Marwadi University

1.2.2: *Percentage of Programmes in which Choice Based Credit System (CBCS)/elective course system has been implemented*

Marwadi University

1.2.2: Percentage of Programmes in which Choice Based Credit System (CBCS) / elective course system has been implemented

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B. Tech Mechanical Engineering
Faculty of Technology
Marwadi University

1.2.2 Board of Studies Meeting Minutes

(Implementation of CBCS/Elective course system)

Minutes of Meeting
B.O.S. for B.Tech. Mechanical Engineering

Date: 13/05/2016	**Meeting No:** 01	
Start Time: 11:00 AM	**End Time:** 01:00 PM	**Total Time:** 2 Hours
Presented by	Dr. Pinank A Patel	

Agenda – 1	**Review of Vision and Mission, PSO, PEO**
Resolution	• Based on the feedback received from the different stakeholders like industrial experts, subject experts from other institute and with reference to AICTE model curriculum and syllabus of renowned universities such as IIT madras, VIT Vellore, SRM-Chennai a draft is created and a few revisions are made to the statements of Vision and Mission in alignment with the university's Vision and Mission statements. (Annexure-1) • Based on feedback received from different stakeholders a draft was created for PSO and PEO and the same was presented among the BOS committee. Based on minor corrections given by the BOS committee PSO and PEO were finalized. (Annexure-2) •
Agenda - 2	**Review of Curriculum structure and Course outcome of Mechanical Engineering for UG program**
Resolution	• Syllabus and CO for 1st year subjects are discussed with BOS committee and approval was taken from the committee (Annexure-3) • The CBCS scheme for the entire program has been discussed and approved by the BOS committee. • Contact hours for students should ideally be 25 to 30 hours per week. • 1st Year course should be common for all branches of engineering. • Percentage of continuous evaluation and end semester evaluation should either be 60:40 or 50:50 for theory and practical subjects. • Passing criterion for theory and laboratory should ideally be 3:2:1 hours should be allowed for End semester, mid semester and internal evaluation examination. • Based on discussion with BOS committee and with reference to model curriculum of AICTE following courses are included in the 1st year curriculum • General Basic science courses such as - Physics, Basic environmental studies, Differential integral and calculus. • Engineering science course such as - Elements of Mechanical, civil engineering, computer programming, Engineering graphics, and Mechanical workshop. • Humanities and Social Sciences & Management Courses such as Value education, Reading Writing/Speaking Skills, professional ethics.
Agenda - 3	**Proposed Attainment for Course Outcome**
Resolution	• It was decided by BOS members that CO target attainment for this year's student is set to 55% .i.e. 50% of students will achieve more than 55% marks.

Agenda – 4	**Review of the teaching scheme**
Resolution	• Based on discussion with BOS committee ,with reference to model curriculum of AICTE and Reputed universities such as IIT-Madras, VIT-Vellore Engineering core courses such as Fluid mechanics, Kinematics of machine, Fundamental of machine design, Manufacturing process-1 & 2, Material science and metallurgy, are proposed in the 3rd year curriculum • Provide tutorials of 1 hours in the courses Mechanics of Solids, Maths-III, Kinematics of Machines, Thermal, Material Science, Fluid mechanics, of sem-III and sem-IV.
Agenda – 5	**Inclusion of state of art topics and contents suitable to the current and futuristic learning and development paradigms for the graduates.**
Resolution	• Reduce theory contact hours and increase practical contact hours for computer programing and engineering graphics, provide tutorials for the Elements of Electrical & Electronics, Elements of Civil engineering subjects. • The Learning and Development department would be offering SPT and SIG programs designed for the overall development of the student.
Agenda – 6	**Suggestion on making the curriculum inclined towards industrial integration.**
Resolution	• Workshop is essential in all branches, (Workshop-I and Workshop-II) or increase hours of contact in case there is a single course on Workshop • Workshop should be performance based instead of demonstration. • For every tutorial 1 contact hour, 1 credit weightage to be given. • Allow to earn credits early and permit final year projects in industries.
Agenda – 7	**Feedback from Members of Board of Studies**
Resolution	• Viva can be replaced by quiz, performance evaluation, and surprise test.

BOS Committee members:		Signature
Meeting attended by: External Experts		
1.	Dr. D. P. Vakharia	
2.	Dr. Puneet Tandon	
3.	Dr. Leenus Martin	
4.	Dr. Bharat Ramani	
Meeting Attended by: Marwadi University		
1.	Dr. R. L. Jhala	
2.	Dr. Sarang Pande	
3.	Prof. Nikunj Rachchh	
4.	Prof. Pinank Patel	

Head of the Department
Mechanical Engineering
Marwadi University

Annexure	
Annexure - 1	• **Department Vision:** • To be recognized globally for quality education and enrich our society with dedicated and competent engineers • **Department Mission:** • Delivering quality education to the graduates and enhancing their skills related to different subjects offered • To create awareness of the current technologies by conducting regular industrial visits, training on latest technology and encouraging technical events • To make the graduates understand the impact of their work on society and encourage ethical values • To promote innovative ideas and utilize modern equipment & tools to encourage research. • To motivate and prepare the graduates for higher education and competitive exams by conducting seminars, tests and mock interviews
Annexure - 2	• **PSO1:** Students will have knowledge and skills in core mechanical and allied engineering subjects, to identify, analyze, design and develop mechanical systems, meeting needs of society • **PSO2:** Students will have competence to take challenges associated with future technological issues such as biofuel, alternate energy, 3D printing, Robotics, Drones etc. • **PEO:** • Demonstrate sustained learning and adapt to the constantly changing technologies through higher studies, professional development and self-study. • Have technological skills, soft skills and social skills towards Industry readiness and for contribution to society. • Have professional ethics, good communication and leadership capabilities for continued success in life. • To promote next level education • **PO** • **PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. • **PO2: 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. • **PO3: 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.

	• **PO4: 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. • **PO5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. • **PO6: 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. • **PO7: 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. • **PO8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. • **PO9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. • **PO10: 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. • **PO11: 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. • **PO12: 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.
Annexure - 3	**B.Tech - Year-1, Sem-1** **Subject Code** **Subject Name** 01MA0101 Engineering Mathematics I 01CI0101 Elements of Civil Engineering 01ME0101 Elements of Mechanical Engineering 01SL0102 / Reading & Writing for Technology / 01SL0103 Speaking & Presentation Skills 01GS0101 / Physics / 01GS0102 Chemistry 01EN0101 Basics of Environmental Studies 01CR0101 Career Readiness Programme **B.Tech - Year-1, Sem-2** **Subject Code** **Subject Name**

	01MA0151	Engineering Mathematics :II
	01CE0101	Computer Programming
	01ME0102	Engineering Graphics
	01EE0103	Basic Electrical and Electronics Engineering
	01ME0104	Mechanical Workshop
	01PE0101	Physical Education/Sports/Yoga

Minutes of Meeting
B.O.S. for B.Tech. Mechanical Engineering

Date: 28/05/2017	**Meeting No:** 02	
Start Time: 10:00 AM	**End Time:** 12:30 PM	**Total Time:** 2:30 Hours
Presented by	Prof. Ramesh Bhoraniya	

Agenda – 1	**Review of Curriculum structure and Course outcome of Mechanical Engineering for UG program**
Resolution	• Syllabus and CO for 2nd year subjects are discussed with BOS committee and approval was taken from the committee (Annexure-1) • Based on discussion with BOS committee and with reference to model curriculum of AICTE and reputed universities such as IIT Madras, VIT Vellore, SRM-Chennai following courses are included in the 2nd year curriculum • General Basic science course - Numerical analysis • Humanities and Social Sciences & Management Courses - Professional ethics • Based on discussion with BOS committee and with reference to model curriculum of following courses are included in the 2nd year curriculum • Engineering core courses such as Fundamental of machine design, Kinematics of machine, MP-1, Engineering thermodynamics, MDID, MSM • Based on Teacher, Industrial and student feedback following courses are included in curriculum • Project based Design engineering courses (6 credits) such as Human centric design approach, Design thinking and problem solving skill must be added to the curriculum as it is going to be mandatory by UGC in the coming future. • Based on feedback received with various industries such as Bosch Rexroth, Jyoti CNC Automation Ltd. and with reference to report of FICCI (The Federation of Indian Chambers of Commerce & Industry), CII (The Confederation of Indian Industry) **Professional Elective courses** such as Advance Manufacturing processes, Computer Aided Process Management, Design for Manufacturing, Computer Integrated Mfg., IOT for Manufacturing, Pneumatic and Hydraulic control are discussed and approved for 3rd and 4th year students. • The topics of hybrid electric vehicles may be blended with subject content of IC Engine & Automobiles if possible in future to keep the subject in line with latest trends in industries. • Solid modelling: software should be introduced in the earlier semester (may be as a non-credit subject) before student studies CAD in semester 6.

Agenda – 2	**Review and Revision of Teaching Scheme**
Resolution	• It is advised to swap ET & FM in 3rd and 4th semester.

	• Based on industrial feedback New subject Professional ethics is added to understand the organizational behaviour in industry. • Project based subject Human centric design approach is added to sem-4. • Course of Value Education is introduced
Agenda - 3	**Proposed Attainment for Course Outcome**
Resolution	• The CO attainment for the previous year was slightly less than the target set. Since university is in its nascent stage and students are not converse with the evaluation system, only few students were able to achieve more than 60% marks. • CO attainment not completely achieved in subjects such as Fluid mathematics, Mechanics of solids and Engineering Mathematics-II. To improve the attainment percentages extra sessions and more tutorials are added in these subjects. • It was decided by BOS member that the same target of 55% CO attainment is set for the 2017-18 academic year students.
Agenda – 4	**Feedback from Students, Teachers and Employers – participation of students in various Technical event**
Resolution	• Students are encouraged to participate in various events such as SAE-BAJA, Go-cart, ASME- HPVC and Funding also provided for the same
Agenda – 5	**Addition of Value added course in curriculum for skill development and increase the employability**
Resolution	• Based on Feedback received from students and industries to practice brainstorming, critical thinking, application of scientific principle in the early stage of Design of product, a Design integrated course by Avesha introduced for odd semester students.
Agenda – 6	**Feedback from Members of Board of Studies**
Resolution	• Internship (45 days) should be made mandatory for students in final year. It may not be a continuous duration

BOS Committee members:		Signature
Meeting attended by: External Experts		
1.	Dr. D. P. Vakhariya	
2.	Dr. Bharat Ramani	
3.	Dr. S. B. Jadeja	
4.	Mr. Anand Savaliya	
Meeting Attended by: Marwadi University		
1.	Dr. R. L. Jhala	
2.	Dr. Sarang Pande	
3.	Dr. Nikunj Rachchh	
4.	Dr. Amit Sata	
5.	Prof. Ramesh Bhoraniya	

Head of the Department
Mechanical Engineering
Marwadi University

Annexure	
Annexure-1	**B.Tech - Year-2, Sem-3** **Subject Code** **Subject Name** 01CI0301 Mechanics Of Solids 01MA0201 Engineering Mathematics III 01ME0301 Fluid Mechanics 01ME0302 Kinematics of Machines 01ME0303 Manufacturing Processes I 01CR0302 Professional Ethics **B.Tech - Year-2, Sem-4** **Subject Code** **Subject Name** 01MA0271 Numerical Analysis 01ME0401 Machine Design & Industrial Drafting 01ME0402 Manufacturing Processes II 01ME0403 Material Science and Metallurgy 01ME0404 Engineering Thermodynamics

Minutes of Meeting
B.O.S. for B.Tech. Mechanical Engineering

Date: 29/05/2018	**Meeting No:** 03	
Start Time: 10:00 AM	**End Time:** 01:00 PM	**Total Time:** 3:00 Hours
Presented by	Prof. Ramesh Bhoraniya and Dr. Nikunj Rachchh	

Agenda – 1	**Review of Curriculum structure and Course outcome of Mechanical Engineering for UG program**
Resolution	• Syllabus and CO for 3rd year subjects are discussed with BOS committee and approval was taken from the committee (Annexure-1) • The BOS committee suggested changing a few topics in Fluid mechanics and Manufacturing process- I subject. • Based on discussion with BOS committee with reference to model curriculum of IIT-Madras, SRM-Chennai, following courses are included in the 3rd year curriculum • Engineering core courses such as Fluid power engineering, MD-I & II, Heat and mass transfer, Dynamics of Machine-1 • Project based course - Reverse engineering, Design engineering and project management, • Based on student feedback of students, an Operational research course is added to the curriculum. • From the feedback received from the industry cluster of Rajkot MSME Professional elective courses - Design of manufacturing, Computer graphics, Advance Manufacturing process, etc. are added in curriculum • BOS committee has suggested conducting expert talks, which helps the students to do interaction with industry persons and get the knowledge of the latest process and technology used in industry and know the standard practice followed in various industries.

Agenda – 2	**Review and Revision of Teaching scheme**
Resolution	• The syllabus of Semester 5 and Semester 6 was discussed and approved by BOS committee • Fundamentals of machine design is added in 3rd sem and Mechanics of solid subject is removed.

Agenda - 3	**Proposed Attainment for Course Outcome**
Resolution	• The target for CO attainment was set to 55% and same was achieved for B.tech Mechanical Engineering. • It was decided by BOS members that revised target of 57% for CO attainment is set for 2018-19 academic year students.

Agenda – 4	**Review of Vision and Mission, PSO, PEO for Mechanical Engineering PG program**
Resolution	• Based on the feedback received from the different stakeholders, a draft is created and a few revisions are made to the statements of Vision and Mission in alignment with the university's Vision and Mission statements. (Annexure-2) • Based on feedback received from different stakeholders a draft was created for PO, PSO and PEO and the same was presented among the BOS committee. Based on minor corrections given by the BOS committee following PSO and PEO were finalized. (Annexure-3)
Agenda – 5	**Review of Curriculum structure and Course outcome of Mechanical Engineering for PG program**
Resolution	• Syllabus and CO for 1st year subjects are discussed with BOS committee and approval was taken from the committee (Annexure-3) • Contact hours for students should ideally be 25 to 30 hours per week. • Percentage of continuous evaluation and end semester evaluation should either be 60:40 or 50:50 for theory and practical subjects. • Passing criterion for theory and laboratory should ideally be 3:2:1 hours should be allowed for End semester, mid semester and internal evaluation examination. • Based on discussion with the BOS committee and with reference to the model curriculum of AICTE following courses are included in the 1st year curriculum. • Courses based on advanced core subjects -Advanced Machine Design, Computer Aided Design, Computer Aided Manufacturing, Computer Aided Production Management, Finite Element Analysis, Optimization Techniques • Courses based on Research Methodology • Courses based on Critical thinking - Computational Methods in Mechanical Engineering • Program elective- I- Advanced Material Processing Techniques, Design for Manufacturing and Assembly, Advanced Stress Analysis • Program Elective- II- Oil Hydraulics and Pneumatics; Noise and Vibration, Multibody dynamics • Based on discussion with the BOS committee and with reference to the model curriculum of reputed universities such as IIT-Madras, SRM-Chennai, VIT-vellore etc. Engineering core courses such Advanced Machine Design, Computer Aided Design, Finite Element Analysis, Computer Aided Manufacturing etc.
Agenda – 6	**Addition of Value added course in curriculum for skill development and increase the employability**
Resolution	• Based on feedback received from various MSME industries and with reference to report of industrial organization such as FICCI, CII to improve the industry oriented

	skill and employability of students, value added course such as CNC/VMC, CAD club, Automation are proposed and approved for 3rd and 4th year students. • Following Two value aided courses are recommended for PG students of CAD/CAM in 1st and 2nd semester • Numerical Methods using MATLAB & Robotics and AI
Agenda – 7	**Review of syllabus contents proposed.**
Resolution	• Provide tutorials of 2 hours in the courses Research Methodology, Computational methods for PG program of Mechanical Engg. for 1st year
Agenda – 8	**Inclusion of state of art topics and contents suitable to the current and futuristic learning and development paradigms for the postgraduates.**
Resolution	• Program Elective will offer in each semester to give inclination towards their interest.
Agenda – 9	**Suggestion on making the curriculum inclined towards industrial integration**
Resolution	• For every tutorial 1 contact hour, 1 credit weightage to be given. • Allow to earn credits early and permit Dissertation work in industries.
Agenda – 10	**Any special points/ advise by members of Board of Studies**
Resolution	• The BOS committee suggested introducing a minor group. • It was suggested to have a minor in the field of Smart manufacturing, Mechanical Engineering Design, Automation and Thermal Engineering in B.Tech. • Viva to be replaced by quiz, performance evaluation, and surprise test

BOS Committee members:		Signature
Meeting attended by: External Experts		
1.	Dr. D. P. Vakharia	
2.	Dr. Bharat Ramani	
3.	Dr. S. B. Jadeja	
4.	Anand Savaliya	
Meeting Attended by: Marwadi University		
1.	Dr. Sarang Pande	
2.	Dr. Nikunj Rachchh	
3.	Dr. Amit Sata	
4.	Prof. Ramesh Bhoraniya	
5.	Dr. R. L. Jhala	
6.	Dr. Pinank Patel	

Head of the Department
Mechanical Engineering
Marwadi University

Annexure	
Annexure-1	**B.Tech - Year-3, Sem-5** **Subject Code** **Subject Name** 01ME0501 Dynamics of Machine-I 01ME0502 Fluid Power Engineering 01ME0503 Machine Design-1 01ME0504 Metrology 01ME050* Programme Elective I 01CR0501 Business Benchmark 01ME0508 REVERSE ENGINEERING ***Programme Elective 1** **Subject Code** **Subject Name** 01ME0505 Power Plant Engineering 01ME0507 Design for Manufacturing 01ME0506 Computer Graphics **B.Tech - Year-3, Sem-6** **Subject Code** **Subject Name** 01ME0601 Dynamics of Machine –II 01ME0602 Heat and Mass Transfer 01ME0603 Machine Design-II 01ME0604 Operation Research 01ME060* Programme Elective II 01ME0610 Design Engineering & Project Management ***Programme Elective 2** **Subject Code** **Subject Name** 01ME0605 IC Engines & Automobiles 01ME0606 Design of Material Handling Equipment 01ME0607 Advance Manufacturing processes
Annexure - 2	• **Vision:** • To be recognized globally for quality education and enrich our society with dedicated and competent engineers • **Mission:** • Delivering quality education to the graduates and enhancing their skills related to different subjects offered • To create awareness of the current technologies by conducting regular industrial visits, training on latest technology and encouraging technical events • To make the graduates understand the impact of their work on society and encourage ethical values

	• To promote innovative ideas and utilize modern equipment & tools to encourage research. • To motivate and prepare the graduates for higher education and competitive exams by conducting seminars, tests and mock interviews • Based on feedback received from different stakeholders a draft was created for PO, PSO and PEO and the same was presented among the BOS committee. Based on minor corrections given by the BOS committee following PO, PSO and PEO were finalized. • **PSO1:** Students will be able to apply principles of CAD and CAM in the field of engineering applications for research and development. • **PSO2:** Students will be able to develop software for design and development in the field of Mechanical Engineering. • **PEO:** Demonstrate sustained learning and adapt to the constantly changing technologies through higher studies, professional development and self-study. • Have technological skills, soft skills and social skills towards Industry readiness and for contribution to society. • Have professional ethics, good communication and leadership capabilities for continued success in life. • To promote next level education
Annexure - 3	**M.Tech - Year-1, Sem-1** **Subject Code** **Subject Name** 01RM0101 Research Methodology 01CA0101 Computational Methods in Mechanical Engineering 01CA0102 Advanced Machine Design 01CA0103 Computer Aided Design 01CA0104 Advanced Material Processing Techniques **M.Tech - Year-1, Sem-2** **Subject Code** **Subject Name** 01CA0201 Computer Aided Manufacturing 01CA0202 Computer Aided Production Management 01CA0203 Finite Element Analysis 01CA0204 Optimization Techniques 01CA0205 Oil Hydraulics and Pneumatics

Minutes of Meeting
B.O.S. for B.Tech. Mechanical Engineering

Date: 29/05/2019	**Meeting No:** 04	
Start Time: 10:01 AM	**End Time:** 01:00 AM	**Total Time:** 3:00 Hours
Presented by	Dr. Sarang Pande and Dr. R. M. Bhoraniya	

Agenda – 1	**To finalize curriculum structure of B.Tech Mechanical UG Program**
Resolution	• Syllabus and CO for 4th year subjects are discussed with BOS committee and approval was taken from the committee (Annexure-1) • Experts suggested including polarized ray diagrams and measurement of stresses to be covered as practical in the subject of fundamental machine design. • Expert suggested to include the IS standard for design of mechanical components • Based on discussion with BOS committee and with reference to model curriculum of AICTE and with model curriculum of IIT-Madra, SRM-Chennai, following courses are included in the 4th year curriculum • Project based course - Project-I and II • Engineering core courses such as Finite element method, Rapid casting-1 & 2, Production technology • Professional elective courses - Computer aided process management, Renewable energy engineering, Data mining and analysis, CFD, AI, Robotics, etc.
Agenda – 2	**Review of Curriculum structure and Course outcome of Mechanical Engineering for PG program**
Resolution	• Syllabus and CO for 2nd year subjects are discussed with BOS committee and approval was taken from the committee. (Annexure-2) • Based on discussion with BOS committee and with reference to model curriculum of AICTE and with model curriculum of IIT-Madras, SRM-Chennai, following courses are included in the 2nd year curriculum • Rapid prototyping and Tooling. IoT for Manufacturing, • Seminar in each semester. • Dissertation Phase-I and Dissertation Phase-II • Based on feedback received with various industries such as Bosch Automation, Jyoti CNC, Macpower and with reference to report of FICCI (The Federation of Indian Chambers of Commerce & Industry), CII (The Confederation of Indian Industry) Elective courses such as Robotics Engineering, Mechanics and Manufacturing of Composites, Rapid prototyping and Tooling, IoT for Manufacturing, Pressure Vessel and Piping Design, Micro and Nano Manufacturing.
Agenda – 3	**Review and Revision of syllabus**
Resolution	• Experts from various MSME sectors suggested the topic of recent manufacturing methods in subject of advanced manufacturing processes.

	• Expert suggested to increase weightage of marks for project-1 and project-2 in semester-7 and semester-8
Agenda - 4	**Proposed Attainment for Course Outcome**
Resolution	• The target for CO attainment was set to 57% and the same was achieved . • It was decided by BOS members that a revised target of 59% for CO attainment is set for 2019-20 academic year students.
Agenda – 5	**Introduction of course for skill development and employability**
Resolution	• Based on Industry survey, to promote on industry academic interaction and to improve employability a skill improvement program has been started with the industry tie up-under which Rapid casting-1 and Rapid casting-2 subjects are approved for 4th year students. In which student will learn following four different modules of manufacturing industries - (1) Rapid methodology in metal casting (2) Rapid Tooling in metal casting (3) Inspection and Quality control (4) Automation and Simulation
Agenda – 6	**Addition of Seminar in curriculum to spread awareness about latest technologies/new research/Innovation**
Resolution	• Based on Feedback received from students, industries and Research organizations to start the dissertation phase, student should rigorously go through the literature for one semester and present the report in seminar in M.Tech program.
Agenda – 7	**Feedback of Teacher, student and professional bodies**
Resolution	• Feedback received from students, teachers and various professional bodies such as ASME, SAE discussion was made to host the state/national/international level event to provide a platform where they can innovate, compete, interact with various professional organizations as well as industry.
Agenda – 8	**Any special points/ advise by members of Board of Studies**
Resolution	• Experts suggested to encourage students to use the online open learning platform I such as swayam, where students can learn basic and advanced NPTEL courses. • Expert suggested to include case study for the subject of FEA, Data mining and analysis, Artificial intelligence • Dissertation phase- I and II should have equal weightages in both semesters of M.Tech program

BOS Committee members:		Signature
Meeting attended by: External Experts		
1.	Dr. D. P. Vakhariya	
2.	Dr. B. M. Ramani	
3.	Dr. S. B. Jadeja	
4.	Mr. Anand Savaliya	
Meeting Attended by: Marwadi University		
1.	Dr. R. L. Jhala	
2.	Dr. Sarang Pande	
3.	Dr. Nikunj Rachchh	
4.	Dr. R. M. Bhoraniya	
5.	Dr. Amit Sata	
6.	Dr. Pinank Patel	

Head of the Department
Mechanical Engineering
Marwadi University

Annexure

Annexure-1

B.Tech - Year-4, Sem-7

Subject Code	Subject Name
01ME0701	Finite Elements Method
01ME0702	Project-1
01ME0703	Rapid Casting :I
01ME07**	Prog.Elec.3
01ME07**	Prog.Elec.4

***Programme Elective 3**

Subject Code	Subject Name
01ME0711	Advanced Machine Design
01ME0721	Computer Aided Process Management
01ME0731	Ref. & Air conditioning
01ME0741	Pneumatic and Hydraulic control

***Programme Elective 4**

Subject Code	Subject Name
01ME1722	Data Mining and Analysis
01ME0732	Renewable Energy Engineering
01ME0742	Ref. & Air conditioning

B.Tech - Year-4, Sem-8

Subject Code	Subject Name
01ME0801	Production Technology
01ME0802	Project-II
01ME0803	Rapid Casting :II
01ME08**	Prog.Elec.5
01ME08**	Prog.Elec.6

***Programme Elective 3**

Subject Code	Subject Name
01ME0811	Design of Pressure vessels
01ME0821	Computer Integrated Mfg.
01ME0831	Steam and Gas Turbine
01ME0841	Robotics & FMS

***Programme Elective 4**

Subject Code	Subject Name
01ME0812	Machine Tool Design
01ME0822	IOT for Manufacturing
01ME0832	Computational Fluid Dynamics
01ME0842	Artificial Intelligence

Annexure-2

M.Tech - Year-1, Sem-3

Subject Code	Subject Name

	01CA0301	Seminar
	01CA0302	Dissertation Phase-I
	01CA0305	Rapid prototyping and Tooling
	M.Tech - Year-2, Sem-4	
	Subject Code	**Subject Name**
	01CA0401	Seminar
	01CA0402	Dissertation Phase-II
	01CA0403	IoT for Manufacturing

Minutes of Meeting
B.O.S. for B.Tech. Mechanical Engineering

Date: May - 2020	**Meeting No:** 05 (online mode)	
Start Time: 02:00 PM	**End Time:** 04:00 PM	**Total Time:** 2:00 Hours
Presented by	Dr. Nikunj Rachchh	

Agenda – 1	**Review of Curriculum structure and Course outcome of Mechanical Engineering for UG & PG program**
Resolution	• As per the expert's suggestion, changes are made in the syllabus of B.Tech and M.tech mechanical engineering as per guideline of AICTE. • Based on the feedback received from the different stakeholders, a draft is created and a few revisions are made to the to the M.tech curriculum.
Agenda – 2	**Review and Revision of syllabus of UG**
Resolution	• Experts suggested to include basic concepts of Data mining and analysis • The Experts suggested to remove civil engineering drawing detail study in the subject of engineering drawing and engineering graphics. • Review of contents of metacentric height analysis, elementary theory of notch and vertex flow analysis in Fluid mechanics subject
Agenda – 3	**Review and Revision of syllabus of PG**
Resolution	• Courses based on advanced core subjects – Advanced Thermodynamics and Heat transfer, Advanced Fluid Mechanics, Experimental Techniques and Instrumentation In Thermal Engineering, Computational Fluid Dynamics, Solar Energy Engineering, Design and Optimization of the Thermal Systems are included in program. • Courses based on Research Methodology and based on Critical thinking i.e. Computational Method for Mechanical Engineers are included in teaching scheme • Based on discussion with BOS committee and with reference to model curriculum of reputed universities such as IIT-Madras, SRM-Chennai, VIT-Vellore etc. Engineering core courses such Advanced Thermodynamics and Heat transfer, Advanced Fluid Mechanics Energy Conservation & Management, Combustion Engineering, Advanced Refrigeration Engineering etc. are also included • Program Elective will offer in each semester (annexure-1) • Provide tutorials of 2 hours in the courses Research Methodology, Computational methods for Mechanical Eng. for 1st year.
Agenda - 4	**Proposed Attainment for Course Outcome**
Resolution	• The target for CO attainment was set to 59% and the same was achieved. • It was decided by BOS members that a revised target of 60% for CO attainment is set for 2020-21 academic year students.

Agenda – 5	**Suggestion on making the curriculum inclined towards industrial integration.**
Resolution	• For every tutorial 1 contact hour, 1 credit weightage to be given. • Allow to earn credits early and permit Dissertation work in industries.
Agenda - 6	**Proposed Value Aided Courses for M.Tech**
Resolution	• It was decided by BOS member that value aided courses will be offered for M.tech Students. Two courses proposed in meeting are Smart Manufacturing and Hands on Practice – Open foam.
Agenda – 7	**Implementation of MOOC course**
Resolution	• University has purchased bulk licenses of coursera courses, so under MILAP (Marwadi Integrated Learning & Analysis Programme) scheme free coursera courses are offered to students for improvement of their skill and knowledge.
Agenda – 8	**Any special points/ advise by members of Board of Studies**
Resolution	• Ethical practices and Plagiarism norms recommended by UGC/AICTE for the dissertation should be follow properly in M.tech program.

BOS Committee members:		Signature
Meeting attended by: External Experts		
1.	Dr. D. V. Bhatt	
2.	Dr. B. M. Ramani	
3.	Dr. S. B. Jadeja	
4.	Mr. Anand Savaliya	
Meeting Attended by: Marwadi University		
1.	Dr. R. L. Jhala	
2.	Dr. Sarang Pande	
3.	Dr. Nikunj Rachchh	
4.	Dr. R. M. Bhoraniya	
5.	Dr. Amit Sata	
6.	Dr. Pinank Patel	

Head of the Department
Mechanical Engineering
Marwadi University

Annexure	
Annexure-1	**M.Tech - Year-1, Sem-1** **Subject Code** **Subject Name** 01RM0101 Research Methodology 01CA0101 Computational Methods in Mechanical Engineering 01CA01*/01TH01* Program Elective-I 01CA01*/01TH01* Program Elective-II 01CA01*/01TH01* Program Elective-III ***Programme Elective-I** **Subject Code** **Subject Name** 01CA0102 Advanced Machine Design 01TH0102 Advanced Thermodynamics and Heat Transfer ***Programme Elective-II** 01CA0103 Computer Aided Design 01TH0104 Advanced Fluid Mechanics ***Programme Elective-III** 01CA0104 Advanced Material Processing Techniques 01TH0106 Design of Heat Exchanger **M.Tech - Year-1, Sem-2** **Subject Code** **Subject Name** 01CA020*/ 01TH020* Program Elective-I 01CA020*/ 01TH020* Program Elective-II 01CA020*/ 01TH020* Program Elective-III 01CA020*/ 01TH020* Program Elective-IV 01CA020*/ 01TH020* Program Elective-V ***Programme Elective-I** **Subject Code** **Subject Name** 01CA0201 Computer Aided Manufacturing 01TH0201 Experimental Techniques and Instrumentation In Thermal Engineering ***Programme Elective-II** **Subject Code** **Subject Name** 01CA0202 Computer Aided Production Management 01TH0202 Computational Fluid Dynamics ***Programme Elective-III** **Subject Code** **Subject Name** 01CA0203 Finite Element Analysis 01TH0203 Solar Energy Engineering ***Programme Elective-IV**

Subject Code	Subject Name
01CA0204	Optimization Techniques
01TH0204	Design and Optimization of the Thermal Systems

***Programme Elective-V**

Subject Code	Subject Name
01CA0205	Oil Hydraulics and Pneumatics
01TH0205	Energy Conservation & Management

M.Tech - Year-2, Sem-3

Subject Code	Subject Name
01CA0301/01TH0301	Seminar-I
01CA0302/01TH0302	Dissertation Phase-I
01CA030*/01TH030*	Program Elective-I

***Programme Elective-I**

Subject Code	Subject Name
01CA0305	Rapid prototyping and Tooling
01TH0304	Exergy Analysis of Thermal Systems

M.Tech - Year-2, Sem-4

Subject Code	Subject Name
01CA0401/01TH0401	Seminar-II
01CA0402/01TH0402	Dissertation Phase-II
01CA040*/01TH040*	program Elective-I

***Programme Elective-I**

Subject Code	Subject Name
01CA0403	IoT for Manufacturing
01TH0404	Advanced Air conditioning Engineering

Minutes of Meeting
B.O.S. for B.Tech. Mechanical Engineering

Date: 19/06/2021	**Meeting No:** 06 (online mode)	
Start Time: 11:00 AM	**End Time:** 12:00 PM	**Total Time:** 1 Hours
Presented by	Dr. Pinank A Patel	

Agenda – 1	**Review of Mechanical Engineering Department for Academic Year 2020-21**
Resolution	• The Theory classes and lab with demonstration of experiments online were conducted during the last one year because of the pandemic. • The teaching & learning process in online mode during the pandemic was appreciated.
Agenda – 2	**Teaching Scheme of Semester-I & Semester-II as per new UGC/AICTE Guidelines**

Resolution	• Course credits for engineering courses need to be revised to 160 credits as per the guidelines provided by UGC/AICTE. To comply with this following revisions are approved by the BOS committee.
	• Semester - I and Semester - II teaching schemes are redesigned as per revised AICTE guidelines.
	• Teaching hours for students can be kept around 27 hours per week.
	• Subjects with end semester exams should not be more than 5 per semester.
	• The contact hours for laboratory sessions can be increased to make students proficient for industry.
	• Revision in syllabus of 01ME1101 - Elements of Mechanical Engineering, Resolution 01ME1102 Engineering Graphics and 01ME1104 - Mechanical Workshop is approved.
	• NCC is introduced with a teaching scheme of 1 hour theory and 2 hours laboratory for 2 credit courses in Semester - I and Semester - II.
	• The student who opts for NCC will be given exemption from below mentioned courses.
	  ○ Value Education - Semester - I
	  ○ Indian Constitution - Semester - I
	  ○ Physical Education/Sports/Yoga - Semester - I
	  ○ Professional Ethics – Semester - II

Agenda - 3	**Teaching Scheme of Semester-I & Semester-II as per new UGC/AICTE Guidelines for M.Tech program**
Resolution	• Course credits for engineering courses need to be revised to 66 credits as per the guidelines provided by UGC/AICTE. • Semester - I and Semester - II teaching schemes are redesigned as per revised AICTE guidelines. (Annexure-1) • Teaching hours for students can be kept around 20 to 22 hours per week. • Subjects with end semester exams should not be more than 5 per semester.

	• Revision in various subject syllabus carried out.
Agenda – 4	**Review of syllabus for PG program**
Resolution	• Research Methodology & IPR is introduced in 2nd sem • In line with the guidelines of UGC/AICTE Audit course is proposed in Semester - I and Semester – II • Following courses are discussed and proposed for the semester 01AU9001- English for Technical writings; 01AU9002- Value Education; 01AU9003- Constitution of India, 01AU9004- Stress Management by Yoga, 01AU9005- Sanskrit for Technical Knowledge. • As per new scheme 1 open elective offer in PG degree program • Student have flexibility to take their subjects of interest for enhance the knowledge. Any one open elective during their entire PG course.
Agenda - 3	**Proposed Attainment for Course Outcome**
Resolution	• The target for CO attainment was set to 60% and the same was achieved. • It was decided by BOS members that a revised target of 60% for CO attainment is set for 2021-22 academic year students.
Agenda – 4	**Introducing Creativity, Problem Solving and Innovation as a University Elective Subject**
Resolution	• Creativity, Problem Solving and Innovation subject is to be offered in 4th, 6th or 8th semester where interested students can choose as university elective course for 2 credits.
Agenda – 5	**Introduction of Indian Constitution Subject**
Resolution	• Indian Constitution subject is introduced with a teaching scheme of 1 hour theory as mandatory course as per AICTE guidelines
Agenda – 6	**Feedback from Members of Board of Studies**
Resolution	• Introducing NCC / NSS as a subject in the curriculum is appreciated. • The students can have flexibility to earn more credits during the semester based on the subjects offered. • Experts suggested to make it mandatory for all students to visit and prepare reports of 15 industries of various fields of Mechanical Engineering before completion of his/her graduation.
Note: Meeting was scheduled virtually on Google Meet.	

BOS Committee members:		Signature
Meeting attended by: External Experts		
1.	Dr. D. V. Bhatt	
2.	Dr. B. M. Ramani	
3.	Mr. Anand Savaliya	
4	Amit chotai	
Meeting Attended by: Marwadi University		
1.	Dr. R. L. Jhala	
2.	Dr. Sarang Pande	
3.	Dr. Nikunj Rachchh	
4.	Dr. R. M. Bhoraniya	
5.	Dr. Amit Sata	
6.	Dr. Pinank Patel	

Head of the Department
Mechanical Engineering
Marwadi University

Annexure	
Annexure-1	**M.Tech - Year-1, Sem-1** **Subject Code Subject Name** 01CA11*/01TH01* Program Elective-I 01CA11*/01TH01* Program Elective-II 01CA11*/01TH01* Program Elective-III 01CA01*/01TH11* Program Elective-IV 01CA11*/01TH11* Program Elective-V 01CA11*/01TH11* Program Elective-V 01OE900* Open Elective 01AU900* Audit Course ***Programme Elective-I** **Subject Code Subject Name** 01CA1101 Program Core-I (CAD) 01TH0102 Program Core-I (Advanced Heat Transfer) ***Programme Elective-II** 01CA1102 Program Core-II (AMD) 01TH0104 Program Core-II (Advanced Fluid Mechanics) ***Programme Elective-III** 01CA1103 Lab I: Program Core (CAD Lab) 01TH0106 Lab I: Program Core (Heat Exchanger Design) ***Programme Elective-IV** 01CA0104 Lab-II: Program Core (AMD Lab) 01TH1104 Lab-II: Program Core (Thermal Engg. Lab) ***Programme Elective-V** 01CA1111 Computational Methods in Mechanical Engg. 01TH1111 Computational Methods in Mechanical Engineering ***Programme Elective-VI** 01CA1121 Advanced Material Processing Techniques 01TH1121 Advanced Refrigeration Engineering **M.Tech - Year-1, Sem-2** **Subject Code Subject Name** 01CA020*/ 01TH020* Program Elective-I 01CA020*/ 01TH020* Program Elective-II 01CA020*/ 01TH020* Program Elective-III 01CA020*/ 01TH020* Program Elective-IV 01CA020*/ 01TH020* Program Elective-V 01CA020*/ 01TH020* Program Elective-VI 01SL1210 Research Methodology & IPR

	***Programme Elective-I** **Subject Code** **Subject Name** 01CA1201 Program Core-III (CAM) 01TH1201 Program Core-III (Design and Optimizations of Thermal Systems) ***Programme Elective-II** **Subject Code** **Subject Name** 01CA1202 Program Core-IV (FEM) 01TH1202 Program Core-IV (Solar Energy Engg.) ***Programme Elective-III** **Subject Code** **Subject Name** 01CA1203 Lab III: Program Core (CAM Lab) 01TH1203 Lab III: Program Core (HVAC Lab) ***Programme Elective-IV** **Subject Code** **Subject Name** 01CA1204 Lab-IV: Program Core (FEM Lab) 01TH1204 Lab-IV: Program Core (Computational Fluid Flow & Heat Transfer Lab) ***Programme Elective-V** **Subject Code** **Subject Name** 01CA1211 Computer Aided Production Management 01TH1211 Energy Conservation & Management ***Programme Elective-VI** **Subject Code** **Subject Name** 01CA1221 Optimization Techniques 01TH1221 Computational Fluid Dynamics

B. Tech Chemical Engineering
Faculty of Technology
Marwadi University

1.2.2 Board of Studies Meeting Minutes

(Implementation of CBCS/Elective course system)

Marwadi UNIVERSITY

Department of Chemical Engineering
Marwadi University

Minutes of the Meeting

Meeting Dates | 21/06/2016 Time| 03:00 PM Location |MA562

Meeting Called by	Head, Dr. Rameshkumar Bhoraniya
Type of Meeting:	BOS Meeting
Attendees	Dr. Rameshkumar Bhoraniya, Dr. Ritesh Palkar, Prof. Nirav Raykundaliya, Dr. Mihir Purkait, Dr. Sanjay Patel, Dr. Deepak Jain
Absentees	No
Chaired by	Dr. Rameshkumar Bhoraniya

Agenda for the Meeting was taken up as below:

Dr. Rameshkumar Bhoraniya, HoD, Chemical Engineering department called the 1st meeting of the internal and external BoS members for review of draft syllabus of courses of B.Tech.Chemical Engineering, to start from the session of2016-17.

In the meeting, discussions were made between the HoD and BoS members for the necessary revision of draft teaching scheme and syllabus of B. Tech. courses. As department is planning to start a new program, B. Tech. Chemical Engineering, the suggestions and opinions were sought in terms of number of coursesplanned in teaching schemes, industrial relevance of syllabus, content of each course, and consideration of elective courses etc.

Agenda – 1	**Review of Teaching Scheme and Syllabus for B. Tech. Chemical Engineering.**
Suggestions	Syllabus of all the courses were discussed by BOS members and they suggested following changes. • In course, Fluid Flow Operation, content related to fluidization should be added as it is very important in terms of industrial application. • In course, Stoichiometry, proximate and ultimate analysis should be specifically mentioned under the Fuel & Combustion module. • In course, Mechanical Operations,cyclone separation is also important so it must be there in syllabus. • In course, Chemical Engineering Thermodynamics-I, a text book named "Introduction to Chemical Engineering Thermodynamics; J. M. Smith"should be introduced. • To look into the problems related to dust, gas heat, etc., emission into the chemical industries. So, there must be a course which contains the cleaner way production methods. • In course, Process Equipment Design-I, Kettle type and

	Thermosyphon Reboilers are used in distillation column so it very important to have the knowledge of these reboiler to the students. Therefore, these two topics should be included in PED-I. • In course, Chemical Reaction Engineering-II,students should have the knowledge of preparation of catalyst, so it is required toinclude this topic in the syllabus. • In course, Petroleum Refining and Petrochemicals, method of testing of the petroleum product should also be included in course.
Resolution	• As per BOS member's suggestion, Fluidizationis included in Fluid Flow Operationcourse. • Proximate and Ultimate analysis is also included in Stoichiometry. • As suggested cyclone separationtopic in also incorporated in syllabus of Mechanical Operations. • As per suggestion, one more text book named "Introduction to Chemical Engineering Thermodynamics; J. M. Smith" is added in references. • Keeping in mind of BoS members, Cleaner Production course has been introduced in curriculum. • BoS member have approved the Teaching schemes, Assessment scheme and Course content. • As per suggestion of BoS members, Kettle and Thermosyphon Reboilers are added in the module Process "design of Heat exchangers". • As per suggestion, one more topic "preparation of catalyst"is added in the course of Chemical Reaction Engineering-II. • As per suggestion, testing methods of refinery products are included in the course of Petroleum Refining and Petrochemicals.
Agenda – 2	**Approval of Program Outcomes, Program Specific Outcomes, Course Outcomes**
	• Discussion on Program Specific Outcomes (PSO), Program outcome (PO), and individual course outcomes (CO) for all courses was carried out.
Resolution	PO and PSOwere finalized as per the attachment (Annexure II)
Agenda – 3	**Departmental Electives offered in Semester 6, 7 and 8**
	• BOS members have approved 3 departmental electives, to be offered in semester 6, 7 and 8. • BoS member also commented for the addition of Open elective where student can choose courses as per their choice.

Resolution	A total of 6 courses were approved under 3 departmental electives. And as per suggestion one Open elective was introduced into teaching scheme of Sem 6.
Agenda – 4	**Value added courses**
	• BOS members highlighted the importance of some additional courses for students which help them gain some skills.
Resolution	• The idea given by BOS members was discussed and it was finalized to promote participation of students in extracurricular activities or other value-added courses.
Agenda 5	**Course Attainment**
	BoS members highlighted the importance of Course attainment under OBE system. First batch of Chemical Engineering will be out in 2020, for which course attainment should be referred and should have one target value to be attained after the completion of program.
Resolution	Course attainment of the program was kept at 50% for this batch.

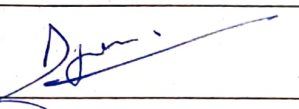
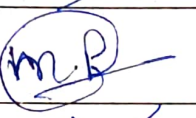
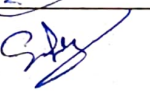
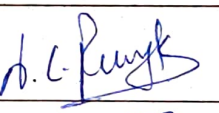
All the suggestions were incorporated in teaching scheme/syllabus of courses of B. Tech. Chemical Engineering. The meeting ended with a vote of thanks by Dr. Rameshkumar Bhoraniyato the BoS experts for providing their valuable time in reviewing the syllabus of all courses of B. Tech. Chemical Engineering.

Marwadi UNIVERSITY

Department of Chemical Engineering
Marwadi University

Annexure I

BoS meeting (21/6/2016)

Committee Member Name	Signature
Dr. Rameshkumar Bhoraniya	
Dr. Deepak Jain	
Dr. Mihir Purkait	
Dr. Sanjay Patel	
Prof. Nirav Raykundaliya	
Dr. Ritesh Palkar	

Annexure II

Program Outcomes

The Program Outcomes are as follows:

PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 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.

PO3 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.

PO4 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.

PO5 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.

PO6 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.

PO7 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.

PO8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 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.

PO11 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.

PO12 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.

Program Specific Outcomes

The Program Specific Outcomes are as follows:

PSO1 Development of sound fundamental knowledge to make students proficient in the field of chemical engineering and their allied branches like petroleum, polymer, energy, food, environment etc.

PSO2 Collaboration with different governing bodies and industries which will emphasize on the clean and green environment/processes.

PSO3 Design, modeling, simulation and development of various processes and products.

Department of Chemical Engineering
Marwadi University

Minutes of the Meeting

Meeting Dates | 05/08/2017 Time| 09:30 AM Location |MA562

| Meeting Called by	Head, Dr. Rameshkumar Bhoraniya
| Type of Meeting:	BoS Meeting
| Attendees	Dr. Rameshkumar Bhoraniya, Dr.RiteshPalkar, Prof. Nirav Raykundaliya, Dr. Mihir Purkait, Dr. Sanjay Patel, Dr. Deepak Jain
| Absentees	No
| Chaired by	Dr. Rameshkumar Bhoraniya

Agenda for the Meeting was taken up as below:

Dr. Rameshkumar Bhoraniya, HoD, Chemical Engineering department welcomed all external and internal BoS member for the 2nd BoS meetinginvited to discuss and in order to finalize the teaching scheme and syllabus of courses for B. Tech. - Chemical Engineering

Agenda – 1	**Academic review for 2016-2017**
	BoS were informed about the smooth conduct of classes for first batch of Chemical Engineering. BoS members were informed about the online system of Academic file, where faculties are maintaining their records of PO, PSO, and CO and their mapping.
Agenda – 1	**Review of Teaching Scheme and Syllabus for B. Tech. Chemical Engineering.**
Suggestions	Review of syllabus and introduction of various courses was discussed with BOS members and they suggested following changes. • Course on communication is being removed and is being replaced with two other courses named "Reading & Writing for Technology" and "Speaking & Presentation Skills" • Chemical technology course was asked to merge and content should have content related to Dyes, Drugs, Fermentation, Sugar. • BoS member suggested that instead of CES course offered in Sem 5 and 6 of 2 credit each, it should be offered in every semester starting from Sem 3 to 6 (1 credit each) as it is a project-based course and will maintain the total credits of program. • Subjects like Engineering Mathematics should be renamed to more technical way Applied differential equations. • BoS member found that course content of EC-II (01CH0254) is more

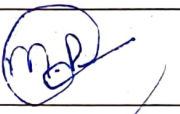
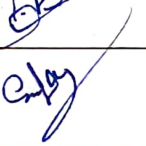
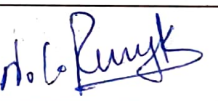
	inclined towards material science, so they suggested to rename it. And new course focused on core chemistry content (organic and inorganic) should be introduced. • BoS member approved that Career readiness program course offered in sem 3 should be replaced with a new course on Professional Ethics. • Subject codes of Sem 3 and 4 courses are revised as per university norms.
Resolution	• BoS member have approved the introduction of mentioned courses along with some modification in existing courses.
Agenda – 2	**Discussion on course outcomes of new introduced courses**
	• Discussion on newly introduced courses was carried out.
Resolution	Finalized CO are as per the attached syllabus file.
Agenda 3	**Course Attainment**
	BoS members were informed about the course attainment of 1st year courses. Out of 64, 52 course outcomes were achieved keeping 50% as reference value.
Resolution	BoS members mentioned that more emphasis to be given towards higher attainment.

All the suggestions were incorporated in teaching scheme/syllabus of courses of B. Tech. Chemical Engineering. The meeting ended with a vote of thanks by Dr. Rameshkumar Bhoraniyato the BoS experts for providing their valuable time in reviewing the syllabus of all courses of B. Tech. Chemical Engineering.

Department of Chemical Engineering
Marwadi University

Signature Sheet for BoS meeting

Date: 04/07/2017

BoS Member Name	Sign
Dr. Rameshkumar Bhoraniya(HoD)	
Dr. Mihir Purkait (External Member)	
Dr. Sanjay Patel (External Member)	
Dr. Deepak Jain (External Member)	
Prof. Nirav Raykundaliya (Internal Member)	
Dr.RiteshPalkar (Internal Member)	

Marwadi University

Bachelor of Technology
Chemical Engineering

B.Tech. Teaching and Examination Scheme Semester I & II — W.E.F. 2017-2018

B. Tech. Year I, Sem I

Evaluation Scheme

Subject Code	Subject Name	Type	Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
01MA0101	Engineering Mathematics-I	BSC	4	2	0	5	50	30	20	25	25	150
01CI0101	Elements of Civil Engineering	ESC	3	0	2	4	50	30	20	25	25	150
01ME0101	Elements of Mechanical Engineering	ESC	3	0	2	4	50	30	20	25	25	150
01CE0101	Computer Programming	ESC	3	0	2	4	50	30	20	25	25	150
01GS0102	Engineering Chemistry-I	BSC	3	0	2	4	50	30	20	25	25	150
01CR0101	Career Readiness Program	HSMC	2	0	0	2	50	30	20	0	0	100
	Total		18	2	8	23	300	180	120	125	125	850

B. Tech. Year I, Sem II

Evaluation Scheme

Subject Code	Subject Name	Type	Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
01MA0151	Engineering Mathematics-II	BSC	4	2	0	5	50	30	20	25	25	150
01EN0101	Basics of Environmental Studies	BSC	2	0	0	2	50	30	20	0	0	100
01ME0102	Engineering Graphics	ESC	4	0	4	6	50	30	20	25	25	150
01EE0103	Basic Electrical and Electronics Engineering	ESC	3	0	2	4	50	30	20	25	25	150
01ME0104	Workshop	ESC	0	0	2	1	0	0	0	0	50	50
	Elective	HSMC	2	0	0	2	0	30	20	25	25	100
01PE0101	Physical Education/Sports/Yoga	HSMC	0	0	2	1	0	0	0	0	0	0
	Total		15	2	10	21	200	150	100	100	150	700

Elective

01SL0102	Reading & Writing for Technology	HSMC	2	0	0	2	0	30	20	25	25	100
01SL0103	Speaking & Presentation Skills	HSMC	2	0	0	2	0	30	20	25	25	100

Marwadi University

Bachelor of Technology
Chemical Engineering

B.Tech. Teaching and Examination Scheme Semester III & IV W.E.F. 2017-2018

B. Tech. Year II, Sem III

Subject Code	Subject Name	Type	Teaching Scheme (Hours)			Credits	Evaluation Scheme: Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
01CH0301	Fluid Flow Operations	PCC-CE	4	0	2	5	50	30	20	25	25	150
01CH0302	Stoichiometry	PCC-CE	3	2	0	4	50	30	20	25	25	150
01CH0303	Mechanical Operations	PCC-CE	4	0	2	5	50	30	20	25	25	150
01CH0304	Chemical Technology	PCC-CE	3	2	0	4	50	30	20	25	25	150
01MA0301	Applied Differential Equations	BSC	4	2	0	5	50	30	20	25	25	150
01CH0305	Chemical Engineers & Society-I	PROJ-CE	0	0	2	1	0	0	0	25	25	50
01CR0302	Professional Ethics	HSMC	1	0	0	1	0	0	0	50	50	100
	Total		19	6	6	25	250	150	100	200	200	900

B. Tech. Year II, Sem IV

Subject Code	Subject Name	Type	Teaching Scheme (Hours)			Credits	Evaluation Scheme: Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
01CH0401	Chemical Engineering Thermodynamics- I	PCC-CE	3	2	0	4	50	30	20	25	25	150
01CH0402	Material Science and Composition	PCC-CE	2	0	2	3	50	30	20	25	25	150
01CH0403	Heat Transfer Operations	PCC-CE	4	2	2	6	50	30	20	25	25	150
01CH0404	Organic & Inorganic Chemistry	BSC	3	0	2	4	50	30	20	25	25	150
01MA0281	Statistical & Numerical Methods	BSC	4	2	0	5	50	30	20	25	25	150
01CH0405	Chemical Engineers & Society-II	PROJ-CE	0	0	2	1	0	30	20	25	25	100
	Total		16	6	8	23	250	180	120	150	150	850

Marwadi University

Bachelor of Technology
Chemical Engineering

B.Tech. Teaching and Examination Scheme Semester V & VI — W.E.F. 2017-2018

B. Tech. Year III, Sem V

Subject Code	Subject Name	Type	Teaching Scheme (Hours)			Credits	Evaluation Scheme: Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
01CH0501	Mass Transfer Operation-I	PCC-CE	3	0	2	4	50	30	20	25	25	150
01CH0502	Cleaner Production	PCC-CE	4	2	0	5	50	30	20	25	25	150
01CH0503	Chemical Engineering Thermodynamics-II	PCC-CE	3	2	0	4	50	30	20	25	25	150
01CH0504	Instrumentation & Process Control	PCC-CE	4	0	2	5	50	30	20	25	25	150
01CH0505	Safety in Chemical Industries	PCC-CE	3	2	0	4	50	30	20	25	25	150
01CR0501	Business Benchmark	HSMC	1	0	0	1	0	0	0	50	50	100
01CH1506	Chemical Engineers & Society-III	PROJ-CE	0	0	2	1	0	0	0	25	25	50
	Total		18	6	6	24	250	150	100	200	200	900

B. Tech. Year III, Sem VI

Subject Code	Subject Name	Type	Teaching Scheme (Hours)			Credits	Evaluation Scheme: Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
01CH0601	Mass Transfer Operation-II	PCC-CE	3	0	2	4	50	30	20	25	25	150
01CH0602	Chemical Reaction Engineering-I	PCC-CE	4	0	2	5	50	30	20	25	25	150
01CH0603	Process Equipment Design-I	PCC-CE	4	4	0	6	50	30	20	25	25	150
	Open Elective	OEC	3	2	0	4	50	30	20	25	25	150
	Departmental Elective-I	PEC-CE	3	0	2	4	50	30	20	25	25	150
01CH0609	Chemical Engineers & Society-IV	PROJ-CE	1	0	0	1	0	0	0	25	25	50
	Total		18	6	6	24	250	150	100	150	150	800

Departmental Elective-I												
01CH0606	Biochemical Engineering	PEC-CE	3	0	2	4	50	30	20	25	25	150
01CH1604	Unit operations and Proesses	PEC-CE	3	0	2	4	50	30	20	25	25	150
Open Elective-I												
01ES0601	Renewable Energy Resources	OEC	3	2	0	4	50	30	20	25	25	150
01CH0605	Environmental management in chemical industries	OEC	3	2	0	4	50	30	20	25	25	150

Marwadi University

Bachelor of Technology
Chemical Engineering

B.Tech. Teaching and Examination Scheme Semester VII & VIII — W.E.F. 2017-2018

B. Tech. Year IV, Sem VII

Subject Code	Subject Name	Type	Teaching Scheme (Hours)			Credits	Evaluation Scheme: Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
01CH0701	Process Modelling & Simulation	PCC-CE	3	0	2	4	50	30	20	25	25	150
01CH0702	Chemical Reaction Engineering-II	PCC-CE	3	0	2	4	50	30	20	25	25	150
01CH0703	Process Equipment & Design-II	PCC-CE	4	2	0	5	50	30	20	25	25	150
01CH0704	Plant Design & Project Engineering	PCC-CE	2	0	0	2	50	30	20	25	25	150
	Departmental Elective-II	PEC-CE	2	2	0	3	50	30	20	25	25	150
01CH0705	Project-I	PROJ-CE	0	0	8	4	0	0	0	50	50	100
	Total		14	4	12	22	250	150	100	175	175	850

Subject Code	Departmental Elective-II											
01CH0706	Food Technology	PEC-CE	3	0	0	3	50	30	20	25	25	150
01CH0707	Advanced Separation Techniques	PEC-CE	3	0	0	3	50	30	20	25	25	150

Subject Code	Subject Name	Type	Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
			Theory	Tutorial	Practical		ESE (E)	IA	CSE	Viva (V)	Term work (TW)	
01CH0801	Optimization in chemical engineering	PCC-CE	3	0	2	4	50	30	20	25	25	150
01CH0802	Transport Phenomena	PCC-CE	3	2	0	4	50	30	20	25	25	150
01CH0803	Petroleum Refining & Petrochemicals	PCC-CE	3	0	2	4	50	30	20	25	25	150
	Departmental Elective-III	PEC-CE	3	0	0	3	50	30	20	25	25	150
01CH0804	Project II	PROJ-CE	0	0	16	8	0	0	0	100	100	200
	Total		12	2	20	23	200	120	80	200	200	800

Subject Code	Departmental Elective-III											
01CH0805	Polymer & Nanotechnology	PEC-CE	3	0	0	3	50	30	20	25	25	150
01CH0806	Fertilizer Technology	PEC-CE	3	0	0	3	50	30	20	25	25	150