

Following attended the Meeting of Board of Studies (Mechanical Engineering) held on December 11, 2020 at 3:00 pm in the Committee Room of Department of Mechanical Engineering

Sl.No.	Name with affiliation		Signature
1	Prof. Rajive Gupta, Head, Department of Mechanical Engineering	Chairman	Rajive 11/12/2020
2	Prof. J. Ramkumar, Dept. of Mech. Engg., IIT, Kanpur	External Member	
3	Prof. Avinash K. Agarwal, Dept. of Mech. Engg., IIT, Kanpur	External Member	Avinash Kumar Agarwal
4	Prof. Arun K. Saha, Dept. of Mech. Engg., IIT Kanpur	External Member	asaha
5	Sh. Kush Agarwal, Ex Student, Dept. of Mechanical Engg., HBTU	External Member	
6	Sh. Rahul Seth, Ex Student, Dept. of Mechanical Engg., HBTU	External Member	
7	Prof. Onkar Singh, Department of Mechanical Engineering	Member	
8	Prof. Anand Kumar, Department of Mechanical Engineering	Member	Anand 11/12/20
9	Prof. S.K. Singhal, Department of Mechanical Engineering	Member	S.K. 11/12/20
10	Sh. J. Bhaskar, Associate Prof., Department of Mechanical Engineering	Member	
11	Dr. S.K.S. Yadav, Asstt. Prof., Department of Mechanical Engg.	Member	S.K.S. 11/12/20
12	Dr. V.P. Singh, Asstt. Prof., Department of Mechanical Engg.	Member	V.P. 11/12/20
13	Sh. R.K. Ambikesh, Asstt. Prof., Dept. of Mechanical Engg.	Member	R.K. 11-12-2020
14	Sh. Saurabh Sangal, Asstt. Prof., Department of Mechanical Engg.	Member	Saurabh 11/12/2020
15	Sh. Deepak Singh, Asstt. Prof., Department of Mechanical Engg.	Member	Deepak 11/12/2020
16	Sh. Vivek Guha, Asstt. Prof., Department of Mechanical Engg.	Member	Vivek 11/12/2020

DEPARTMENT OF MECHANICAL ENGINEERING

Dated: October 28, 2020

Minutes of 4th BOS meeting - October 28, 2020 at 3:00 pm

An online/offline 4th BOS meeting was convened on October 28, 2020 regarding course structure and syllabus for the complete B.Tech Mechanical Engineering programme. The following external experts and faculty of the departments were present.

Name	Details
External Members	
1. Prof. J. Ram Kumar	Professor, MED, IIT Kanpur
2. Prof. Avinash Kumar Agarwal	Professor, MED, IIT Kanpur
3. Prof. Arun K. Saha	Professor, MED, IIT Kanpur
4. Sri Kush Agrarwal	Ex Student HBTU Kanpur
5. Sri Rahul Seth	Ex Student HBTU Kanpur
Internal Members	
1. Dr. Rajive Gupta	Professor & HOD ME
2. Dr. S.K.Singhal	Professor
3. Dr. Anand Kumar	Professor
4. Dr. Onkar Singh	Professor
5. Sri Jitendra Bhaskar	Associate Professor
6. Dr. Vinay Pratap Singh	Assistant Professor
7. Sri. R. K. Ambikesh	Assistant Professor
8. Dr. S.K.S.Yadav	Assistant Professor
9. Sri Sauabh Sangal	Assistant Professor (NPIU)
10. Sri Deepak Singh	Assistant Professor (NPIU)
11. Sri. Vivek Guha	Assistant Professor (NPIU)

Agenda point 4.1: The respected members of BOS were apprised that the Academic Council of HBTU Kanpur (9th meeting on 17th Sept 2020) has approved the course structure and syllabus from I semester to III semester as proposed in the 3rd BOS meeting held on 18th Aug 2020.

Agenda point 4.2: The external members advised to make in-house deliberations amongst the faculty members of the department and the meeting was adjourned.

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11-12-2020

Avinash Kumar Agarwal
11.12.2020

R. Gupta
28.10.2020
(Dr. Rajive Gupta)
Professor & Head
MED

11.12.20

11/12/20

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Minutes of the 4th Meeting of Board of Studies held in Department of Mechanical Engineering on December 11, 2020 at 3:00 PM.

Following were present in the meeting:

01. Prof. Rajive Gupta, Head, Dept. of Mech. Engg., HBTU, Kanpur
02. Prof. J. Ramkumar, Dept. of Mech. Engg., IIT, Kanpur
03. Prof. Avinash Kumar Agarwal, Dept. of Mech. Engg., IIT, Kanpur
04. Prof. Arun K. Saha, Dept. of Mech. Engg., IIT, Kanpur
05. Sh. Kush Agarwal, Ex Student, Dept. of Mech. Engg., HBTU, Kanpur
06. Prof. Onkar Singh, Dept. of Mech. Engg., HBTU, Kanpur
07. Prof. S.K. Singhal, Dept. of Mech. Engg., HBTU, Kanpur
08. Prof. Anand Kumar, Dept. of Mech. Engg., HBTU, Kanpur
09. Dr. V.P. Singh, Asstt. Prof., Dept. of Mech. Engg., HBTU, Kanpur
10. Sh. R.K. Ambikesh, Asstt. Prof., Dept. of Mech. Engg., HBTU, Kanpur
11. Dr. S.K.S. Yadav, Asstt. Prof., Dept. of Mech. Engg., HBTU, Kanpur
12. Sh. Saurabh Sangal, Asstt. Prof. (NPIU), Dept. of Mech. Engg., HBTU, Kanpur
13. Sh. Deepak Singh, Asstt. Prof. (NPIU), Dept. of Mech. Engg., HBTU, Kanpur
14. Sh. Vivek Guha, Asstt. Prof. (NPIU), Dept. of Mech. Engg., HBTU, Kanpur

- Chairman
- External Member
- External Member
- External Member
- External Member
- Member
- Member
- Member
- Member
- Member
- Member
- Special Invitee
- Special Invitee
- Special Invitee

Minutes of the meeting are as under:


1. Head of Department welcomed all the members in the Meeting of Board of Studies and presented the proposed course structure and syllabus for B.Tech. (Mechanical Engineering) programme. It was informed that the B.Tech. (Mechanical Engineering) course structure and syllabus for Semester I to III has already been approved by the Academic Council. The remaining Course Structure and Syllabus with Course Outcomes for B.Tech. (Mechanical Engineering) Semester IV to VIII was presented for deliberation and discussion in the meeting.
2. The Board of Studies observed that in view of unavailability of the scope, the enclosed B.Tech Mechanical Engineering course structure and syllabus with Course Outcomes (Semester IV to VIII) be proposed with the request to reconsider the removal of tutorials and laboratory components in respect to the existing curriculum. The need of addition of Tutorials/Practicals was felt in some of the courses for which the department may be given flexibility to decide its subject credits.
3. After deliberations and discussions the Board of Studies unanimously agreed to the enclosed B.Tech Mechanical Engineering course structure and syllabus with Course Outcomes (Semester IV to VIII) in light of item no. 2 above.


Meeting ended with thanks to the chair.


(Saurabh Sangal)

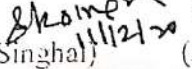

(Deepak Singh)

(Vivek Guha)


(S.K.S. Yadav)

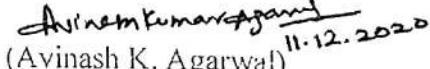

(R.K. Ambikesh)

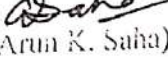

(V.P. Singh)


(S.K. Singhal)


(Anand Kumar)

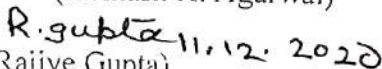

(Onkar Singh)


(Avinash K. Agarwal)


(Arun K. Saha)

(J. Ramkumar)

(Kush Agarwal)


(Rajive Gupta)

11-12-2020

Detailed Course Structure and Syllabus

For

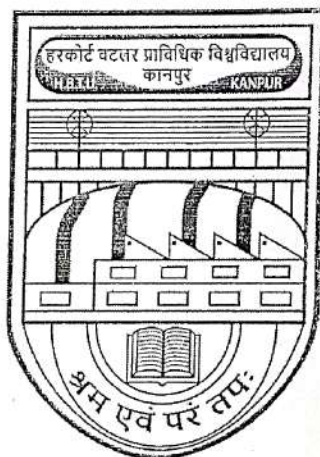
B. Tech. Mechanical Engineering

I Sem to VIII Sem

Effective for

Students admitted in the Academic Session 2019-20

onwards



Department of Mechanical Engineering

School of Engineering

Harcourt Butler Technical University,

Kanpur Kanpur-208002

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1. About the Department

The Department of Mechanical Engineering was established in 1964. It runs a regular B.Tech programme in Mechanical Engineering with a student intake of 60. The Department runs a regular M.Tech programme in Computer Aided Design with an intake of 18 students. Department also runs two part time programmes M.Tech (Mechanical Engineering Design) and M.Tech (Industrial System Design) with 10 seats each. Department is a QIP center and has two Ph.D seats under this scheme of MHRD, Govt. of India. Five Ph.D seats are also available in full time / part time. Department has committed and highly qualified faculty members and most of them have obtained their Ph.D from reputed institutions / universities of the country. They take care of all the academic and other requirements of the students and expose them to the latest developments, knowhow and skill enhancement.

2. Vision

To produce quality mechanical engineer with knowledge, skill and creativity to cater to the needs of the industry and the society.

3. Mission

M-1: To offer academic programme in tune with the requirements of the industry.

M-2: To undertake research and development activities for solving real life problems.

M-3: To provide conducive environment for promoting creativity and innovation.

4. Program Educational Objectives (PEOs)

PEO 1: To impart knowledge and skill in the students to understand basic mechanical engineering concepts.

PEO 2: To inculcate creativity and analytical power to solve real life engineering problems.

PEO 3: To provide ample opportunities, training and exposure to the students to work as a team and to develop leadership qualities.

PEO 4: To develop entrepreneurial capabilities in the students.

PEO 5: To encourage and motivate the students to imbibe the art of self-learning.

PEO 6: To prepare the students for the service in the industry and society by continuously updating the curriculum.

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5. Program Outcomes (POs)

Engineering graduates will be able to:

- PO 1 **Engineering knowledge:** An ability to apply basic knowledge of science, mathematics and engineering fundamentals in the field of mechanical engineering.
- PO 2 **Problem analysis:** An ability to identify, formulate, review research literature and analyze mechanical engineering problems using basics principles of science, mathematics and engineering.
- PO 3 **Design / development of solutions:** An ability to design for complex mechanical engineering problems using basic design concepts, analyze and process to meet the desired needs with in realistic constraints such as manufacturability, durability, sustainability and economy with appropriate consideration for the public health, safety, cultural, societal, and environmental considerations.
- PO 4 **Conduct investigations of complex problems:** An ability to design and conduct experiments using research-based knowledge and methods including design of experiments, analyze, interpret the data and results with valid conclusion.
- PO 5 **Modern tool usage:** An ability to apply the modern tools and apply appropriate techniques to synthesize, model, design, analyze, verify and optimize to solve complex mechanical engineering problems within defined specification by using suitable modern tools to satisfy the needs of the society within realistic constraints such as social, economical, political, ethical, health, safety and manufacturing.
- PO 6 **The Engineer and Society:** An ability to understand the impact of mechanical engineering solutions globally, in terms economic, societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- PO 7 **Environment and sustainability:** An ability to understand the principles, commitment and practice to improve product sustainable development globally in mechanical engineering with minimal environmental effect.
- PO 8 **Ethics:** An ability to understand and apply ethical principles and commitment to address professional ethical responsibilities of an engineer.
- PO 9 **Individual and team work:** An ability to function efficiently as an individual and as a group member in a team in multidisciplinary activities
- PO 10 **Communication:** An ability to communicate, comprehend and present effectively with engineering community and the society at large on complex engineering activities by receiving clear instructions for preparing effective reports and design documentation.
- PO 11 **Project management and finance:** An ability to acquire and demonstrate the knowledge of contemporary issues related to finance and managerial skills to bring up entrepreneurs and entrepreneurship.
- PO 12 **Life-long learning:** An ability to recognize and adapt to emerging field of application in engineering and technology by developing self-confidence for continuing education and lifelong learning process.

Handwritten signatures and initials:
A large signature on the left, followed by initials "DZ", "B", and "Y".
A signature "Rupke" with the date "11/12/2020" written below it.
Other smaller initials and marks are scattered at the bottom of the page.

6. Program Specific Outcomes (PSOs)

By the completion of B. Tech. Mechanical Engineering program, the students will achieve the following program specific outcomes:

- PSO 1: Identify, formulate and analyze complex engineering problems in thermal engineering, design engineering, manufacturing engineering and allied domains.
- PSO 2: An ability to find out, articulate the local industrial problems and solve with the use of mechanical engineering knowledge and skills for realistic outcomes.
- PSO 3: An ability of collaborative learning to find out effective and optimal solution for sustainable growth of mechanical systems.

7. Consistency/Mapping of PEOs with Mission of the Department

PEO Statements	M1	M2	M3
PEO1: To develop knowledge and skill in the student to understand basic mechanical engineering concepts.	2	1	1
PEO2: To inculcate creativity and analytical power to solve real life engineering problems.	2	3	3
PEO3: To provide ample opportunities, training and exposure to work as a team and to develop leadership qualities in the students.	2	3	3
PEO4: To develop entrepreneurship capabilities in the students.	1	3	3
PEO5: To encourage and motivate learner's in the art of self-learning.	1	3	2
PEO6: : To prepare students for successful career in the industry by identifying and upgrading the gaps between the curriculum and industries requirement.	2	3	3

Note:-M1, M2,...Mn are distinct elements of mission statement. Enter correlation levels 1, 2 or 3 as defined below:

1:Slight (low) 2: Moderate (medium) 3: Substantial (high) *If there is no correlation, put "-".*

Note: Wherever the word "process" is used in this document, its meaning is process formulation, notification to all the concerned and implementation.

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Revised
11.12.2020

8. Components of the curriculum

Program curriculum grouping based on course components

Different Types of Courses	Minimum Credits (As per Ordinance)	Credits as per Course Structure (Effective for the Session 2019-20 for new entrants) of Mechanical Engineering								Total
		Semester								
		I	II	III	IV	V	VI	VII	VIII	
BSC- Basic Science Course	24	8	8	4	4					24
ESC-Engineering Science Course	29	7	12	5	5					29
HSMC- Humanities, Social Science & Management Course	11	5		3	3					11
PCC-Programme Core Course	63			10	10	19	19	5		63
PEC-Programme Elective Course	14							6	8	14
OEC-Open Elective Course	13					3	3	3	4	13
Seminar	2							2		2
Industrial Training	2							2		2
Project	14							4	10	14
MC-Mandatory Course	No Credit		2	2	2					
Total	172	20	20	22	22	22	22	22	12	172

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Revised
11.12.2025

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