

St. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Deemed to be University U/S 3 of the UGC Act, 1956)
AVADI, CHENNAI - 600 054.

MINUTES OF THE 20th MEETING OF THE BOARD OF STUDIES IN
MECHANICAL ENGINEERING

Held on 17/09/2019
Members Present

- | | | |
|----|----------------------|------------------------|
| 1. | Dr. N. Rajeswari | Chairperson |
| 2. | Dr. P. Periyasamy | Member |
| 3. | Dr. D. Chandramohan | Member |
| 4. | Dr. K. Gurusami | Member |
| 5. | Mrs. K. Sunitha | Member |
| 6. | Mr. S. Dinesh Kumar | Member |
| 7. | Mr. M. Dhanasekar | Member |
| 8. | Dr. A. Elaya Perumal | Academic Expert Member |
| 9. | Mr. A. Mahibalan | Industry Expert Member |

20.1 Considered the minutes of the 19th meeting of Board of Studies in Mechanical Engineering held on 15/03/2019.

RESOLVED that the minutes of the 19th meeting of Board of Studies in Mechanical Engineering held on 15/03/2019 be confirmed.

20.2 Reviewed the Regulation and Syllabi of B.E. (Mechanical Engineering) programmes under the Regulations 2013 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation and Syllabi of B.E (Mechanical Engineering) programmes under the Regulations 2015 with Choice Based Credit System (CBCS) be continued



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20.3 Reviewed the Regulation and Syllabi of B.E. (Mechanical Engineering) programmes under the Regulations 2018 with Choice Based Credit System (CBCS) by considering the suggestions and remarks given by the members to drop of 218WMT04- Manufacturing Practices which is in II semester

RESOLVED that the Regulation and Syllabi of B.E (Mechanical Engineering) programmes under the Regulations 2018 with Choice Based Credit System (CBCS) to be continued by dropping the 218WMT04- Manufacturing Practices which is in II semester

20.4 Reviewed the Regulation and Syllabi of M.E. (Advanced Manufacturing Technology) under the Regulations 2018 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation and Syllabi of M.E. (Advanced Manufacturing Technology) under the Regulations 2018 with Choice Based Credit System (CBCS) be continued.

20.5 Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.

RESOLVED that the syllabi of B.E (Mechanical Engineering) programme under the Regulations 2018 and M.E. (Advanced Manufacturing Technology) under the Regulations 2018 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved

20.6 Considered to include courses having focus on employability/ entrepreneurship /skill development in the syllabi of B.E (Mechanical Engineering) under the Regulations 2018 & Regulation 2020 and M.E. (Advanced Manufacturing Technology) under the Regulations 2018.

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.E (Mechanical Engineering) under the Regulations 2018 Regulation 2020 and M.E. (Advanced Manufacturing Technology) under the Regulations 2018 to be approved.



A handwritten signature in blue ink, appearing to be "Lal".

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20.7 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.E (Mechanical Engineering) and M.E. (Advanced Manufacturing Technology).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "Rapid Prototyping Technologies" be approved for the upcoming semester (2019-20 Even semester).

Date: 17/09/2019


Chairman




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MINUTES OF THE 21st MEETING OF THE BOARD OF STUDIES IN **MECHANICAL ENGINEERING**

Held on 21.02.2020

Members Present

- | | | |
|----|----------------------|------------------------|
| 1. | Dr. N. Rajeswari | Chairperson |
| 2. | Dr. P. Periyasamy | Member |
| 3. | Dr. D. Chandramohan | Member |
| 4. | Dr. K. Gurusami | Member |
| 5. | Mrs. K. Sunitha | Member |
| 6. | Mr. S. Dinesh Kumar | Member |
| 7. | Dr. A. Elaya Perumal | Academic Expert Member |
| 8. | Mr. A. Mahibalan | Industry Expert Member |

21.1 Considered the minutes of the 20th meeting of Board of Studies in Mechanical Engineering held on 17/09/2019.

RESOLVED that the minutes of the 20th meeting of Board of Studies in Mechanical Engineering held on 17/09/2019 be confirmed.

21.2 Reviewed the Regulation and Syllabi of B.E. (Mechanical Engineering) under the Regulations 2013 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation and Syllabi of B.E. (Mechanical Engineering) under the Regulations 2013 with Choice Based Credit System (CBCS) be continued taking into consideration of the suggestions and remarks given by the members to include the following new Elective courses "Nanotechnology for Energy Systems".
(Appendix - I)



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21.3 Reviewed the Regulation and Syllabi of of V & VI semester of B.E. (Mechanical Engineering) under the Regulations 2018 with Choice Based Credit System (CBCS) from the batch of students to be admitted from 2018-19.

RESOLVED that the Syllabi of V & VI semester of B.E. (Mechanical Engineering) under the Regulations 2018 with Choice Based Credit System (CBCS) for the batch of students to be admitted from 2018-19 to be approved. (Appendix - II)

21.4 Reviewed the Regulation and Syllabi of B.E. (Mechanical Engineering) under the Regulations 2018 with Choice Based Credit System (CBCS) from the batch of students to be admitted from 2018-19.

RESOLVED that the Regulation and Syllabi of B.E. (Mechanical Engineering) under the Regulations 2018 with Choice Based Credit System (CBCS) be continued with the changes and amendments that are made in the curriculum of II Semester to IV Semester. (Appendix- III)

21.5 Considered the new Regulations and syllabi of I & II semesters of B.E. (Mechanical Engineering) from the batch of students to be admitted from 2020-21 under the Regulations 2020 with Choice Based Credit System (CBCS).

RESOLVED that the new regulations and syllabi of I & II semesters of B.E. (Mechanical Engineering) with course outcomes from the batch of students to be admitted from 2020-21 under the Regulations 2020 with Choice Based Credit System (CBCS) be approved. (Appendix-IV)

21.6 Reviewed the Regulations and syllabi of M.E. (Advanced Manufacturing Technology) under the Regulations 2018 with Choice Based Credit System (CBCS).

RESOLVED that the Syllabi of M.E. (Advanced Manufacturing Technology) under the Regulations 2018 with Choice Based Credit System (CBCS) be continued.

21.7 Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.

RESOLVED that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix - V)



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20.1 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.E (Mechanical Engineering) and M.E. (Advanced Manufacturing Technology).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "Non Destructive Testing in Welding" be approved for the upcoming academic year (2020-21).

Date: 21.02.2020


Chairman




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Appendix-I
B.E (Mechanical Engineering)
Regulation -2013
CHOICE BASED CREDIT SYSTEM

NANOTECHNOLOGY FOR ENERGY SYSTEMS

OBJECTIVES

- The students will acquire sharp knowledge on nanotechnology based alternate source of energy
- The students may work on advanced materials for renewable and green energy
- The students will get a clear understanding of Solar technology
- They will also understand the importance of energy storage techniques
- They will be clear about the role of nanotechnology in improving the efficiency in energy usage

UNIT – I: SOLAR ENERGY TECHNOLOGY

Electromagnetic spectrum – Availability of solar radiation – Photovoltaic devices – Dye sensitized solar cells – Silicon technology for solar cells – First generation, second generation and third generation solar cells – Photoelectrochemical cells for hydrogen production

UNIT – II: NANOTECHNOLOGY IN RENEWABLE ENERGY SYSTEMS

Energy challenges – Development and implementation of renewable energy technologies – Nanotechnology enabled renewable energy technologies – Energy transport, conversion and storage – Nano, micro and meso scale phenomena and devices.

UNIT – III: ENERGY SECTOR PRODUCTS USING NANOMATERIALS

Light emitting diodes – Batteries – Catalytic reactors – Capacitors – Super capacitors – Microfluidic systems – Nano engines – Biogas – Biodiesel.

UNIT – IV: FUEL CELL TECHNOLOGY

Fuel cell technologies – Integration and performance for micro – Fuel cell systems – Thin film and microfabrication methods – Design methodologies – Micro-fuel cell power sources.


UNIT – V: HYDROGEN STORAGE TECHNOLOGY

Hydrogen storage methods – Metal hydrides – Hydrogen storage capacity – Hydrogen reaction kinetics – Carbon-free cycle – Gravimetric and volumetric storage capacities – Hydriding/dehydriding kinetics – High enthalpy of formation – Thermal management during the hydriding reaction – Distinctive chemical and physical properties – Multiple catalytic effects – Degradation of the sorption properties – Hydride storage materials for automotive applications.

REFERENCES

1. Twidell. J, Weir. T, "Renewable Energy Resources", E & F N Spon Ltd, 2nd Edition 1986.
2. Shatwell. R.A, "Fuel Storage on Board Hydrogen Storage in Carbon Nanostructures - in Fuel cell technology handbook", CRC Press, 2003.
3. Hoogers.G, "Fuel cell technology handbook", CRC Press, 2003.




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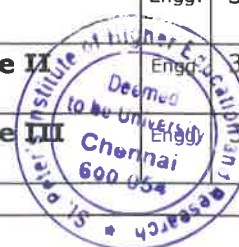
Appendix-II
B.E (Mechanical Engineering)
Regulation -2018
CHOICE BASED CREDIT SYSTEM

SEMESTER -V

Code No.	Course Title	Cat.	L	T	P	Credit	Marks		
							CA	EA	Total Marks
THEORY									
518MET01	Design of Machine Elements	Engg.	3	0	0	3	25	75	100
518MET02	Dynamics of Machines	Engg.	3	0	0	3	25	75	100
518MET03	Gas Dynamics and Jet Propulsion	Engg.	3	0	0	3	25	75	100
518MBT04	Principles of Management & Professional Ethics	Mgt.	3	0	0	3	25	75	100
518MET05	Automobile Engineering and New Generation Vehicles	Engg.	3	0	0	3	25	75	100
	Programme Elective I	Engg	3	0	0	3	25	75	100
PRACTICAL									
518MEP01	Thermal Laboratory- I	Engg.	0	0	4	2	25	75	100
518MEP02	Dynamics and Metrology Laboratory	Engg.	0	0	4	2	25	75	100
518MEP03	Soft Skill Laboratory - II	Hum.	0	0	4	2	25	75	100
Total			18	0	12	24	225	675	900

SEMESTER -VI

Code No.	Course Title	cat.	L	T	P	Credit	Marks		
							CA	EA	Total Marks
THEORY									
618MET01	Design of Transmission Systems	Engg.	3	1	0	4	25	75	100
618MET02	Heat and Mass Transfer	Engg.	3	0	0	3	25	75	100
618MET03	Mechatronics	Engg.	3	0	0	3	25	75	100
	Programme Elective II	Engg.	3	0	0	3	25	75	100
	Programme Elective III	Engg.	0	0	0	3	25	75	100
PRACTICAL									



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618MEP01	Thermal Laboratory- II	Engg.	0	0	4	2	25	75	100
618MEP02	Internship - II	Engg.	0	0	4	2	25	75	100
	NCC / NSS		0	0	0	0			
Total			15	1	8	20	175	525	700

Program Elective Courses

Sl. No	Course Code	Course Title	Credit	Prerequisite
Programme Elective I (Sem V)				
1.	518MET06	Design for Manufacturing	3	Design
2.	518MET07	Design of Heat Exchangers	3	Design
3.	518MET08	Casting and Welding Processes	3	Manf.
4.	518MET09	Unconventional Machining Techniques	3	Manf.
5.	518MET10	Turbo Machinery	3	Thermal
6.	518MET11	Advanced Internal Combustion Processes	3	Thermal
7.	518MET12	Powder Metallurgy	3	Engg. Mtl
Programme Elective II (Sem VI)				
1.	618MET04	Computational Techniques for Fluid Dynamics	3	Design
2.	618MET05	Non-destructive Evaluation of Materials	3	Manf.
3.	618MET06	Computer Integrated manufacturing	3	Manf.
4.	618MET07	Refrigeration and Air Conditioning	3	Thermal
5.	618MET08	Gas Dynamics for Space Propulsion	3	Thermal
6.	618MET09	Mechanical Metallurgy	3	Engg. Mtl
7.	618MET10	Heat Treatment of Metals and Alloys	3	Engg. Mtl
Programme Elective III (Sem VI)				
1.	618MET11	Dynamics and Control	3	Design
2.	618MET12	Production and Operations Management	3	Manf.
3.	618MET13	Solar Energy Technology	3	Thermal
4.	618MET14	Waste to Energy Conversion	3	Thermal
5.	618MET15	Composite Materials and Mechanics	3	Engg. Mtl
6.	618MET16	Polymer Science and Engineering	3	Engg. Mtl
7.	718MET10	Creep and Fatigue Behavior of Materials	3	Engg. Mtl



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Appendix- III

The changes and amendments that are made in II Semester to IV Semester curriculum of B.E Mechanical Regulation 2018 are enclosed in this appendix.

1. 318MEIP01- Internship- I in III semester is shifted to IV semester and coded as 418MEP06- Internship- I.
2. 418MET06- Solid and Fluid Mechanics is dropped from IV semester and replaced by two separate courses as 318MET02 - Strength of Materials and 318MET03-Fluid Mechanics and Machinery in III semester
3. 418MET04- Manufacturing Technology is dropped from IV semester and replaced by two separate courses as 318MET05- Manufacturing Technology- I in III semester and 418MET07 Manufacturing Technology- II in IV semester.
4. 318MET06- Environmental Science is shifted from III semester to II semester and subject is coded as 218CHT05- Environmental Science.
5. 418MET03-Engineering Materials is shifted from IV semester to III semester and subject is coded as 318MET06- Engineering Materials and Metallurgy.
6. 418MEP03-Soft Skill Laboratory – I is shifted from IV semester to III semester and subject is coded as 318MEP02-Soft Skill Laboratory – I
7. 318MET03-Computer Aided Design is shifted from III semester to IV semester and subject is coded as 418MET08- Computer Aided Design.
8. Computer Aided Design Laboratory shifted from III semester is shifted to IV semester and subject is coded as 418MEP04- Computer Aided Design and Manufacturing Laboratory.



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Appendix-IV
B.E (Mechanical Engineering)
Regulation -2020
CHOICE BASED CREDIT SYSTEM

SEMESTER 1									
Sl. No.	Course Code	Course Title	L	T	P	C	CA	EA	TOTAL
1.	AELT1101	English	3	0	0	3	40	60	100
2.	AMAT1101	Mathematics -I	3	1	0	4	40	60	100
3.	ACYT1101	Chemistry	3	0	0	3	40	60	100
4.	AEET1101	Basic Electrical and Electronics Engg.	3	0	0	3	40	60	100
5.	AMET1101	Engg. Graphics & Design	1	0	4	3	40	60	100
6.	ACYL1101	Chemistry Laboratory	0	0	4	2	40	60	100
7.	AMEL1101	Engineering Practices Laboratory	0	0	4	2	40	60	100
Total			13	1	10	20	280	420	700

SEMESTER 2									
Sl. No.	Course Code	Course Title	L	T	P	C	CA	EA	TOTAL
1.	AMAT1102	Mathematics -II	3	1	0	4	40	60	100
2.	APHT1101	Physics	3	0	0	3	40	60	100
3.	ACHT1101	Environmental Science	3	0	0	3	40	60	100
4.	ACST1101	Computer Programming	3	0	0	3	40	60	100
5.	AMET1102	Engineering Mechanics	3	0	0	3	40	60	100
6.	APHL1101	Physics Laboratory	0	0	4	2	40	60	100
7.	ACSL1101	Computer Programming Laboratory	0	0	4	2	40	60	100
8.	ASSL1101	Soft Skill Laboratory- I	0	0	2	1	40	-	100
TOTAL			15	1	10	21	380	420	800

Appendix – V

ACTION TAKEN REPORT ON STAKEHOLDERS FEEDBACK

DEPARTMENT OF MECHANICAL ENGINEERING

2019-2020

Program	Stakeholder	Feedback	Recommendation	Action taken
B.E. MECH	Student	Students suggested the need for job oriented courses, training for facing interviews during campus selection. They also requested to provide are guidance and experttalks by industrialists.	To offer multilingual program for advancing computer education.	Career guidance programs were given and counselling cell supported the development of soft skills and communication ability.
	Teacher	Teaching methods and teaching aids must be improved	Suggested for advance learning	ICT methods and smart boards were used for effective teaching.
	Alumni	More emphasis should be on the applications of the opted field of study. Focus more on inter disciplinary activities of many courses.	Suggested for Inter-disciplinary f projects.	Inter departmental research initiatives was encouraged.




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	Parents	Practical Knowledge to be imparted which will help them to face real life situations.	Encouraged students participate in competition.	the to in	Mini-Project models and individual presentations by students in the institution were encouraged for participating in competitions organised by other institutions.
	Employer	Recruiters suggested that the students are be strong in their aptitude skills, as it is the first level of the interview process	To focus on aptitude training.		Intensive training on aptitude training was planned for the next academic year.




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NEW COURSES FOR THE ACADEMIC YEAR 2019-2020

B.E. – MECHANICAL ENGINEERING

S.No	Programme Code	Programme Name	Course Code	Name of the Course
1	MEU	B.E. - Mechanical Engineering	218WMP03	MANUFACTURING PRACTICES LABORATORY
2	MEU	B.E. - Mechanical Engineering	318MAT01	PARTIAL DIFFERENTIAL EQUATIONS, PROBABILITY & STATISTICS
3	MEU	B.E. - Mechanical Engineering	318MET02	RENEWABLE SOURCES OF ENERGY
4	MEU	B.E. - Mechanical Engineering	318MET03	COMPUTER AIDED DESIGN
5	MEU	B.E. - Mechanical Engineering	318MET04	BASIC ELECTRONICS ENGINEERING
6	MEU	B.E. - Mechanical Engineering	318MET05	ENGINEERING THERMODYNAMICS
7	MEU	B.E. - Mechanical Engineering	318MET06	ENVIRONMENTAL SCIENCE
8	MEU	B.E. - Mechanical Engineering	318MEP01	COMPUTER AIDED DESIGN LABORATORY
9	MEU	B.E. - Mechanical Engineering	318MEP02	ENGINEERING THERMODYNAMICS LABORATORY
10	MEU	B.E. - Mechanical Engineering	318MEP03	INTERNSHIP I
11	MEU	B.E. - Mechanical Engineering	418MET01	KINEMATICS OF MACHINERY
12	MEU	B.E. - Mechanical Engineering	418MET02	THERMAL ENGINEERING
13	MEU	B.E. - Mechanical Engineering	418MET03	ENGINEERING MATERIALS AND METALLURGY
14	MEU	B.E. - Mechanical Engineering	418MET04	MANUFACTURING TECHNOLOGY
15	MEU	B.E. - Mechanical Engineering	418MET05	METROLOGY AND MEASUREMENTS
16	MEU	B.E. - Mechanical Engineering	418MET06	SOLID AND FLUID MECHANICS.
17	MEU	B.E. - Mechanical Engineering	418MEP01	SOLID AND FLUID MECHANICS LABORATORY
18	MEU	B.E. - Mechanical Engineering	418MEP02	MANUFACTURING TECHNOLOGY LABORATORY
19	MEU	B.E. - Mechanical Engineering	418MEP03	SOFT SKILL LABORATORY - I



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