Bharati Vidyapeeth

(Deemed to be University)

College of Engineering, Pune- 411043

The Structure of the Curriculum: 2014 Course

Choice Based Credit System (CBCS)

B. TECH. MECHANICAL: SEMESTER- VII & VIII

Bharati Vidyapeeth
(Deemed to be University)
College of Engineering, Pune
Department of Mechanical Engineering

Vision of the Bharati Vidyapeeth (Deemed to be University) College of Engineering is:

To be a World Class Institute for Social Transformation through Dynamic Education

Missions of the Bharati Vidyapeeth (Deemed to be University) College of Engineering are:

- *To provide quality technical education with advanced equipment, qualified faculty members, infrastructure to meet needs of profession & society.*
- *To provide an environment conducive to innovation, creativity, research and entrepreneurial leadership.*
- *To practice and promote professional ethics, transparency and accountability for social community, economic & environmental conditions.*

Goals of the Bharati Vidyapeeth (Deemed to be) University College of Engineering are:

- *Recruiting experienced faculty.*
- *Organizing faculty development programs.*
- *Identifying socio-economically relevant areas & emerging technologies.*
- *Constant review &up gradation of curricula.*
- *Up gradation of laboratories, library & communication facilities.*
- *Collaboration with industry and research & development organizations.*
- *Sharing of knowledge, infra-structure and resources.*
- *Training, extension, testing and consultancy services.*
- *Promoting interdisciplinary research.*

Vision of the Mechanical Engineering Department is:

To develop, high quality Mechanical Engineers through dynamic education to meet social and global challenges.

Mission Statements of the Mechanical Engineering Department are:

- *To provide extensive theoretical and practical knowledge to the students with well-equipped laboratories and ICT tools through motivated faculty members.*
- *To inculcate aptitude for research, innovation and entrepreneurial qualities in students.*
- *To acquaint students with ethical, social and professional responsibilities to adapt to the demands of working environment.*

Program Educational Objectives (PEOs) of the B. Tech. Mechanical are:

Graduates will be able,

- *To fulfill need of industry and society with theoretical and practical knowledge.*
- *To engage in research, innovation, lifelong learning and continued professional development.*
- *To fulfill professional ethics and social responsibilities.*

PROGRAM OUTCOMES

Engineering Graduates will be able to:

1. ***Engineering knowledge****: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.*
2. ***Problem analysis****: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.*
3. ***Design/development of solutions****: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.*
4. ***Conduct investigations of complex problems****: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.*
5. ***Modern tool usage****: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.*
6. ***The engineer and society****: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.*
7. ***Environment and sustainability****: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.*
8. ***Ethics****: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.*
9. ***Individual and team work****: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.*
10. ***Communication****: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.*

11. ***Project management and finance****: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.*
12. ***Life-long learning****: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.*

Statements of Programme Specific Outcomes (PSOs)

PSO1: *Apply the knowledge of thermal, design, manufacturing engineering and computational sciences to solve Mechanical Engineering problems.*

PSO2: *Apply Mechanical Engineering principles for research, innovation and develop entrepreneurial skills.*

PSO3: *Apply concepts of mechanical engineering to assess' societal, environmental, health and safety issues with professional ethics.*

B. Tech. Mechanical Sem.- VII (2014 Course)

Sr. No.	Course	Teaching Scheme (Contact Hrs./Week)			Examination Scheme (Marks)							Total Credits		
		L	P/D	T	End Sem. Exam	Continuous Assessment					Total	TH	TW	Total
						UnitTest	Attendance	Assignments	TW/ OR	TW/PR				
C401	Mechanical Vibration	3	2	--	60	20	10	10	50	--	150	3	1	4
C402	Automatic Control System	3	2	--	60	20	10	10	50	--	150	3	1	4
C403	Automobile Engineering	3	--	--	60	20	10	10	--	--	100	3	--	3
C404	Industrial Fluid Power	3	--	--	60	20	10	10	--	--	100	3	--	3
C405	Elective - II	3	-	--	60	20	10	10	--	--	100	3	--	3
C410	Inplant Training	-	--	--	--	--	--	--	50	--	50	--	4	4
C411	Project Stage -I	--	2		--	--	--	--	100	--	100	--	4	4
Total		15	06	00	300	100	50	50	250	--	750	15	10	25

Elective-II Courses: a) Computational Fluid Dynamics; b) Industrial Engineering & Management; c) Nanotechnology; d) Production Planning & Control e) Experimental Methods in Mechanical Engineering

B. Tech. Mechanical Sem.- VIII (2014 Course)

Sr. No.	Course	Teaching Scheme (Contact Hrs./Week)			Examination Scheme (Marks)							Total Credits		
		L	P/D	T	End Sem. Exam	Continuous Assessment					Total	TH	TW	Total
						Unit Test	Attendance	Assignments	TW/ OR	TW/PR				
C412	Power Plant Engineering	4	2	--	60	20	10	10	50	--	150	4	1	5
C413	Industrial Product Design	3	2	--	60	20	10	10	50	--	150	3	1	4
C414	Optimum Design*	4	2	--	60	20	10	10	50	--	150	4	1	5
C415	Elective-III	3	--	--	60	20	10	10	--	--	100	3	--	3
C420	Project Stage –II	-	4	--	--	--	--	--	200	--	200	--	8	8
C421	Environmental Sciences	3	--	--	100	--	--	--	--	--	100	3	--	3
	Total	14	10	00	240	80	40	40	350	--	750	14	11	25

* End Sem. examination of duration 4 hours

Elective – III Courses: a) Industrial Automation & Robotics; b) Cryogenics; c) Project Management & Ethics; d) Total Quality Management; e) Finite Element Analysis

Rules for Conducting Tests

Mode of the test

- In each semester for each subject three tests shall be conducted. The schedule for the same will be declared at the commencement of academic year in the academic calendar.
- Each test shall carry 20 marks.
- University examination pattern has given weightage of 20 marks for the tests.
- To calculate these marks following procedure is followed:

  i) Out of the three tests conducted during the semester, the marks of only two tests in which the candidate has shown his/her best performance shall be considered, to decide the provisional marks in each subject.

  ii) Average marks obtained in two tests in which students have performed well, shall be considered as provisional marks obtained by the student in the tests.

  iii) If the candidate appears only for two tests conducted during the semester, he/ she will not be given benefit of the best performance in the tests.

  iv) If the candidate appears only for one test conducted during the semester, to calculate the marks obtained in the tests it will be considered that the candidate has got 0 (zero) marks in other tests.

  v) The provisional marks obtained by the candidate in class tests should reflect as proportional to theory marks. In cases of disparity of more than 15% it will be scaled down accordingly; these marks will be final marks obtained by the student. No scaling up is permitted.

  vi) If the candidate is absent for theory examination or fails in theory examination his final marks for tests of that subject will not be declared. After the candidate clears the theory, the provisional marks will be finalized as above.

- Paper pattern for tests

i) All questions will be compulsory with weightage as following

Question 1 - 7 marks

Question 2 - 7 marks

Question 3 - 6 Marks

ii) There will not be any sub-questions.

- For granting the term it is mandatory to appear for all three tests conducted in each semester.
- Roll nos. allotted to students shall be the examination nos. for the tests.

B. TECH. MECHANICAL: SEMESTER- VII

B. TECH. MECHANICAL: SEMESTER- VIII

Rules regarding ATKT, Continuous Assessment and award of Class A. T. K. T.

- A candidate who is granted term for B. Tech. Semester-I will be allowed to keep term for his/her B. Tech. Semester-II examination even if he/she appears and fails or does not appear at B. Tech. Semester-I examination.
- A candidate who is granted term for B. Tech. Semester - III will be allowed to keep term for his/her B. Tech. Semester-IV examination even if he/she appears and fails or does not appear at B. Tech. Semester-III examination.
- A candidate who is granted term for B. Tech. Semester-V will be allowed to keep term for his/her B. Tech. Semester-VI examination if he/she appear and fails or does not appear at B. Tech. Semester-V examination.
- A candidate who is granted term for B. Tech. Semester-VII will be allowed to keep term for his/her B. Tech. Semester-VIII examination if he/she appears and fails or does not appear at B. Tech. Semester-VII examination.
- A candidate shall be allowed to keep term for the B. Tech. Semester-III course if he/she has a backlog of not more than 3 Heads of passing out of total number of Heads of passing in theory examination at B. Tech. Semester-I & II taken together.
- A candidate shall be allowed to keep term for the B. Tech. Semester-V of respective course if he/she has no backlog of B. Tech Semester-I & II and he/she has a backlog of not more than 3 Heads of passing in theory examination and not more than 3 heads of passing in term work and practical examination or term work and oral examination.
- A candidate shall be allowed to keep term for the B. Tech. Semester-VII course if he/she has no backlog of B. Tech. Semester-III & IV and he/she has a backlog of not more than 3 Heads of passing in theory examination and not more than 3 Heads of passing in term work and practical examination or term work and oral examination.

CONTINUOUS ASSESSMENT

- In respect of Term work at B. Tech. Semester-I & II, B. Tech. Semester-III & IV and B. Tech. Semester-V & VI, target date shall be fixed for the completion of each job, project experiment or assignment as prescribed in the syllabus and the same shall be collected on the target date and assessed immediately at an affiliated college by at least one pair of the concerned teachers for the subject and the marks shall be submitted at the end of each term to the Principal of the college.
- Termwork and performance of Practical/Oral examination shall be assessed on the basis of the depth of understanding of the principles involved, correctness of results and not on ornamental or colorful presentation.
- For B. Tech. Semester-VII & VIII, term work assessment will be done by external and internal examiners jointly during the examination schedule declared by the university. The record of continuous

assessment shall be made available to the examiners during Term work and practical and Term work and oral examinations. Examiner shall use this record for overall assessment of the performance of the student. Every practical/term work assignment shall be assessed on the scale of 25 marks and weightage of 25 marks shall be distributed as follows:

Sr. No.	Activity	Marks
1	Timely Submission	07
2	Presentation	06
3	Understanding	12

- Marks obtained out of 25 for all assignments together will be converted on scale of marks assigned to term work of respective subject in the structure of the course.

CLASS

The class should be awarded to the student on the basis of aggregate marks obtained together in both the semesters of the respective year by him. The award of class shall be as follows.

A	Aggregate 66% or more marks	First Class with Distinction
B	Aggregate 60% or more marks but less than	First Class
C	Aggregate 55% or more marks but less than	Higher Second Class
D	Aggregate 50% or more marks but less than	Second Class
E	Aggregate 40% or more marks but less than	Pass Class