ADITYA ENGINEERING COLLEGE

An Autonomous Institutuion

Approved by AICTE • Permanently Affiliated to JNTUK • Accredited by NAAC with 'A' Grade

Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956

Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Program Name : B.Tech. in Mechanical Engineering

Syllabus Revision for the Academic Year 2021-2022

S.No	Semester	Course Code	Course Name	% of content revised for the existing year
1	I	201HS1T01	Communicative English	0
2	I	201BS1T01	Differential Equations and Linear Algebra	0
3	I	201BS1T02	Engineering Physics	0
4	I	201ES1T03	Essential Electrical and Electronics Engineering	0
5	I	201ES1T05	Engineering Graphics	0
6	I	201HS1L01	Communicative English Lab	0
7	I	201BS1L01	Engineering Physics Lab	0
8	I	201ES1L03	Essential Electrical and Electronics Engineering Lab	0
9	I	201MC1T01	Environment Science	0
10	II	201BS2T05	Partial Differential Equations and Vector Calculus	0
11	II	201BS2T08	Chemistry of Materials	0
12	II	201ES2T06	Engineering Mechanics	0
13	II	201ES2T08	Programming for Problem Solving using C	0
14	II	201ES2L07	Engineering Workshop	0
15	II	201ES2L12	Computer Aided Drafting Lab	0
16	II	201HS2L02	Professional Communications Skills Lab	0
17	II	201BS2L05	Engineering Chemistry Lab	0
18	II	201ES2L10	Programming for Problem Solving using C Lab	0
19	II	201MC2T02	Constitution of India	0
20	III	201BS3T12	Integral Transforms and Applications of partial differential equations	0
21	III	201ME3T01	Production Technology	0
22	III	201ME3T02	Fluid Mechanics & Hydraulic Machines	0
23	III	201ES3T15	Thermodynamics	0
24	III	201ES3T16	Metallurgy &Material Science	5
25	III	201ME3T01	Computer Aided Machine Drawing Lab	10

PRINCIPAL
Aditya Engineering College
SURAMPALEM

S.No	Semester	Course Code	Course Name	% of content revised for the existing year
26	III	201ME3L01	Production Technology Lab	0
27	III	201ME3L02	Fluid Mechanics & Hydraulic Machines Lab	0
28	III	201SC3L03	Skill oriented Course-I(Java Programming Lab)	100
29	III	201MC3T03	Biology For Engineers	0
30	IV	201BS4T15	Numerical methods& Statistical Techniques	0
31	IV	201HS4T04	Industrial Engineering and Management	0
32	IV	201ME4T03	Mechanics of Solids	0
33	IV	201ME4T04	Theory of Machines-I	20
34	IV	201ME4T05	Thermal Engineering-I	15
35	IV	201ME4L04	Theory of Machines Lab	6
36	IV	201ME4L05	Mechanics of Solids &Metallurgy Lab	0
37	IV	201ME4L06	Thermal Engineering Lab	6
38	IV	201SC4L15	Python Programming Lab	100
39	IV	201MC4T04	Essence of Indian Traditional Knowledge	0
40	V	191ME5T09	Dynamics of Machinery	6
41	V	191ME5T10	Design of Machine members-I	0
42	V	191ME5T11	Thermal Engineering -II	0
43	V	191ME5E01	Automobile Engineering	0
44	V	191ME5E02	Composite Materials	100
45	V	191ME5E03	Fluid Engineering	40
46	V	191ME5E04	Mechanical Vibrations	25
47	V	191ME5E05	Metrology &Instrumentation	0
48	V	191ME5E06	Organizational Behavior	100
49	V	191CE5O01	Basic Concrete Technology	100
50	V	191EE5O01	Electrical Safety	100
51	V	191EE5O02	Electrical Materials	100
52	V	191EE5O03	Basic electrical Measurements	100
53	V	191EC5O01	Signals& Systems	100
54	V	191EC5O02	Digital Electronics& Logic Design	100
55	V	191EC5O03	Semi-conductor devices	100
56	V	191CS5O01	Data structures	100
57	V	191CS5O02	Object oriented programming through C++	100

PRINCIPAL
Aditya Engineering College
SURAMPALEM

S.No	Semester	Course Code	Course Name	% of content revised for the existing year
58	V	191CS5O03	Java Programming	100
59	V	191CS5O04	R programming	100
60	V	191IT5O01	Data Base Management Systems	100
61	V	191IT5O02	Computer Graphics	100
62	V	191MI5O01	Overview of Mining	100
63	V	191PT5O01	Process Intensification in Petroleum industry	100
64	V	191PT5O02	Fundamentals of Petroleum Industry	100
65	V	191AG5O01	Basic Crop Production Practices	100
66	V	191ME5L05	Metrology/ICS Lab	0
67	V	191ME5L06	Theory of Machines Lab	0
68	V	191ME5L07	Thermal Engineering Lab	0
69	V	191HS5T06	Employability Skills -III	0
70	V	191PR5P02	Socially Relevant Project	100
71	V	191MC5A08	Intellectual Property Rights and Patents	0
72	VI	191ME6T12	Heat Transfer	0
73	VI	191ME6T13	Design of Machine members-II	0
74	VI	191ME6T14	Metal Cutting and Machine Tools	10
75	VI	191ME6E07	Industrial Engineering and Management	0
76	VI	191ME6E08	Mechatronics	20
77	VI	191ME6E09	Non-Destructive Evaluation	0
78	VI	191ME6E10	Refrigeration and Air Conditioning	0
79	VI	191ME6E11	Robotics	0
80	VI	191ME6E12	Additive Manufacturing	40
81	VI	191ME6E13	Alternative Fuels	100
82	VI	191ME6E14	Design for Manufacturing	0
83	VI	191ME6E15	Green Engineering Systems	0
84	VI	191ME6E16	Lean Manufacturing	100
85	VI	191CE6O02	Disaster Management	100
86	VI	191EE6O04	Energy Audit and Conservation Management	100
87	VI	191EE6O05	Non-Conventional Energy Resources	100
88	VI	191EE6O06	Instrumentation	100
89	VI	191EC6O04	Biomedical Instrumentation	100

PRINCIPAL
Aditya Engineering College
SURAMPALEM

S.No	Semester	Course Code	Course Name	% of content revised for the existing year
90	VI	191EC6O05	ECAD Tools	100
91	VI	191CS6O05	Python Programming	100
92	VI	191CS6O06	Operating Systems	100
93	VI	191CS6O07	Web Technologies	100
94	VI	191CS6O08	Cyber Security	100
95	VI	191CS6O09	AR/VR	100
96	VI	191IT6O03	Computer Organization	100
97	VI	191IT6O04	AI Tools & Techniques	100
98	VI	191IT6O05	Robotic Process Automation	100
99	VI	191MI6O02	Industrial Safety Practices	100
100	VI	191MI6O03	Electrical Equipment's in Mines	100
101	VI	191PT6O03	Unconventional Hydrocarbon Resources	100
102	VI	191PT6O04	Asset Management	100
103	VI	191AG6O02	Weather Forecast in Agriculture	100
104	VI	191AG6O03	Bio-energy Systems Design and Applications	100
105	VI	191ME6L08	Machine Cutting and Machine Tools Lab	0
106	VI	191ME6L09	Heat Transfer Lab	0
107	VI	191HS6T07	Employability skills-IV	0
108	VI	191MC6A09	Professional Ethics and Human Values	0
109	VII	171ME7T16	CAD/CAM	0
110	VII	171ME7T17	Mechatronics	0
111	VII	171ME7T18	Finite Element Methods	0
112	VII	171ME7T19	Power Plant Engineering	0
113	VII	171ME7E10	Computational Fluid Dynamics	0
114	VII	171ME7E11	Green Engineering Systems	0
115	VII	171ME7E12	Nano Materials and Technology	0
116	VII	171ME7E13	Gas Dynamics	0
117	VII	171ME7E14	Condition Monitoring	0
118	VII	171ME7E15	Flexible Manufacturing Systems	0
119	VII	171ME7L07	CAD/CFD Lab	0
120	VII	171ME7L08	CAM/Mechatronics Lab	0
121	VII	171ME7P01	Industry Oriented (Internship) Mini Project	0

PRINCIPAL
Aditya Engineering College
SURAMPALEM

S.No	Semester	Course Code	Course Name	% of content revised for the existing year
122	VIII	171ME8E16	Production Planning and Control	0
123	VIII	171ME8E17	Advanced Materials	0
124	VIII	171ME8E18	Thermal Equipment Design	0
125	VIII	171EE8O04	Neural Networks and Fuzzy Logic	0
126	VIII	171CE8O02	Data Base Management Systems	0
127	VIII	171ME8P02	Major Project	0
Total number of courses in the academic year 2021-2022				127
Number of courses having revision in syllabus content >/= 20% in the academic year 2021-2022				49
Percentage of syllabus revision carried out in the academic year 2021-2022 = (49/129)*100				38.58

Program Coordinator

Head of the Department

Head of the Department
Department of Mechanical Engineering
Aditya Engineering College (A)
SURAMPALEM-533 437

PRINCIPAL
Aditya Engineering Colle--
SURAMPALEM

ADITYA ENGINEERING COLLEGE

An Autonomous Institution

Approved by AICTE • Permanently Affiliated to JNTUK • Accredited by NAAC with 'A' Grade

Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956

Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Department of Mechanical Engineering

Date: 20-04-2022

Minutes of the VIII meeting of BOS scheduled on 18-04-2022

The VIII meeting of the BOS (Board of Studies) of ME was held on 18-04-2022 at 10:00 AM in the AjivikaConference Hall, Bill Gates Bhavan, AEC. Dr.Bh.Vara Prasad, Chairperson presided over the meeting.

Agenda 8.1:Welcome address by Chairperson.

Prof Bh. Vara Prasad, BOS chairperson invited the distinguished members of BOS to the VIII BOS Meeting.

Agenda 8.2: Ratification of minutes of the previous Board of Studies meeting

The BOS members have ratified the points discussed in the previous Board of Studies meeting held on 28/09/2021.

Agenda 8.3:Discussion on proposed AR 20 B. Tech Program– V, VI, VII & VIII semesters syllabus and ratification of the same

The BOS members approved the AR **20** B. Tech (ME) V,VI,VII&VIIISemesters syllabus after making the following changes in the proposed syllabi.

- Suggested to keep "Theory of Machines", III edition, Pearson Publication by Thomas Bevan and "Theory of Mechanisms and Machines" I edition, Metropolitan Publication by Jagdish Lal as Reference books in Theory of Machines -II subject.
- Suggested to add "Basics of Jet Propulsion and Rocket Engineering" topic in Unit-V of Thermal Engineering-II subject.
- Suggested to replace "Non-traditional" with "advanced machining Processes" and advised to remove "process parameters" of the advanced processes and also suggested to add "Manufacturing Technology- Metal cutting and machine tools by PN Rao, Tata Mc Grawhill as Reference book in Metal cutting and machine tools subject.

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

- Suggested to add "Electrical vehicles" topicin AutomobileEngineering of Professional Elective-Iand also advised to introduce Electrical Vehicles as a separate elective subject.
- Suggested to add "introduction about ceramics" in unit-III of composite materials subject in professional Elective-I.
- Suggested to replace "gas turbines" topic with "hydraulic turbines and compressors"influid engineering subject of Professional Elective-I. Also suggested to change the subject title as "Fluid Machinery" instead of "Fluid Engineering".
- Suggested to introduce "Text Book of Mechanical Vibrations" by J.S.Rao and Rao.V. Dukkipati, II edition, 2012, PHI Publications as Reference book in Mechanical Vibrations subject of professional elective
- Suggested to reduce syllabus of "Automobile Engineering" in Open Elective-I.
- Suggested to add "Indian Scenario" topic in IPR (Mandatory Course).
- Suggested to add "Refrigeration and Air Conditioning"byW.F.Stoecker and J.W.Jones, II edition ,2014, Mc.Graw Hill Publicationsas reference book in Refrigeration and Air Conditioning Subject
- Suggested to change title of the subject from "alternate fuels" to "alternative fuels" in professional elective -III
- Suggested to extend "Design for manufacturing and Assembly" topic to real world topics where product based/ Automobile Engineers are looking nowadays in professional elective -III.
- Suggested to add "strain rate analysis and temperature analysis"in Unit-V in "Experimental stress analysis" subjectof professional elective -IV.
- Suggested to introduce "Mechatronics by Hindustan Machine Tools", I edition,2017,Mc. Graw Hill Publicationsin Mechatronics subject.

Agenda 8.4:Discussion on proposed syllabus for courses in V to VII Semester under AR20 Honors and Minor Degree and ratification of the same.

The BOS members approved the V, VI, VII&VIIISemester under AR20 Honors and Minor Degree syllabus after making the following changes in the proposed syllabi.

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

- Suggested to keep "Introduction to Robotics", II edition,2008, Mc. Graw Hill Publications by S.K.SAHA as reference book in Robotics-Modelling, Analysis& Control) in Pool-II of B. Tech- Honors.

Agenda 8.5: Discussion on the value-added courses to be offered for students and ratification of the same

The members of BOS ratified the various value-added coursesidentified for the students to be offered and suggested to include topics related to thrust areas.

Agenda 8.6: Discussion on the new courses offered in B. Tech (ME) program and ratification of the same

The Members of BOS noted the new courses offered in the B.Tech (ME) program and ratified the same. The percentage of courses introduced in the academic year 2021-2022 for B.Tech (ME) Program is 12.59%. The list of courses introduced is enclosed as Annexure-I.

Agenda 8.7: Discussion on the percentage of syllabus revision done in the B. Tech (ME) and M. Tech (TE)programs and ratification of the same.

The syllabus revisions were done in B. Tech (ME) and M.Tech (TE) programs based on the stakeholders feedback on the curriculum. The BOS members have approved all the syllabus revisions in B. Tech (ME) and M.Tech (TE) programs. The percentage of courses revised in the academic year2021-2022 for B.Tech (ME) program is 38.58% and M.Tech (TE) program is 2%.The list of courses revised is enclosed as Annexure-II.

Agenda 8.8:Discussion on the courses having focus on employability/entrepreneurship/skill development of B. Tech (ME), M. Tech(TE) Programs and ratification of the same.

The members of BOS ratified the courses having focus on employability/entrepreneurship/skill development in B. Tech (ME) and M.Tech (TE) programmes.

Agenda 8.9: Discussion on B. Tech (ME), M. Tech (T.E) programs in which Choice Based Credit System (CBCS) / Elective Course System (ECS) is being implemented and ratification of the same.

The Members of BOS ratified the Choice Based Credit System (CBCS)/Elective Course System that is being implemented in B. Tech (ME) and M. Tech (TE) programs.

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

Agenda 8.10: Analysis of stakeholder'sfeedback on Curriculum.

The BOS chairperson presented the feedback on curriculum from stake holders. The BOS members noted the same and approved the feedback on curriculum. The action taken report is enclosed in Annexure III.

Agenda 8.11: Analysis of results of the odd semesters of the academic year 2021-22

The BOS chairperson presented odd semester pass percentage for the A.Y.2021-2022.The BOS members noted the same.

Agenda 8.12: Analysis of student's feedback in the odd semesters of the academic year 2021-22

BOS Chairperson expressed that the student feedback & action taken report process initiated at end of each semester.

Agenda 8.13: Any other item with the approval of Chairperson

NIL

Agenda 8.14: Scheduling of next Board of Studies meeting.

The next BOS meeting is tentatively scheduled in the month of September,2022.

Agenda 8.15:Vote of Thanks

Prof Bh.Vara Prasad, BOS Chairperson presented the vote of thanks.

BOS Chairperson

Head of the Department
Department of Mechanical Engineering
Aditya Engineering College (A)
SURAMPALEM-533 437

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

ADITYA ENGINEERING COLLEGE

An Autonomous Institution

Approved by AICTE • Permanently Affiliated to JNTUK • Accredited by NAAC with 'A' Grade

Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956

Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Department of Mechanical Engineering

Annexure-I

List of New Courses in the Academic Year 2021-22

S. No	Program	Semester	Course Code	Course Name
1	B. Tech (ME)	III	201SC3L03	Java Programming Lab
2	B. Tech (ME)	IV	201SC4L15	Python Programming Lab
3	B. Tech (ME)	V	191ME5E02	Composite Materials
4	B. Tech (ME)	V	191ME5E06	Organizational Behavior
5	B. Tech (ME)	V	191ME6O01	Renewable Energy Sources
6	B. Tech (ME)	V	191ME6O02	Fundamentals of Mechanical Engineering
7	B. Tech (ME)	V	191ME6O03	Supply Chain Management
8	B. Tech (ME)	V	191ME6O04	3D Printing
9	B. Tech (ME)	V	191ME6O05	Entrepreneurship Development and Incubation
10	B. Tech (ME)	V	191PR5P02	Socially Relevant Project
11	B. Tech (ME)	VI	191ME6E13	Alternative Fuels
12	B. Tech (ME)	VI	191ME6E16	Lean Manufacturing
13	B. Tech (ME)	VI	191ME6O06	Solar Energy Utilization
14	B. Tech (ME)	VI	191ME6O07	Basic Thermodynamics and Heat Transfer
15	B. Tech (ME)	VI	191ME6O08	Introduction to Hydraulics and Pneumatics
16	B. Tech (ME)	VI	191ME6O10	Robotics

BOS Chairperson

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

Head of the Department
Department of Mechanical Engineering
Aditya Engineering College (A)
SURAMPALEM-533 437

ADITYA ENGINEERING COLLEGE

An Autonomous Institution

Approved by AICTE • Permanently Affiliated to JNTUK • Accredited by NAAC with 'A' Grade

Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956

Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Department of Mechanical Engineering

Annexure-II

List of Courses Revised in the Academic Year 2021-22

S. No	Program	Semester	Course Code	Course Name
1	B. Tech (ME)	IV	201ME4T04	Theory of Machines-I
2	B. Tech (ME)	V	191ME5E03	Fluid Engineering
3	B. Tech (ME)	V	191ME5E04	Mechanical Vibrations
4	B. Tech (ME)	VI	191ME6E08	Mechatronics
5	B. Tech (ME)	VI	191ME6E12	Additive Manufacturing
6	M. Tech (TE)	II	192TE2E13	Jet Propulsion & Rocket Engineering
7	M. Tech (TE)	III	192TE3E19	Convective Heat Transfer

BOS Chairperson

Head of the Department
Department of Mechanical Engineering
Aditya Engineering College (A)
SURAMPALEM-533 437

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

ADITYA ENGINEERING COLLEGE

An Autonomous Institution

Approved by AICTE • Permanently Affiliated to JNTUK • Accredited by NAAC with 'A' Grade

Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956

Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Department of Mechanical Engineering

Annexure III

Action Taken Report on Stakeholders Feedback in the Academic Year 2021-22

S. No	Agenda Item No.	Stakeholders Recommended	Action Taken
1	8.3	In automotive, Technology is advancing day by day from conventional to hybrid, knowledge on electric usage must be known.	As suggested, introduction to electric vehicles will be introduced based on the discussion made.
2	8.10	Capability to acquire and apply fundamental principles of engineering is needed.	As per suggestions Internship is made mandatory and thereby the students should take the industry training.
3	8.3	Suggested to involve advanced manufacturing topics, where product based/ Automobile Engineers are looking nowadays in the curriculum.	According to the suggestions and discussions made, Design for Manufacturing and Assembly will be added to the curriculum.
4	8.10	A clear understanding on the material must be known to perform research.	As per suggestion received, introduction about ceramics will be introduced in the composite materials.
5	8.10	Due to the tremendous growth in theIT industry it is better to get known to programming related subjects.	As per suggestions, SOC (Skill Oriented Course) will be introduced to the curriculum.
6	8.3	It is better that students have knowledge on the cutting edge technologies.	According to the suggestion received, additive manufacturing will be introduced to the curriculum based on the discussions made.

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

7	8.10	Every students to understand the basic principles of engineering and the introduction of biological concepts so that they can effectively interact to concern for providing solutions to the problems related to bio systems.	As suggested, biology for engineers willbe introduced into the curriculum.
8	8.10	It is better to have Knowledge on power plant operations and its working.	As per the suggestions, course on powerplant economics will be introduced.
9	8.4	It is better student have knowledge on the computer science related subjects during their graduation.	As per the suggestions and discussion made with the experts, BOS and Professionals, Honours and Minor degree programs will be introduced based on the students choice.
10	8.8	Better to add technical oriented courses so that student may be industry ready and can perform the project well.	As per suggestion, Technical courses such as CATIA, ANSYS and Solid edge will be taught in association with APSSDC.
11	8.12	Advancements in industries and job opportunities in the core must be known.	As per suggestion, seminars and workshops will be conducted in association with T2 and product based companies and global engineers.
12	8.10	Better to perform projects on the real time applications for better employment.	As per suggestions, it will be planned to discuss with the M.Tech coordinator and project guides for the implementation of experimental and analytical projects.

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437

13	8.10	Better to learn advanced courses for knowledge enhancement.	As per the suggestion received, student will be encouraged to take SWAYAM courses in accordance with discussion with deans.
14	8.10	For better placement in the companies, problem solving skills and performance of the student needs to be enhanced.	As per the feedback, AICTE and college will implement to get the access of PARAKH – SLAP to practice exams online for the placement.
15	8.12	Better to provide more technical sessions, webinars on the advanced topics.	As suggested, industrial orientation sessions from industry experts and global engineers will be initiated.

BOS Chairperson

Head of the Department
Department of Mechanical Engineering
Aditya Engineering College (A)
SURAMPALEM-533 437

PRINCIPAL
ADITYA ENGINEERING COLLEGE
SURAMPALEM - 533 437