



### List of New Course(s) Introduced

Department : **Mechanical Engineering**

Programme Name : **B.Tech.**

Academic Year : **2017-18**

### List of New Course(s) Introduced

Sr. No.	Course Code	Name of the Course
01.	ME5TPE21	Industrial Engineering
02.	ME6TOE24	Safety Engineering
03.	ME6LPS01	Seminar

विभागाध्यक्ष / Head  
यांत्रिकी अभियांत्रिकी विभाग / Mechanical Engg. Dept.  
प्रौद्योगिकी संस्थान / Institute of Technology  
गुरु घासीदास वि.वि. / Guru Ghasidas V.V.  
कोनी, बिलासपुर (छ.ग.) / Koni, Bilaspur (C.G.)



2016-17

DEPARTMENT OF MECHANICAL ENGINEERING  
SCHOOL OF ENGINEERING & TECHNOLOGY GGV, BILASPUR CG  
MINUTES OF MEETING OF BOARD OF STUDIES

A meeting of board of studies of Department of Mechanical Engineering was held on 29/05/2017 at 11:00 AM at Room no.G-25 of New-IT building. Following members were present:-

1. Prof. N.D. Mittal,  
Professor (Mechanical Engineering Department)  
Maulana Azad National Institute of Technology, Bhopal (M.P.)  
(External Expert Member)
2. Mr. Vivek Singh,  
Executive Engineer, (Mech), Damodar Valley Corporation,  
Koderma Thermal Power Station, Jharkhand  
(Member of B.O.S. as an Industry Expert)
3. Dr. Rajesh Kuamr Bhushan,  
H.O.D. Department Mechanical Engineering  
(Chairman Board of Studies)
4. Mr. Prashant Kumar Jangde  
Assistant Prof. Department of Mechanical Engineering  
(Member Board of Studies)

In the meeting syllabus and scheme of B.Tech (Mechanical Engineering) from V Semester to VI Semester have been discussed in detail as per Choice Based Credit System (CBCS). The syllabus and scheme of B.Tech (Mechanical Engineering) V<sup>th</sup> Semester and VI<sup>th</sup> Semester have been approved by the B.O.S. members, Revised syllabus is attached with the minutes. Syllabus from VII semester to VIII semester will be put in forthcoming B.O.S. meeting for approval after required correction. The seminar subject (EIPHDS01) is already approved in the scheme for pre-PhD course work, this may be read as qualified/not qualified. Corrected scheme is attached with minutes.

Gausl  
29-05-17

Jangde  
29.05.17

Singh  
29/05/17

NBRL  
29.5.17

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3RD YEAR 2017

Department of Mechanical Engineering, School of Engineering & Technology, GGV, Bilaspur (C.G.)

Changes in syllabus of B. Tech. 3<sup>rd</sup> year (V & VI Sem) Mechanical Engineering BoS 29-05-17

The following changes have been incorporated in the course syllabus of B. Tech. 3<sup>rd</sup> Year Mechanical Engineering as per the discussion in BoS meeting held in the department. The complete V and VI semester syllabus along with the evaluation scheme is appended for your reference. Salient aspects of the revisions made are listed below.

1. Industrial Engineering subjects remove from compulsory subject and added as professional Elective in 5<sup>th</sup> semester.
2. 1 subject added from open elective in 5<sup>th</sup> semester (Innovative & Entrepreneurial Skills).
3. Measurement Metrology & Control subject removed from compulsory subject to professional elective subject in 6<sup>th</sup> semester.
4. 1 subject added as an open elective in 6<sup>th</sup> semester (Safety Engineering).
5. Seminar is added in 6<sup>th</sup> semester as a lab.
6. Total subject credits in 6<sup>th</sup> semester have been increased from 20 to 21 credits.

**Objectives of the Program**

- I. To produce competent, creative and imaginative engineers.
- II. To create an intellectual reservoir to meet the growing engineer demands of the nation.
- III. To inculcate in the student concepts and intellectual skills, courage and integrity.
- IV. To help the graduates to make their way in the society with proper scientific and technical knowledge in mechanical engineering.
- V. To help the graduates in design and analysis of mechanical systems with strong fundamentals and methods of synthesis.

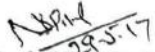
**Learning Outcomes**


- i. Ability to apply knowledge of mechanical engineering fundamentals for solving problems.
- ii. Ability to design and develop mechanical components and processes to meet desired needs considering various aspects.
- iii. Ability to understand and investigate complex mechanical engineering problems experimentally.
- iv. Ability to develop sustainable solutions and understand their impact on society and environment.
- v. Ability to function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.
- vi. Ability to comprehend, design documentation, write effective reports, make effective presentations to the engineering community and society at large.
- vii. Ability to apply knowledge of engineering to lead teams and manage projects in multidisciplinary environments.
- viii. Ability to engage in independent and life-long learning in the broad context of technological changes and advancements.


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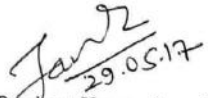


- The B.O.S. meeting was concluded with vote of thanks.

  
29.5.17  
Prof. N.D. Mittal,  
Professor (Mechanical  
Engineering Department)  
Maulana Azad National  
Institute of Technology,  
Bhopal (M.P.)  
(External Member))

  
29/05/17  
Mr. Vivek Singh, Executive  
Engineer, (Mech), Damodar  
Valley Corporation,  
Koderma Thermal Power  
Station, Jharkhand  
(Member of B.O.S. as an  
Industry Expert)

  
29/05/17  
Dr. Rajesh Kumar Bhushan,  
H.O.D. Department of  
Mechanical Engineering  
(Chairman Board of Studies)

  
29.05.17  
Mr. Prashant Kumar Jangde  
Assistant Prof. Department of  
Mechanical Engineering  
(Member Board of Studies)



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Department of Mechanical Engineering, School of Engineering & Technology, GGV, Bilaspur (C.G.)



INSTITUTE OF TECHNOLOGY, (SCHOOL OF ENGINEERING & TECHNOLOGY)  
GURU GHASIDAS VISHWAVIDYALAYA, (A CENTRAL UNIVERSITY)  
DEPARTMENT OF MECHANICAL ENGINEERING  
STUDY & EVALUATION SCHEME  
W.F.T. SESSION 2017-2018

Year: B.Tech. III year  
SEMESTER-V

S. No.	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME			CREDITS
			L	T	P	INTERNAL ASSESSMENT	ESE	SUB-TOTAL	
1.	ME5TPC07	Machine Design-I	3	1	0	40	60	100	4
2.	ME5TPC08	Mechanics of Solid-II	3	1	0	40	60	100	4
3.	ME5TPC09	Fluid Machinery	3	0	0	40	60	100	3
4.	ME5TPC10	Internal Combustion Engine	3	0	0	40	60	100	3
5.	ME5TPE02	Professional Elective-PE2	3	0	0	40	60	100	3
6.	ME5TOE01	Open Elective-OE1	3	0	0	40	60	100	3
Total			18	02	0	240	360	600	20
<b>PRACTICALS</b>									
1.	ME5LPC09	Fluid Machinery lab	-	-	3	30	20	50	2
2.	ME5LPC10	Internal Combustion Engine Lab	-	-	3	30	20	50	2
Total					6	60	40	100	04

Total Credits: 24

Total Contact Hour: 26

Total Marks: 700

\*INTERNAL ASSESSMENT-(MSE- Mid Semester Examination of 20 Marks, Two Class Test/Assignment/Quizzes/Group Discussion etc.)

L-LECTURE, T-TUTORIAL, P-PRACTICAL, CT-CLASS TEST, E.S.E -END SEMESTER EXAMINATION.

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Department of Mechanical Engineering, School of Engineering & Technology, GGV, Bilaspur (C.G.)

Professional Elective-PE2	Open Elective-OE1
MESTPE02	MESTOE01
MESTPE21 Industrial Engineering	MESTOE11 Innovation and Technology Management
MESTPE22 Technology and Management	MESTOE12 Innovative & Entrepreneurial Skills
MESTPE23 Simulation Modeling and Analysis	MESTOE13 Financial Management
MESTPE24 Material Management	MESTOE14 Management Information System

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STUDY & EVALUATION SCHEME  
W.E.E. SESSION 2017-2018

for: B.Tech. III year  
SEMESTER-VI

S. No.	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME			CREDITS
			L	T	P	INTERNAL ASSESSMENT	ESE	SUB-TOTAL	
1.	ME6TPC11	Dynamics of Machine	3	1	0	40	60	100	4
2.	ME6TPC12	Machine Design-II	3	1	0	40	60	100	4
3.	ME6TPC13	Heat & Mass Transfer	3	1	0	40	60	100	4
4.	ME6TPC14	Manufacturing Science-II	3	0	0	40	60	100	3
5.	ME6TPE03	Professional Elective-PE3	3	0	0	40	60	100	3
6.	ME6TOE02	Open Elective-OE02	3	0	0	40	60	100	3
Total			18	3		240	360	600	21
PRACTICALS									
7.	ME6LPC11	Dynamics of Machine Lab	-	-	3	45	30	75	2
8.	ME6LPC13	Heat & Mass Transfer Lab	-	-	3	45	30	75	2
9.	ME6LPS01	Seminar			3	50	-	50	2
Total					9	140	60	200	6

Total Credits: 27

Total Contact Hour: 30

Total Marks: 800

\*INTERNAL ASSESSMENT-(MSE- Mid Semester Examination of 20 Marks, Two Class Test/Assignment/Quizzes/Group Discussion etc.)

L-LECTURE, T-TUTORIAL, P-PRACTICAL, CT-CLASS TEST, E.S.E -END SEMESTER EXAMINATION.

Professional Elective -PE3	Open Elective-OE2
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ME6TPE03	ME6TOE02
ME6TPE31 Measurement Metrology and Control	ME6TOE21 Enterprise Resource Planning
ME6TPE32 Mechatronics	ME6TOE22 Decision support and Executive Information system
ME6TPE33 Industrial Automation	ME6TOE23 Soft Computing
ME6TPE34 Advanced Manufacturing System	ME6TOE24 Safety Engineering

**Note:** After the completion of semester exams, students will have to join industrial training of about minimum 4 weeks (5day week and 8 hours a day) in industry. The presentation and report of this will be given in 7th semester during defined schedule by Head of Department. The due credit will be awarded in 7th semester.

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Department of Mechanical Engineering

**ME5TPE21 INDUSTRIAL ENGINEERING (Professional Elective)**

**Unit-I**

**Introduction History & Development of industrial engineering:** Productivity definition; means of increasing productivity; work study definition; productivity and work study; work of F.W. Taylor; Frank and Lillian Gilberth and their contribution, Productivity measures and its models, productivity index & productivity cycle.

**Unit-II**

**Method Study:** Definition & basic procedure, selection of jobs, recording technique; micro motion, study; Therbligs; cyclograph and Chronocyclo-graph; principle of motion economy: design of work place layout; analysis in the form of chart; operation chart; flow process chart; flow diagram; string diagram; man machine chart; two hand chart; Simo chart.

**Unit-III**

**Work Measurement:** Definition, objectives, application, number of cycle to be timed, time study equipment, performance rating; allowances; number of cycle to be studied; determination of standard time; predetermined motion time systems. Conducting work sampling study and establishing standard time.

**Unit-IV**

**Wages & Incentives:** Characteristics of a good wage or incentive system, method of wage payment. Concept of wage incentive schemes; financial and non-financial; Taylor differential piece rate, Halsey premium plane; Merric's multiple piece rate system. Ergonomics, work space dimension, design of work place, environmental stresses & impacts on human work.


**Unit-V**

**Value Engineering:** Concept of VA, VE, VE team, job plan value test, P.L.C. of product, FOST Techniques.

**Factory legislation:** Various Act related to factory, minimum wage out, ESI Act, health provision Act, Safety act.

**Text Books:**

1. ILO, Bobbay, Introduction to work study, Universal publishing corporation
2. Mundel, Motion and time study, Prentices Hall India
3. Ralph M. Barnes, Motion and Time Study, John Wiley and sons
4. M.I Khan, Industrial Engineering, New Age Publication
5. M. Telsang, Industrial Engineering and Production Management, S.Chand

  
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Department of Mechanical Engineering

**ME6TOE24 SAFETY ENGINEERING (Open Elective)**

**UNIT – I**

Safety philosophy and principles of accident prevention Introduction, accident, injury, unsafe act, unsafe condition, reportable accidents, need for safety, break down of accidents, hazardous industries. Theories & principle of accidents casualty, cost of accident, computation of cost, utility of cost data. Accident reporting & Investigation, Identification of the key facts, corrective actions, classification of facts. Regulation- American (OSHA) and Indian Regulation.

**UNIT – II**

Safety Management Division of responsibility, location of Safety function, size of safety department, qualification, for safety specialist, safety committee – structure and functions.

**UNIT – III**

Safe working condition and their development Standard Operating Procedure (SOP) for various mechanical equipments, incidental safety devices and methods, statutory of provisions related to safeguarding of Machinery and working condition.

**UNIT – IV**

Safety in Operation and Maintenance Operational activities and hazards, starting and shut down procedures, safe operation of pumps, compressor, heaters, reactors, work permit system, entry into confined spaces.

**UNIT – V**

Safety in Storage and Emergency Planning Safety in storage, handling of chemicals and gases, storage layout, ventilation, safety in chemical laboratories, emergency preparedness on site plan, off site plan, toxic hazard control.

**TEXT BOOKS**

1. Pybus R - Butterworth Heinmann, Safety Management : Strategy And Practice - Oxford
2. H.H. Fawcett and Wood, Safety and Accident Prevention in Chemical Operation –

**REFERENCE BOOKS**

1. Trafdar N K, Tarafdar K J – Industrial Safety Management- Dhapat Rai, New Delhi
2. Krishna, N V- Safety Management In Industry- Jaico Publication House; New Delhi
3. Nagraj, J N & Rameshchandar, R V -Industrial Safety And Pollution Control Hand Book - Associate Publisher, Securdabad
4. Fire and Safety Manual Refineries and Petrochemical Panel - National Safety Council, Bombay
5. Safety in Use of Compressed Gas Cylinders - National Safety Council, Bombay

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