliamentary Form of Government in India – The constitution powers and status of the President of India. • Amendment of the Constitutional Powers and Procedure. • The historical perspectives of the constitutional amendments in India. • Emergency Provisions: National Emergency, President Rule, Financial Emergency. • Local Self Government – Constitutional Scheme in India. • Scheme of the Fundamental Right to Equality. • Scheme of the Fundamental Right to certain Freedom under Article 19. • Scope of the Right to Life and Personal Liberty under Article 21	-

4th Semester	**AGME 25401: Applied Thermodynamics -II**			
Internal Marks:	**40**	**L**	**T**	**P**
External Marks:	**60**	**3**	**1**	**0**
Total Marks:	**100**	**Credits**		**4**

Course Outcomes: After studying the course, students will be able to:	
CO1	Analyze the performance and efficiencies of reciprocating air compressors.
CO2	Analyze the operation and performance of positive displacement rotary compressors.
CO3	Analyze thermodynamic performance and energy transfer in centrifugal compressors.
CO4	Analyze the working principles and performance characteristics of axial flow compressors.
CO5	Evaluate gas turbine cycles, thermal refinements, and performance parameters.
CO6	Evaluate the performance and applications of jet propulsion and rocket propulsion systems.

Content	**CO**
Air Compressors- Introduction: Classification of Air Compressors; Application of compressors and use of compressed air in industry and other places; Stagnation and static values of thermodynamic properties. **Reciprocating Air Compressors:** Single-stage single-acting reciprocating compressor (with and without clearance volume): construction, operation, work input and best value of index of compression, Isentropic, polytropic and isothermal efficiencies and their representation in terms of ratio of areas representing various energy transfers on T-s coordinates, heat rejected to cooling medium, isothermal, overall thermal, isentropic, polytropic, mechanical efficiency, Clearance Volumetric efficiency, Overall volumetric efficiency, effect of various parameters on volumetric efficiency, free air delivery; Multistage compressors: purpose and advantages, construction and operation, work input, heat rejected in intercoolers, minimum work input, optimum pressure ratio; isothermal, overall thermal, isentropic, polytropic and mechanical efficiencies; Performance curves.	CO-1
Positive Displacement Rotary Compressors Introduction: Comparison of rotary positive displacement compressors with reciprocating compressors; Classification of rotary compressors; Construction, operation, work input and efficiency of positive displacement type of rotary compressors like Roots blower, Lysholm compressor and Vane type Blower. Complete representation of compression process on P-v and T-s coordinates with detailed description of areas representing total work done	CO-2
Centrifugal Compressors: Stagnation and static values of pressure, Temperature and enthalpy etc. for flow through dynamic rotary machines; Thermodynamic analysis of centrifugal compressor: Stage, polytropic, isentropic and isothermal efficiencies, velocity vector diagrams for centrifugal compressors, power calculation, , pre-guided vanes, pre-whirl, Slip factor, power input factor. Modes of energy transfer in impeller and diffuser. Degree of reaction and its derivation; energy transfer in backward, forward and radial vanes; surging and choking in centrifugal compressors. Various losses occurring in centrifugal compressors and application of centrifugal compressors.	CO-3
Axial Flow Compressor: Components of axial flow compressor, aerofoil blading, angle of attack, coefficients of lift and drag, turbine versus compressor blades, velocity vector diagrams, thermodynamic analysis and power calculations. Modes of energy transfer in rotor and stator blade flow passages. Work done factor, Degree of reaction	CO-4

and Blade efficiency, Isentropic polytropic and Isothermal Efficiencies. Surging, choking and stalling in axial flow compressors, characteristic curves for axial flow compressor, flow parameters of axial flow compressor pressure coefficient, flow coefficient, work coefficient and temperature rise coefficient, specific speed etc. Comparison of axial flow compressor with centrifugal compressor and reaction turbine. Application of axial flow compressors.	
Gas Turbines: Classification and comparison of the Open and Closed cycles; Classification on the basis of combustion (at constant volume or constant pressure); Comparison of gas turbine with a steam turbine and IC engine; Fields of application of gas turbines; Position of gas turbine in power industry; Thermodynamics of constant pressure gas turbine cycle (Brayton cycle); Calculation of net output, work ratio and thermal efficiency of ideal and actual cycles; Cycle air rate; Thermal refinements like regeneration, inter-cooling and re-heating and their different combinations in the gas turbine cycle and their effects on gas turbine cycle; Closed and Semi-closed gas turbine cycle; Requirements of a gas turbine combustion chamber; Blade materials. Gas turbine fuels.	CO-5
Jet Propulsion: Principle of jet propulsion; Description of different types of jet propulsion systems like rockets and thermal jet engines, like (i) Athodyd (ramjet and pulsejet), (ii) Turbojet engine, and (iii) Turboprop engine. Thermodynamics of turbojet engine components; Development of thrust and methods for its boosting/augmentation; Thrust work and thrust power; Propulsion energy, Propulsion and thermal (internal) efficiencies; Overall thermal efficiency; Specific fuel consumption; Rocket propulsion, its thrust and thrust power; Propulsion and overall thermal efficiency; Types of rocket motors (e.g. solid propellant and liquid propellant systems); Various common propellant combinations (i.e. fuels) used in rocket motors; Cooling of rockets; Advantages and disadvantages of jet propulsion over other propulsion systems; Brief introduction to performance characteristics of different propulsion systems; Fields of application of various propulsion units.	CO-6

References:

- Mahesh M Rathore, Thermal Engineering, McGraw Hill Education Pl't' Ltd'
- D'S.Kumar and V.P. Vasandani, Heat Engineering, Metropolitan Book Co. Pvt. Ltd.
- G. Rogers and Y. Mayhew, Engineering Thermodynamics, Pearson'
- W.AJ. Keartan, Steam Turbine: Th6ory and Practice, ELBS Series'
- V. Ganeshan, Internal Combustion Engines, Tata McGraw Hill'

4th Semester	**AGME 25402: Theory of Machines -II**				
Internal Marks:	**40**		**L**	**T**	**P**
External Marks:	**60**		**3**	**1**	**0**
Total Marks:	**100**		**Credits**		**4**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze static force equilibrium and frictional effects in mechanisms.
CO-2	Analyze gear geometry, tooth profiles, and conditions for correct gearing.
CO-3	Apply gear train principles for velocity ratio and motion transmission analysis.
CO-4	Analyze balancing of rotating and reciprocating masses in machines and engines.
CO-5	Analyze dynamic forces and inertia effects in mechanisms and engine systems.
CO-6	Evaluate kinematic synthesis techniques for mechanism design and function generation.

Content	**CO**
Static force analysis: Concept of force and couple, free body diagram, condition of equilibrium, static equilibrium of mechanism, methods of static force analysis of simple mechanisms. Power transmission elements, considerations of frictional forces	CO-1
Gears: Toothed gears, types of toothed gears and its terminology. Path of contact, arc of contact, conditions for correct gearing, forms of teeth, involutes and its variants, interference and methods of its removal. Calculation of minimum number of teeth on pinion/wheel for involute rack, helical, spiral, bevel and worm gears. Center distance for spiral gears and efficiency of spiral gears	CO-2
Gear Trains: Types of gear trains, simple, compound and epicyclic gear trains, problems involving their applications, estimation of velocity ratio of worm and worm wheel.	CO-3
Balancing: Necessity of balancing, static and dynamic balancing, balancing of single and multiple rotating masses, partial unbalanced primary force in an engine, balancing of reciprocating masses, and condition of balance in multi cylinder in line V-engines, balancing of machines, rotors, reversible rotors.	CO-4
Dynamic force analysis: Determination of forces and couples for a crank, inertia of reciprocating parts, dynamically equivalent system, analytical and graphical method, inertia force analysis of basic engine mechanism, torque required to overcome inertia and gravitational force of a four bar linkage.	CO-5
Kinematic synthesis of Mechanism: Freudenstien equation, Function generation errors in synthesis, two and three point synthesis, Transmission angles, least square techniques.	CO-6

References:

- S. S. Rattan, Theory of Machines, Tata McGraw Hill, New Delhi'
- Jagdish Lal, Theory of Mechanisms & Machines, Metropolitan Book Co'
- V.P. Singh, Theory of Machines Dhanpat Rai.
- R S Khurmi, Theory of Machines

4th Semester	**AGME 25403: Automobile Engineering**				
Internal Marks:	**40**		**L**	**T**	**P**
External Marks:	**60**		**3**	**0**	**0**
Total Marks:	**100**		**Credits**		**3**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze the structure, layout, and classification of automotive vehicles.
CO-2	Analyze vehicle power requirements, fuel systems, and emission control mechanisms.
CO-3	Apply lubrication and cooling system principles in automotive engines.
CO-4	Analyze suspension systems, wheel assemblies, and tyre characteristics in vehicles.
CO-5	Analyze transmission systems, steering geometry, and power steering mechanisms.
CO-6	Evaluate braking, ignition, charging, and electronic control systems in automobiles.

Content	**CO**
Basic structure and terminology, general layout and type of automotive vehicles (i.e. e-vehicles, farm and constructional vehicles), Frameless and unitary construction; position of power unit.	CO-1
Power requirements - motion resistance and power loss, tractive effort and vehicle performance curves; selection of power unit and engine performance characteristics; pollution due to vehicle emission and exhaust emission control system, silencers, types of pistons and rings. Air cleaner and fuel pumps; Air fuel requirements and carburation; constructional details of Carter carburetors and fuel injection systems; MPFi (Petrol), Diesel fuel system - cleaning, injection pump, injector and nozzles, Common Rail fuel supply system. Alternate fuel system for CNG, LPG and LNG.	CO-2
Necessity of lubrication; Desirable properties of lubricants; various types of lubricants and oil additives; different systems of lubrication - oil filters, oil pumps and oil pressure indicator; crank case ventilation and dilution. Purpose of cooling, air and water cooling systems; radiator, thermostat, pump and fan.	CO-3
Loads on the frame, considerations of strength and stiffness, engine mounting, independent suspension systems (Mac Pherson, Trailing Links, Wishbone), shock absorbers and stabilizers, Air suspension system, wheels and tyres, tyre wear types, constructional details of plies.	CO-4
Basic requirements and standard transmission systems; constructional features of automobile clutch, gear box, differential (limited slip differential), front and rear axles; overdrives, propeller shaft, universal joint and torque tube drive; Rear wheel vs front wheel drive, principle of automatic transmission (CVT –Continuous Variable Transmission), Requirement and steering geometry; castor action, camber and king pin angle, toe-in of front wheels, steering linkages and steering gears; wheel alignment; power steering, Ball re-circulating mechanism.	CO-5
General braking requirements; Mechanical, hydraulic, vacuum power and servo brakes; Weight transfer during braking and stopping distances. Classification, Introduction to Conventional and microprocessor based ignition systems; Charging, capacity ratings and battery testing; starter motor and drive arrangements: voltage and current regulation, vehicle dashboard components, cruise control system and sensors:	CO-6

RPM sensor, coolant and fuel sensor, speed sensor, GPS, fire sensor. ECU (Electrical Control Unit)	

References:

- W.H Crouse, Automotive mechanics, McGraw Hill
- J. Heitner, Automotive Mechanics, East West Press
- Kirpal Singh, Automobile Engineering Vol. I and II, Standard Publishers
- J. Webster, Auto Mechanics, Glencoe Publishing Co.

4th Semester	**AGME 25404: Engineering Mathematics**				
Internal Marks:	**40**		**L**	**T**	**P**
External Marks:	**60**		**3**	**0**	**0**
Total Marks:	**100**		**Credits**		**3**

Course Outcomes: After studying the course, students will be able to:	
CO1	Apply Fourier series for periodic functions and engineering applications.
CO2	Apply Laplace transform techniques for solving ordinary differential equations.
CO3	Apply methods for solving partial differential equations including wave and heat equations.
CO4	Analyze analytic functions and complex integration using residue theory.
CO5	Apply numerical methods for solving equations and interpolation problems.
CO6	Apply curve fitting and numerical techniques for differential equation analysis.

Content	**CO**
Fourier Series and Engineering Applications: Periodic functions, Euler's formula, even and odd functions, half-range expansions, Fourier series representation of engineering signals, applications in vibration analysis, heat transfer and harmonic motion.	CO-1
Laplace Transforms and Applications: Laplace transforms of standard functions, properties of Laplace transforms, transforms of derivatives and integrals, inverse Laplace transforms, applications to solution of ordinary differential equations arising in mechanical systems, vibrations, control systems and dynamic analysis.	CO-2
Partial Differential Equations and Engineering Applications: Formation of partial differential equations, solution of homogeneous partial differential equations with constant coefficients, one-dimensional wave equation, heat conduction equation and applications in mechanical and thermal engineering problems.	CO-3
Complex Variables and Engineering Applications: Analytic functions, Cauchy-Riemann equations, harmonic functions, Cauchy's integral theorem and formula, residue theorem and applications in evaluation of engineering integrals, fluid flow and potential theory.	CO-4
Numerical Methods for Mechanical Engineering: Solution of algebraic and transcendental equations using Bisection, Regula-Falsi and Newton-Raphson methods, solution of linear systems by Gauss Elimination and LU decomposition methods, interpolation techniques, numerical solutions of engineering problems and computational analysis	CO-5
Curve Fitting and Numerical Solution of Differential Equations: Curve fitting using least square method for linear and exponential models, numerical solution of ordinary differential equations using Euler and Runge-Kutta methods, applications in experimental data analysis, thermodynamics, fluid mechanics and machine design.	CO-6

References:

- Kreyszing E.. Advanced Engineering Mathematics, Eighth edition. John wiely. New Delhi
- Grewal B.S. Higher Engineering Mathematics. Khanna Publisher. New Delhi.
- Ian N. Sneedon. Elements of Partial differential equation. Mcgraw – Hill. Singapore.
- Bindra. J. S. Applied Engineering. Volume – III. Kataria Publications.
- Advanced Engineering Mathematics, O'Neil.Cengage Learing.
- Babu Ram Advance Engineering Mathematics. Pearson Education.

4th Semester	**AGME 25405: Intelligent Automation and Robotics (Skill Course-I)**				
Internal Marks:	**50**		**L**	**T**	**P**
External Marks:	**-**		**1**	**0**	**4**
Total Marks:	**50**		**Credits**		**3**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze the concept, scope, and applications of automation using AI tools.
CO-2	Apply AI-assisted tools for understanding fluid power control systems and components.
CO-3	Analyze Boolean algebra and logic systems using AI-supported learning techniques.
CO-4	Apply AI-assisted programming tools for PLC architecture and ladder logic development.
CO-5	Analyze transfer devices and feeding systems using AI-based visualization tools.
CO-6	Evaluate robotics and industrial automation applications using integrated AI tools.

Content	**CO**
Concept and Scope of Automation with AI Tool Integration: Understand the concept, scope, and socio-economic impacts of automation using AI tools such as ChatGPT, Google Gemini, and Claude for generating case studies, industrial reports, and comparative analysis of types of automation and low-cost automation systems.	CO-1
Fluid Power Control Elements with AI-Assisted Learning: Apply AI-assisted tools to study hydraulic and pneumatic systems, standard graphical symbols, cylinders, and control valves by generating interactive notes, labelled diagrams, and troubleshooting explanations using conversational AI platforms and image-generation tools.	CO-2
Boolean Algebra and Logic Systems using AI Tools: Analyse Boolean algebra, truth tables, logic gates, and Coanda effect concepts with the help of AI-based prompt engineering techniques for logic simplification, circuit explanation, simulation guidance, and structured learning outputs.	CO-3
PLC Architecture and Ladder Logic using AI-Assisted Programming: Develop understanding of PLC architecture, components, and ladder logic diagrams using AI-supported coding and debugging tools and AI chat assistants for ladder logic generation, error identification, and industrial automation programming support.	CO-4
Transfer Devices and Feeding Systems with AI-Based Visualization: Study the classification, constructional details, and applications of transfer devices and feeding systems using multimodal AI tools for generating presentations, animations, and visual demonstrations of vibratory bowl feeders, reciprocating tube feeders, and centrifugal hopper feeders.	CO-5
Robotics and Industrial Automation with Integrated AI Applications: Understand industrial robots, robot specifications, performance parameters, robot programming, machine vision, and industrial applications by utilizing AI tools for simulation support,	CO-6

technical documentation, presentation creation, and development of simple AI-assisted robotic automation applications using real-world industrial datasets.	

References:

- Anthony Esposito, Fluid Power with applications, Pearson
- S. R Majumdar, Pneumatic Control, McGraw Hill
- S. R Deb, Robotic Technology and Flexible Automation, Tata Mc Hill
- Saeed B. Niku Introduction to Robotics, Wiley India
- Ashitava Ghosal, Robotics, Oxford
- Jagjit Singh Dhatterwal, Kuldeep Singh Kaswan, Reenu Batra, Nature Inspired Robotics, Chapman & Hall/CRC
- Alishba Imran, Keerthana Gopalakrishnan, AI for Robotics, Apress

4th Semester	**AGME 25406: Applied Thermodynamics Lab**				
Internal Marks:	**50**		**L**	**T**	**P**
External Marks:	**-**		**0**	**0**	**2**
Total Marks:	**50**		**Credits**		**1**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze the construction and operation of 2-stroke and 4-stroke petrol and diesel engines.
CO-2	Analyze valve timing diagrams and their effect on engine performance.
CO-3	Apply calorimeter techniques to determine the dryness fraction of steam.
CO-4	Apply Morse test for determination of engine power and mechanical efficiency.
CO-5	Evaluate the performance characteristics and heat balance of a single-cylinder diesel engine.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

Experiment	**CO**
To study the construction and operation of 2 stroke and 4 stroke Petrol and Diesel engines using actual engines or models.	CO-1
To study the actual valve timing diagram of a 4 stroke petrol and diesel engines and learn its impact on the performance of engine.	CO-2
To determine dryness fraction of steam using Separating Calorimeter.	CO-3
To determine the brake power, indicated power, friction power and mechanical efficiency of a multi-cylinder petrol engine running at constant speed (Morse Test).	CO-4
To conduct performance testing of a single-cylinder diesel engine from no load to full load (at constant speed) in terms of brake power, indicated power, mechanical efficiency, specific fuel consumption, break thermal efficiency and volumetric efficiency, and to make the heat balance sheet.	CO-5
To make a mini project that demonstrates a concept, based on the content of AGME 25301 & AGME 25401 (Applied Thermodynamics-I & Applied Thermodynamics-II).	CO-6

4th Semester	**AGME 25407: Automobile Engineering Lab**				
Internal Marks:	**50**		**L**	**T**	**P**
External Marks:	**-**		**0**	**0**	**2**
Total Marks:	**50**		**Credits**		**1**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze faults and troubleshooting methods in automotive cooling systems.
CO-2	Apply troubleshooting and adjustment techniques in automotive ignition systems.
CO-3	Analyze steering geometry parameters and their effect on vehicle performance.
CO-4	Apply fault diagnosis and servicing techniques in automotive braking systems.
CO-5	Analyze faults and operational issues in automobile transmission systems.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

Experiment	**CO**
Trouble shooting in cooling system of an automotive vehicle.	CO-1
Trouble shooting in the ignition system, setting of contact breaker points and spark plug gap.	CO-2
Demonstration of steering system and measurement of steering geometry angles and their impact on vehicle performance.	CO-3
Trouble shooting in braking system with specific reference to master cylinder, brake shoes, overhauling of system and the adjusting of the system and its testing.	CO-4
Fault diagnosis in transmission system including clutches, gear box assembly and differential.	CO-5
To make a mini project that demonstrates a concept, based on the content of AGME 25403 (Automobile Engineering)	CO-6

4th Semester	**AGME 25408: Theory of Machines Lab**				
Internal Marks:	**50**		**L**	**T**	**P**
External Marks:	**-**		**0**	**0**	**2**
Total Marks:	**50**		**Credits**		**1**

Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze the construction and working of various types of dynamometers.
CO-2	Analyze cam profile characteristics and follower displacement variations.
CO-3	Apply experimental methods to evaluate governor performance characteristics.
CO-4	Apply balancing principles for rotating masses in mechanical systems.
CO-5	Analyze gyroscopic effects and determine gyroscopic couple in rotating systems.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

Experiment	**CO**
To study the various types of dynamometers.	CO-1
To study cam profile analysis & draw graph between follower displacement and Angle of cam rotation.	CO-2
Conduct experiments on various types of governors and draw graphs between height and equilibrium speed of a governor.	CO-3
Balancing of rotating masses.	CO-4
To study the gyroscopic effect and determine the gyroscopic couple of a rotating disc.	CO-5
To make a mini project that demonstrates a concept, based on the content of AGME 25302 & AGME 25402 (Theory of Machines - I & Theory of Machines - II).	CO-6

4th Semester	**AGMC 25002: Essence of Indian Knowledge Tradition (Mandatory Course)**			
Internal Marks:	-	**L**	**T**	**P**
External Marks:	-	**1**	**0**	**0**
Total Marks:	-	**Credits**		**0**

Content	**CO**
Introduction to Traditional Knowledge: Define traditional knowledge, nature and characteristics, scope and importance, kinds of traditional knowledge, the physical and social contexts in which traditional knowledge develop, the historical impact of social change on traditional knowledge systems. Indigenous Knowledge (IK), characteristics, traditional knowledge vis-à-vis indigenous knowledge, traditional knowledge Vs western knowledge traditional knowledge vis-à-vis formal knowledge **Protection of Traditional Knowledge:** Protection of traditional knowledge: The need for protecting traditional knowledge Significance of TK Protection, value of TK in global economy, Role of Government to harness TK. **Legal Framework and TK:** The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, Plant Varieties Protection and Farmer's Rights Act, 2001 (PPVFR Act); The Biological Diversity Act 2002 and Rules 2004, the protection of traditional knowledge bill, 2016.Geographical indicators act 2003. **Traditional Knowledge and Intellectual Property** Certain non IPR mechanisms of traditional knowledge protection, Patents and traditional knowledge, Strategies to increase protection of traditional knowledge, global legal FORA for increasing protection of Indian Traditional Knowledge. **Traditional Knowledge in Different Sectors:** Traditional knowledge and engineering, Traditional medicine system, TK and biotechnology, TK in agriculture, Traditional societies depend on it for their food and healthcare needs, Importance of conservation and sustainable development of environment, Management of biodiversity, Food security of the country and protection of TK. 139.	-

References:

- **Traditional Knowledge System in India**, by Amit Jha, 2009.
- **Traditional Knowledge System and Technology in India** by Basanta Kumar Mohanta and Vipin KumarSingh, Pratibha Prakashan 2012.
- **Knowledge Traditions and Practices of India,** Kapil Kapoor1, Michel Danino2

Course Outcomes:

1. Understand the concept of traditional knowledge and its importance.
2. Know the need and importance of protecting traditional knowledge.
3. Know the various enactments related to the protection of traditional knowledge.
4. Understand the concepts of Intellectual property to protect the traditional knowledge.
5. Understand significance of traditional knowledge in different sectors.

(Annexure- III)

Synopsis Submission by M. Tech. (Mechanical Engineering) Candidates

The Board of Studies (BoS) was apprised regarding the synopsis submitted by the M. Tech. (Mechanical Engineering) candidates namely Mr. Harsimran Singh (2412619) and Mr. Sandeep Singh (2412621). The submitted research synopses were presented before the members for consideration and review.

The members discussed the proposed research work and observed that the topics are relevant to the area of specialization and are in accordance with the academic and research guidelines of I.K. Gujral Punjab Technical University for carrying out dissertation/research work.

Details of M. Tech. (Mechanical Engineering) Candidates with their title of research:

S. No.	University Roll No.	Name of Student	Name of Supervisor	Title
1	2412619	Harsimran Singh	Dr. Gurbhej Singh	Tribological Performance of Inconel 625 Reinforced with YSZ Cladding on Stainless Steel 304
2	2412621	Sandeep Singh	Dr. Gurbhej Singh	Influence of CeO_2 Reinforcement on the Corrosion Performance of Inconel 625 Composite Cladding on Steel

(Annexure- IV)

Results of Nov 2025 Examinations

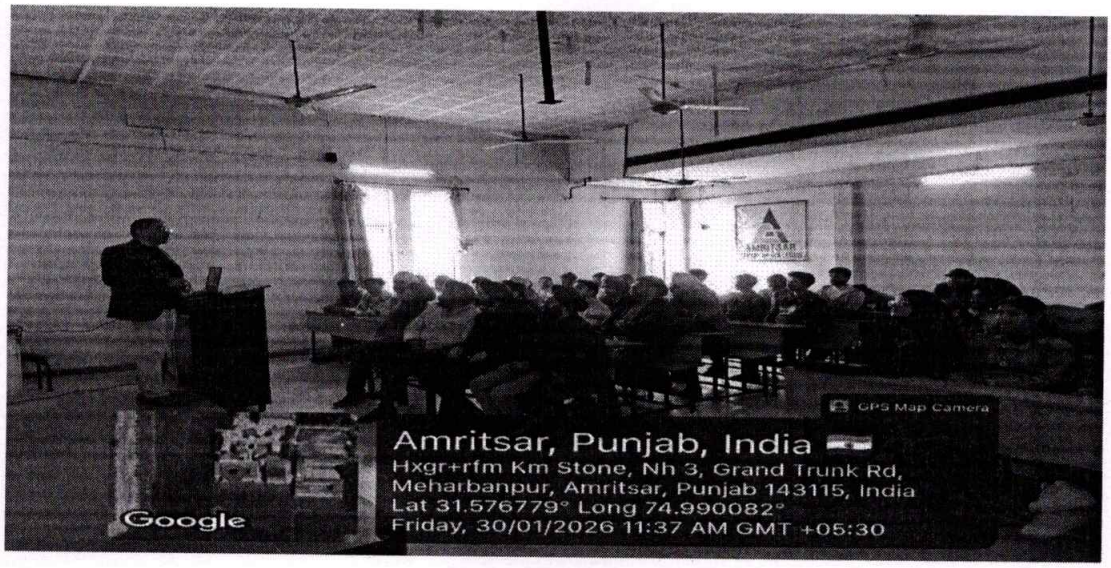
(Pass Percentage)

Examination	Department of Mechanical Engineering											
	2013-17	2014-18	2015-19	2016-20	2017-21	2018-22	2019-23	2020-24	2021-25	2022-26	2023-27	2024-28
Nov 14	42.19											
May 15	54.54											
Nov 15	50.62	50										
May 16	82.71	77.92										
Nov 16	79.88	36.84	48.30									
May 17	92.54	54.83	48.24									
Nov 17		85.54	52.29	48.54								
May 18		79.62	57.94	47.56								
Nov 18			83.65	70.37	55							
May 19			82.82	58.97	58.92							
Nov 19				79.07	67.27	55.88						
May 20				94.44	84.21	100						
Nov 20					88.68	93.75	70.83					
May 21					100	100	91.67					
Nov 21						59.38	43.48	23.81				
May 22						100	73.91	35.3				
Nov 22							69.56	57.89	37.5			
May 23							57.14	68.42	100			
Nov 23								80	71.42	50		
May 24								95	71.42	75		
Nov 24									83.33	100	50	
May 25									85.71	100	75	
Nov 25										**75**	**100**	**48**

(Annexure- V)

Major activities/events organized by the department:

1. Guest Lecture on Structural Dynamic Design through Finite Element Model Updating on 30/01/2026.



The Department of Mechanical Engineering organized a Guest Lecture on "Structural Dynamic Design through Finite Element Model Updating" on **30 January 2026** for the students of B.Tech. (ME/CE) and related branches.

The lecture was delivered by **Prof. Shankar Sehgal,** Professor & Coordinator (Head), Department of Mechanical Engineering at UIET, Panjab University, Chandigarh, India. The session focused on the fundamentals of structural dynamics, vibration analysis, and the importance of Finite Element Model Updating (FEMU) in improving the accuracy of structural models.

The speaker discussed practical applications of FEMU in various engineering fields and explained the correlation between experimental analysis and numerical simulations. The lecture provided students with exposure to modern analytical techniques and motivated them towards research and industry-oriented applications in structural engineering.

The session concluded with an interactive discussion and question-answer session, where students actively participated and clarified their queries.

(Annexure- V)

2. Guest Lecture on Fearless Future Blueprint on 16/02/2026

The Department of Mechanical Engineering organized a Guest Lecture on **"Fearless Future Blueprint"** on **16 February 2026** for the students of B.Tech. (ME/CE/EE) and related branches.

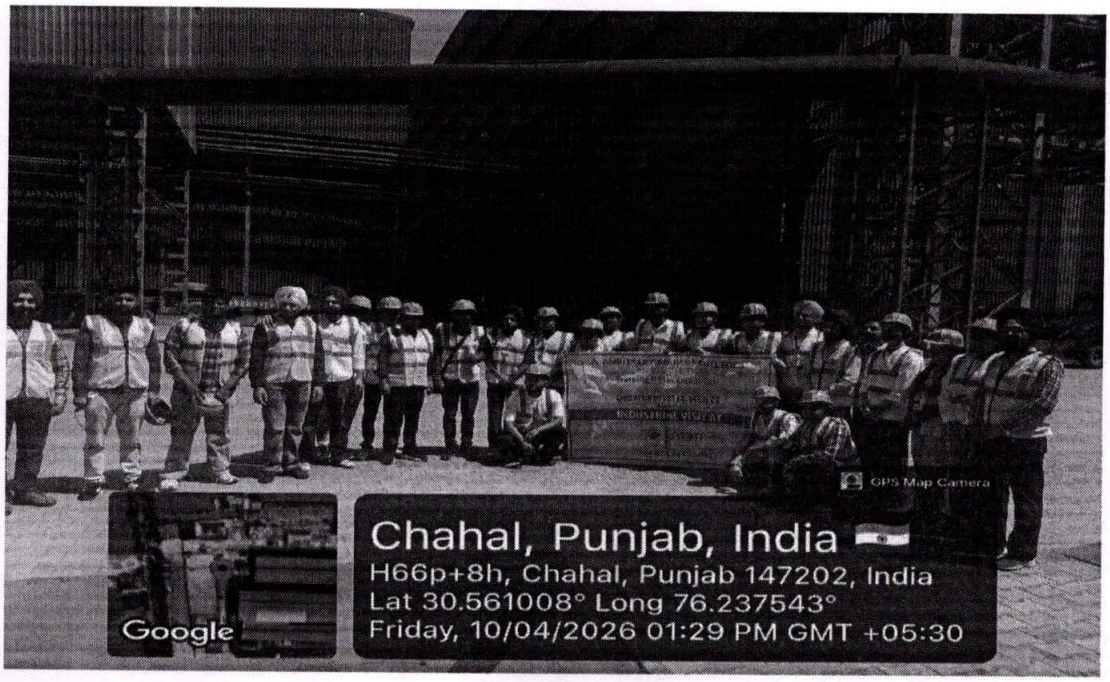
The session was conducted by **Ms. Shveta Virmani,** Founder & Director at Life Miracle, and **Ms. Seema Adnani,** CEO & Founder at Life Miracle. The lecture focused on overcoming fear, building self-confidence, and developing a growth mindset for personal and professional success.

The speakers guided students on creating a clear vision for their future and emphasized the importance of consistent action, goal setting, and self-development. Practical strategies for handling challenges, decision-making, and overcoming limiting beliefs were also discussed during the session.

The lecture motivated students to adopt a positive mindset and prepare a structured roadmap for their future growth and career development. The session concluded with an interactive discussion and active participation from students.

(Annexure- V)

3. Industrial Visit to Madhav KRG Group, Patiala on 10/04/2026



An Industrial Visit to **Madhav KRG Group, Patiala** was organized on **10 April 2026** for the students of Mechanical Engineering and Electrical Engineering departments. The visit was coordinated by **Mr. Sandeep Singh** and **Mr. Sanamdeep Singh**.

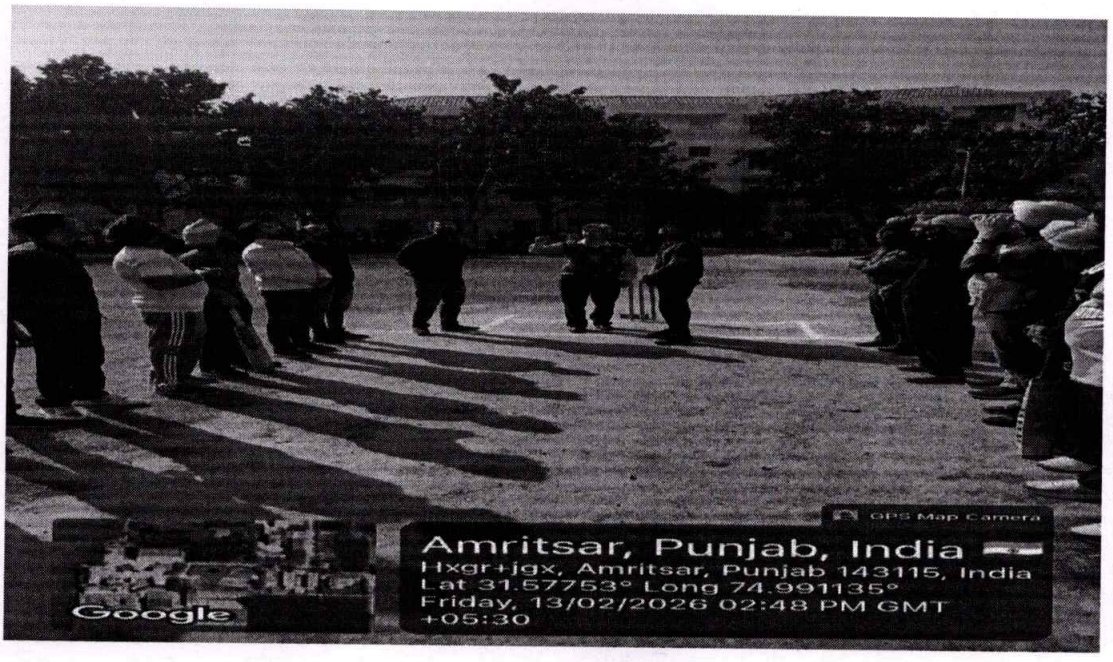
The objective of the visit was to provide students with practical exposure to industrial operations, manufacturing processes, production techniques, and modern industrial practices. During the visit, students observed various machines, equipment, and operational activities being carried out in the industry. Industry experts also interacted with the students and explained the working procedures, safety measures, and quality control practices followed in the organization.

The industrial visit helped students bridge the gap between theoretical knowledge and practical applications. It enhanced their understanding of industrial environments, technical processes, teamwork, and professional practices.

The visit concluded successfully with active participation and learning experiences for the students.

(Annexure- V)

4. Cricket Tournament on 12/02/2026 and 13/02/2026.



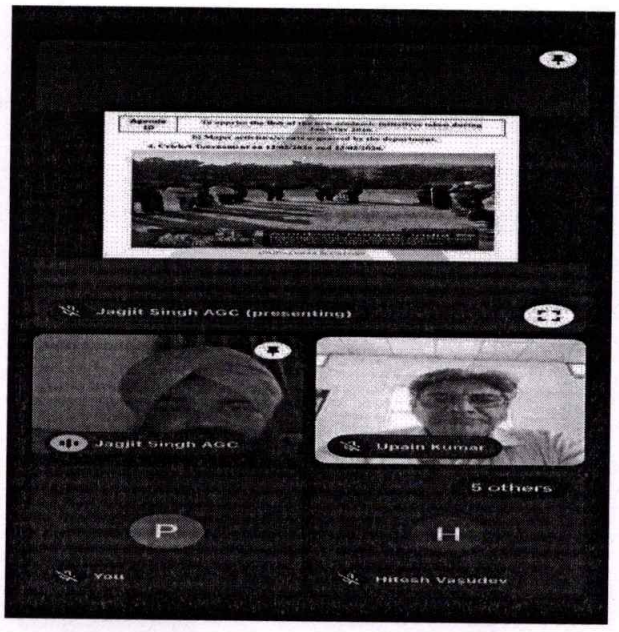
The Inter Department Cricket Tournament–2026 was organized from **12 February 2026 to 13 February 2026** with enthusiastic participation from students of different departments. The event aimed to promote sportsmanship, teamwork, and physical fitness among students. The tournament was coordinated by Mr. Banti Tiwari, Student Coordinator.

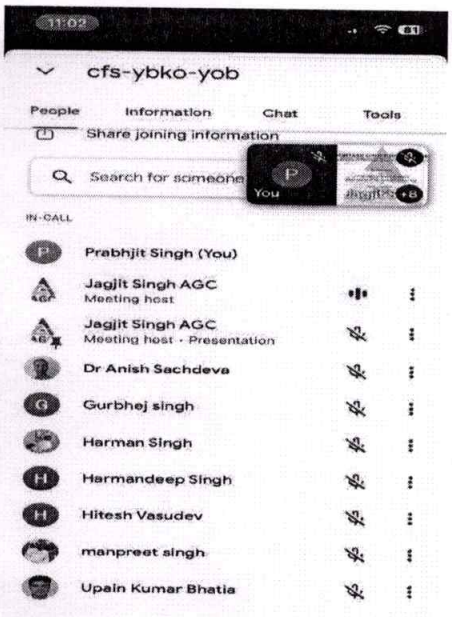
Three 10-over matches were conducted between the Mechanical and Civil Engineering teams. In the first match, Mechanical Engineering defeated Civil Engineering by scoring 140/8 against 128/10. In the second match, Civil Engineering won by scoring 132/3 against Mechanical Engineering's 124/5. In the final match, Mechanical Engineering secured victory with a score of 156/6, while Civil Engineering scored 144/10.

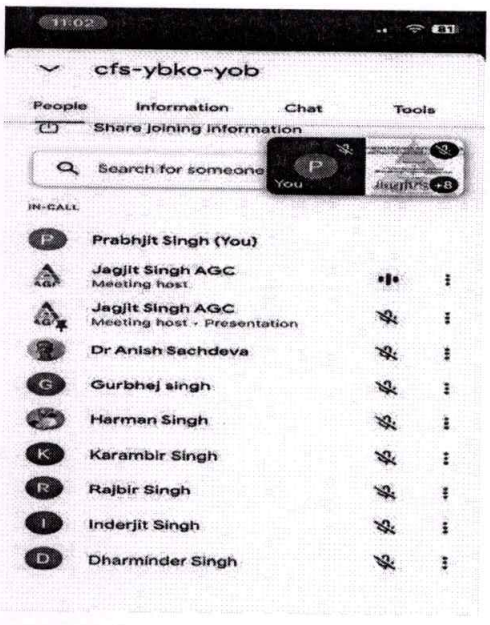
The tournament concluded successfully with active participation and great enthusiasm among students. The event encouraged discipline, coordination, teamwork, and sportsmanship spirit among the participants.

Glimpses


11:26
cfs-ybko-yob
People
Information
Chat
Tools
Share joining informa
Search for someone
IN-CALL
Prabhjit Singh (You)
Jagjit Singh AGC
Meeting host
Jagjit Singh AGC
Meeting host - Presentation
Gurbhej singh
Harman Singh
Harmandeep Singh
Hitesh Vasudev
Jagjeet singh
manpreet singh
Upain Kumar Bhatia


Jagjit Singh AGC (presenting)
Jagjit Singh AGC
Upain Kumar
5 others
You
Hitesh Vasudev


11:02
cfs-ybko-yob
People
Information
Chat
Tools
Share joining information
Search for someone
IN-CALL
Prabhjit Singh (You)
Jagjit Singh AGC
Meeting host
Jagjit Singh AGC
Meeting host - Presentation
Dr Anish Sachdeva
Gurbhej singh
Harman Singh
Harmandeep Singh
Hitesh Vasudev
manpreet singh
Upain Kumar Bhatia


11:02
cfs-ybko-yob
People
Information
Chat
Tools
Share joining information
Search for someone
IN-CALL
Prabhjit Singh (You)
Jagjit Singh AGC
Meeting host
Jagjit Singh AGC
Meeting host - Presentation
Dr Anish Sachdeva
Gurbhej singh
Harman Singh
Karambir Singh
Rajbir Singh
Inderjit Singh
Dharminder Singh

AMRITSAR GROUP OF COLLEGES NAAC Grade "A" 3rd Cycle | Autonomous College	**Payment of Remuneration for BoS meeting** **AGC/ME/017** **Date: 15.05.2026**	**Department of Mechanical Engineering**

To

The Registrar
Amritsar Group of Colleges
Amritsar

Subject: To release the remuneration of BoS Experts for the meeting held on 14.05.2026.

The 17th Meeting of the Board of Studies in **Mechanical Engineering**, Amritsar Group of Colleges was held in **Online mode** on 14.05.2026 (Thursday) at 11:00 am. The remuneration of the following external experts may kindly be released:

1. Name of BoS expert: **Dr. Anish Sachdeva**, Professor, Department of Mechanical Engineering, NIT Jalandhar.

Bank details:

Name	**Anish Kumar Sachdeva**
Account Number	55088215326
Bank Name	State Bank of India, NIT(REC) Jalandhar
IFSC	SBIN0050841
Remuneration Amount	Rs. 3000/-
Total amount to be paid	Rs. 3000/- Rs. Three thousand only.

2. Name of BoS expert: **Dr. Hitesh Vasudev**, Professor, School of Mechanical Engineering, LPU Phagwara.

Bank details:

Name	**Hitesh Vasudev**
Account Number	0456001500004689
Bank Name	PNB Branch Hoshiarpur
IFSC	PUNB0020500
Remuneration Amount	Rs. 3000/-
Total amount to be paid	Rs. 3000/- Rs. Three thousand only.

3. Name of BoS expert: **Mr. Manpreet Singh,** Deputy Manager, SAL Automotive Ltd., Nabha.

Bank details:

Name	**Manpreet Singh**
Account Number	919010067157183
Bank Name	Axis Bank, Nabha
IFSC	UTIB0000098
Remuneration Amount	Rs. 3000/-
Total amount to be paid	Rs. 3000/- Rs. Three thousand only.

15/05/2026

Dr. Upaily Kumar Bhatia
Head and Chairman (BoS)
Department of Mechanical Engineering

15/05/26