



Date: 13/07/2021

DEPARTMENT OF APPLIED ENGINEERING

Minutes of Board of Studies Meeting

The BoS meeting was conducted for B.Tech Automobile Engineering on 10th June, 2021 in U-Block Fourth floor at AFTF 05 through virtual mode (Zoom online).

The following members were present for the meeting:

1. Dr. K. Annamalai, External member
Madras Institute of Technology,
Anna University, Chennai.
2. Dr. R. Velu, External member
Consultant, Pranavam Research and Development Organization, Chennai.
& Former Professor, School of Mechanical Engineering,
Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Avadi, Chennai.
3. Dr. R. Sivakumar, External member
R&D Engineer, Caterpillar India Pvt Ltd. Chennai.
4. Mr. M.Prakadeesh Sakthivel, External member
Product Planning Analyst, Ford Motors, Chennai.

Internal Members are:

1. Mr. N. Narayana Rao, member
Asst. Prof, Applied Engineering, Vignan's Foundation for Science, Technology & Research
2. Mr. B. Harishbabu, member
Asst. Prof , Applied Engineering, Vignan's Foundation for Science, Technology & Research
3. Dr. L.S. Raju, member
Professor, Mechanical Engineering, Vignan's Foundation for Science, Technology & Research
4. Mrs. B. Anitha Reddy, member
Asst.Prof, Applied Engineering, Vignan's Foundation for Science, Technology & Research
5. Dr. B. Sujith Bobba, Member
Asst.Prof, Applied Engineering, Vignan's Foundation for Science, Technology & Research
6. Mr. M. Selvamuthu kumar, Member
Asst.Prof, Applied Engineering, Vignan's Foundation for Science, Technology & Research

7. Dr. D. Vinay Kumar, member
Asoc.Prof, Mechanical Engineering, Vignan's Foundation for Science, Technology & Research
8. Dr. K.Venkat Rao, member
Professor, Mechanical Engineering, Vignan's Foundation for Science, Technology & Research
9. Dr. G. Suresh, member
Asoc.Prof, Mechanical Engineering, Vignan's Foundation for Science, Technology & Research

III. The following views got approved by the external members:

- As per the suggestion given by Dr. Annamalai & Dr. R. Velu,
 - the syllabus for "Engineering thermodynamics and Heat Transfer" seems to be vast, so syllabus have to be reduced (elementary level is sufficient) or have to increase the lecture hours and also have to include one credit for tutorial hour.
- As per the suggestion given by the Dr. Annamalai,
 - the syllabus for Materials for Automotive components to be similar to the Materials science and Metallurgical Engineering syllabus.
 - Include courses related to electric and hybrid vehicles, like fuel cell technology, battery management systems like charging of batteries, recycling of batteries & battery thermal management system.
 - Automotive instrumentation related course can be included in the curriculum.
- As per the suggestion given by the Dr. R. Velu,
 - Basically curriculum has to be framed to meet the 12 programme outcomes stipulated by NBA, India. The courses offered in the curriculum do not lead to satisfactory achievement of programme outcome 11. To achieve that, a course or topics related to project management and finance have to be added.
 - Integrated product development course to be included in the curriculum as an elective course.
 - Have to add the topics such as safety aspects and hazards related to automobile.
 - Use Blooms Taxonomy action verbs to frame the course outcomes. It is also suggested to frame five course outcomes to effectively calculate the course outcomes attainment. (Though this need not be the case and four course outcomes are sufficient)
- As per the suggestion given by the Dr. R. Siva Kumar,
 - Have to give much importance to computer aided engineering. Structural analysis (in automobile) related laboratories can be added (both design & analysis).
 - Chassis, frame design and analysis topics to be included in courses dealing with design aspects.
 - Based upon students' suggestions and their interest, computer related courses can be included as mandatory courses.
- As per the suggestion given by the Mr. M.Prakadeesh Sakthivel
 - More practical or laboratory-oriented courses should be included to meet the industry demands.
 - Cost analysis of a product is important, so suitable topics to be added in the curriculum.
 - Topics like automotive regulations, vehicle standards and vehicle policies to be included in the suitable courses in the curriculum.

- As per the suggestions given by the BoS experts the course names ~~to~~ be renamed as stated below:
- Newly added computer related courses should be made as department elective or open elective. Instead make more core courses as compulsory ~~courses~~.
 - Suggested to reduce the computer related courses in the ~~automobile~~ curriculum.

Note :

- ⇒ As per the suggestions given by the BoS experts,
- Verification of course outcomes for all the subjects and they should be uniform i.e., either 4 or 5.
 - Verification of mapping of course outcomes with programme ~~outcomes~~ for all the subjects.
 - All the units side headings to be upper case.
 - All the text books and reference books latest version to be ~~print~~ed and year of publishing to be mentioned.

Outcomes of the Meeting:

1. BoS members approved the revised curriculum (Structure, syllabus and regulations) of B.Tech, Automobile Engineering and it follows Choice Based Credit System . ~~Structure~~ is provided in Annexure-I.
2. Major restructuring has taken place in the curriculum which is computer programming oriented towards Project based learning with inclusion of Interdisciplinary, Inter-departmental and Societal centric and industry related projects.
3. All the Courses in the Curriculum are designed to fall under either of the domains of Employability or Entrepreneurship and Skill development. The mapping of the ~~courses~~ with Employability or Entrepreneurship and Skill development. is provided in Annexure II.
4. In all the courses of the revised curriculum (R21) substantial changes are made in the content and the list of new courses provided in Annexure -III.
5. Feedback for various stake holders such as employer, Alumni, teacher, parents and students is collected, analysed and given utmost priority while designing the curriculum and ~~their~~ suggestions are implemented.
6. Credits for the NPTEL courses are appreciable, but faculty has ~~to~~ advise the students to choose advanced courses which are relevant to industry.
7. Syllabus revision is 30%





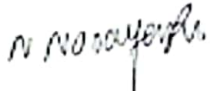

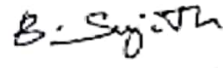
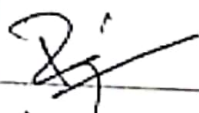
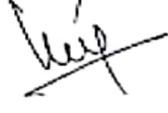
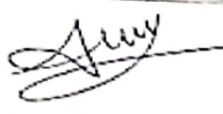
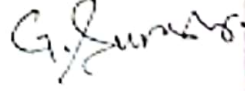

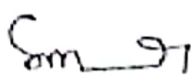
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Foundation for Science, Technology & Research

(Deemed to be University)

ESTD. IN 2004

Department of Applied Engineering
Board of Studies (Bos) meeting - B.Tech in Automobile Engineering
The following internal members are present:

S.No	Name	Signature
1.	Mr.N.Narayana Rao, member Asst. Professor & HOD, Applied Engineering, Vignan's Foundation for Science, Technology & Research	
2.	Mr. B.Harishbabu, member Asst. Professor & Dty. HoD, Applied Engineering, Vignan's Foundation for Science, Technology & Research	
3.	Dr. H Sujith, member Asst. Professor, Applied Engineering Asst.Prof, Applied Engineering, Vignan's Foundation for Science, Technology & Research	
4.	Dr. L S Raju, member Professor, Mechanical Engineering, Vignan's Foundation for Science, Technology & Research	
5.	Dr. K. Venkata Rao, member Professor, Mechanical Engineering, Vignan's Foundation for Science, Technology & Research	
6.	Ms. Anitha Reddy, member Asst.Prof, Applied Engineering, Vignan's Foundation for Science, Technology & Research	
7.	Dr. G.Suresh, member Asst.Prof, Mechanical Engineering, Vignan's Foundation for Science, Technology & Research	
8.	Dr. D.Vinay Kumar, member Asst.Prof, Mechanical Engineering, Vignan's Foundation for Science, Technology & Research	
9.	Mr.M.Selvamuthukumar, member Asst.Prof, Applied Engineering, Vignan's Foundation for Science, Technology & Research	



Annexure-I

B.Tech Automobile Engineering

R21 Course Structure

I YEAR I Semester

S.No.	Course Name	L	T	P	C
1	*Engineering Mathematics-I (F)	3	1	-	4
2	*Engineering Physics	3	-	2	4
3	Basics of Electrical & Electronics Engineering	3	-	2	4
4	Basic Engineering Products	2	-	2	3
5	Engineering Graphics and Design	2	-	2	3
6	Introduction to C Programming	3	-	2	4
7	Constitution of India	1	-	-	1
8	Physical fitness, Sports & Games-I	-	-	3	1
	Total				24

I YEAR II Semester

S.No.	Course Name	L	T	P	C
1	*Engineering Mathematics-II (F)	3	1	-	4
2	*Engineering Chemistry	2	-	-	2
3	Programming for Problem Solving	3	-	2	4
4	Technical English Communication	2	-	2	3
5	Workshop	1	-	2	2
6	Engineering Mechanics	3	1	-	4
7	English Proficiency and communication skills	-	-	2	1
8	Physical fitness, Sports & Games-II	-	-	3	1
	Total				21

II YEAR I Semester

S.No.	Course Name	L	T	P	C
1	Data Structures	2	-	2	3
2	Automotive Chassis	3	-	2	4
3	Strength of Materials for Automobiles	3	-	2	4
4	Materials for Automotive components	3	-	-	3
5	Theory of Machines	3	-	-	3
6	Fundamentals of I.C Engines	3	-	2	4
7	Life skills-I	-	-	2	-
8	Technical Seminar-I	-	-	2	1
9	Intra disciplinary Project-I	-	-	2	1
10	Physical fitness, Sports & Games-III	-	-	2	1
	Total				24

II YEAR II Semester

S.No.	Course Name	L	T	P	C
1	Engineering Thermodynamics and Heat Transfer	3	-	2	4
2	Probability & Statistics	3	-	-	3
3	Manufacturing Processes for Automotive Components	3	-	2	4
4	Fluid Mechanics and machinery	3	-	2	4
5	Environmental Science	1	-	-	1
6	Open Elective - I	2 / 3	-	2 / 0	3
7	Open Elective - II	2 / 3	-	2 / 0	3
8	Life skills - II	-	-	2	1
9	Intra-disciplinary Project-II	-	-	2	1
10	Technical Seminar-II	-	-	2	1
	Total				25

III YEAR I Semester

S.No.	Course Name	L	T	P	C
1	Automotive Transmission	2	-	2	3
2	Open Elective - III	2 / 3	-	2 / 0	3
3	Automotive Component Design	3	-	2	4
4	Automotive Electricals and Electronics	2	-	2	3
5	Soft skills Lab	1	-	-	1
6	Employability skills-1	-	-	2	-
7	Inter-departmental Project-1	-	-	4	2
8	Modular course	-	-	-	1
9	Department Elective-I	3	-	-	3
	Total				20

III YEAR II Semester

S.No.	Course Name	L	T	P	C
1	Vehicle body Engineering	3	-	-	3
2	Automotive Engine Components Design	3	-	-	3
3	Open Elective - IV	0 / 2	-	4 / 0	2
4	Open Elective - V	0 / 1	-	2 / 0	1
5	Professional communications Lab	-	-	2	1
6	Human Values, Professional Ethics & Gender Equity	2	-	-	2
7	Employability skills- II	-	-	2	1
8	Inter-departmental Project-II	-	-	4	2
9	Department Elective-II	3	-	-	3
10	Open Elective- (Swayam / NPTEL)	3	-	-	3
	Total				21

IV YEAR I Semester

S.No.	Course Name	L	T	P	C
1	Two and three wheelers	3	-	-	3
2	Automotive Emissions and Control	2	-	2	3
3	Management Science	3	-	-	3
4	Electric and Hybrid Vehicles	3	-	-	3
5	Vehicle Evaluation and Maintenance	2	-	-	2
6	Societal Centric project			6	3
7	Department Elective-III	3	-	-	3
8	Department Elective-IV	3	-	-	3
	Total				23

IV YEAR II Semester

S.No.	Course Name	L	T	P	C
1	Project Work/Internship (Internship Oriented Projects)	-	-	24	12
	Total	-	-	24	12

The Courses that are highlighted denote implemented of "Choice based Credit System (CBCS)"


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Department Electives Courses

S.No	Course Name
1	Vehicle Dynamics
2	Fundamentals of Motor Sport Engineering
3	Supercharging and turbo charging
4	Modern Vehicle Technology
5	Nano Technology
6	Finite Element Methods
7	New Generation And Hybrid Vehicles
8	Engineering Metrology and Instrumentation
9	Operation Research
10	Industrial Robots
11	3D Printing for Automobile components
12	Special Purpose Vehicles
13	Industrial Engineering & management
14	Transport Management
15	Automotive Aerodynamics
16	Noise vibration and harshness
17	Unconventional Manufacturing Process
18	Intelligent Vehicle Technology
19	Modeling of Electric and hybrid Vehicles.
20	Automotive Fuels, Lubricants and Coolants
21	Automotive Electronics and Micro Controllers
22	Automotive Safety
23	Automotive Air Conditioning
24	WELDING AND JOINING TECHNIQUES
25	Industry 4.0

Manjiv
Chairman, BoS

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Waddarpet, Chennai - 600 048

Annexure-II

List of Courses that enable Employability or Entrepreneurship or Skill development in the R21 B.Tech- Automobile Engineering

Year	Course Name	Course Nature
I	*Engineering Mathematics-I (F)	Employability
I	*Engineering Physics	Employability
I	Basics of Electrical & Electronics Engineering	Skill development
I	Basic Engineering Products	Employability
I	Engineering Graphics and Design	Employability
I	Introduction to C Programming	Skill development
I	Constitution of India	Skill development
I	Physical fitness, Sports & Games-I	Employability
I	*Engineering Mathematics-II (F)	Employability
I	*Engineering Chemistry	Skill development
I	Programming for Problem Solving	Skill development
I	Technical English Communication	Skill development
I	Workshop	Skill development
I	Engineering Mechanics	Skill development
I	English Proficiency and communication skills	Employability
I	Physical fitness, Sports & Games-II	Skill development
II	Data Structures	Skill development
II	Automotive Chassis	Skill development
II	Strength of Materials for Automobiles	Employability
II	Materials for Automotive components	Skill development
II	Theory of Machines	Employability
II	Fundamentals of I.C Engines	Skill development
II	Life skills-I	Skill development
II	Technical Seminar-I	Employability
II	Intra disciplinary Project-I	Employability
II	Physical fitness, Sports & Games-III	Employability
II	Engineering Thermodynamics and Heat Transfer	Skill development
II	Probability & Statistics	Employability
II	Manufacturing Processes for Automotive Components	Skill development
II	Fluid Mechanics and machinery	Skill development
II	Environmental Science	Employability
II	Object Oriented Programming	Employability
II	Database Management System	Employability
II	Life skills-II	Skill development
II	Intra-disciplinary Project-II	Employability
II	Technical Seminar-II	Skill development
III	Automotive Transmission	Skill development
III	Python Programming	Skill development
III	Automotive Component Design	Skill development
III	Automotive Electricals and Electronics	Skill development
III	Soft skills Lab	Skill development
III	Employability skills-I	Employability
III	Inter-departmental Project-I	Employability
III	Modular course	Employability
III	Vehicle body Engineering	Skill development

III	Automotive Engine Components Design	Skill development
III	Competitive coding	Employability
III	Mini project	Employability
III	Professional communications Lab	Employability
III	Human Values, Professional Ethics & Gender Equity	Skill development
III	Employability skills-II	Skill development
III	Inter-departmental Project-II	Employability
IV	Two and three wheelers	Employability
IV	Automotive Emissions and Control	Employability
IV	Management Science	Employability
IV	Electric and Hybrid Vehicles	Employability
IV	Vehicle Evaluation and Maintenance	Skill development
IV	Societal Centric project	Skill development
IV	Project work/ Internship	Employability
E	Vehicle Dynamics	Employability
E	Fundamentals of Motor Sport Engineering	Employability
E	Supercharging and turbo charging	Employability
E	Modern Vehicle Technology	Employability
E	Nano Technology	Employability
E	Finite Element Methods	Employability
E	New Generation And Hybrid Vehicles	Employability
E	Engineering Metrology and Instrumentation	Skill development
E	Operation Research	Skill development
E	Industrial Robots	Employability
E	3D Printing for Automobile components	Employability
E	Special Purpose Vehicles	Employability
E	Industrial Engineering & management	Skill development
E	Transport Management	Employability
E	Automotive Aerodynamics	Employability
E	Noise vibration and harshness	Employability
E	Unconventional Manufacturing Process	Employability
E	Intelligent Vehicle Technology	Skill development
E	Modeling of Electric and hybrid Vehicles.	Skill development
E	Automotive Fuels, Lubricants and Coolants	Skill development
E	Automotive Electronics and Micro Controllers	Skill development
E	Automotive Safety	Skill development
E	Automotive Air Conditioning	Skill development
E	Welding And Joining Techniques	Employability
E	Industry 4.0	Employability

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Annexure –III

List of New Courses in the R-21 B.Tech Automobile Engineering

S.No	Semester (Year)	Course Name
1	II Year I Semester	Data Structures
2	II Year I Semester	Materials for Automotive components
3	II Year I Semester	Theory of Machines
4	II Year II Semester	Engineering Thermodynamics and Heat Transfer
5	II Year II Semester	Probability & Statistics
6	II Year II Semester	Manufacturing Processes for Automotive Components
7	II Year II Semester	Fluid Mechanics and machinery
8	II Year II Semester	Environmental Science
9	III Year I Semester	Automotive Component Design
10	III Year I Semester	Automotive Electricals and Electronics
11	III Year II Semester	Automotive Engine Components Design
12	III Year II Semester	Professional communications Lab
13	IV Year I Semester	Automotive Emissions and Control
14	Elective	Vehicle Dynamics
15	Elective	Fundamentals of Motor Sport Engineering
16	Elective	Supercharging and turbo charging
17	Elective	Modern Vehicle Technology
18	Elective	Nano Technology
19	Elective	Finite Element Methods
20	Elective	New Generation And Hybrid Vehicles
21	Elective	Engineering Metrology and Instrumentation
22	Elective	Operation Research
23	Elective	Industrial Robots
24	Elective	3D Printing for Automobile components
25	Elective	Special Purpose Vehicles
26	Elective	Industrial Engineering & management
27	Elective	Transport Management
28	Elective	Automotive Aerodynamics
29	Elective	Noise vibration and harshness
30	Elective	Unconventional Manufacturing Process
31	Elective	Intelligent Vehicle Technology
32	Elective	Modeling of Electric and hybrid Vehicles.
33	Elective	Automotive Fuels, Lubricants and Coolants
34	Elective	Automotive Electronics and Micro Controllers
35	Elective	Automotive Safety
36	Elective	Automotive Air Conditioning
37	Elective	Welding And Joining Techniques
38	Elective	Industry 4.0

Nayana
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