

ADITYA

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada, Accredited by NAAC

Ph: (+91884) 2326221, (+91) 99591 76665, Email: office@acet.ac.in, Website: www.acet.ac.in

1.1.1: The Institution ensures effective curriculum delivery through a well-planned and documented process

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Principal

Aditya College of Engineering & Technology
SURAMPALEM- 533 437



ADITYA NAGAR, ADB ROAD, SURAMPALEM - 533 437, NEAR KAKINADA, E.G.DIST., A.P., INDIA

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TO WHOMSOEVER IT MAY CONCERN

This is to certify that the effective curriculum delivery through a well-planned and documented process are implemented in all the departments. A sample copy is as follows is attached for:

1. Course allotment
2. Event calendar
3. Lesson plan
4. Tutorial plan

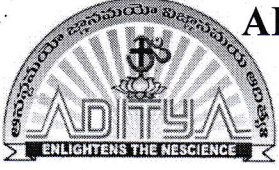



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ADB ROAD, ADITYA NAGARA, SURAMPALEM-533437

Department of Mechanical Engineering

Academic Year 2021-22

Course allotment in the Department

1. Number of courses to be taught in the current semester is decided by referring to the university syllabus by the head of the department.
2. Each faculty is asked to give his or her choice of two or three courses and lab courses based on their teaching experience and specialization.
3. Head of the department will consolidate all the course choice from the faculty and assign the course and lab course to each faculty.
4. A faculty meeting about course allotment will be conducted before the start of the semester.
5. After the course allotment each faculty has to prepare a course material, lesson plan with advanced teaching methods and assignments.
6. For the assigned lab course detailed lab manual should be prepared by the concerned faculty.

Head of the Department

Principal

PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM

Website: www.jntuk.edu.in
Email: dap@jntuk.edu.in



Mobile: 9849136135

Directorate of Academic and Planning
JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA-533003, Andhra Pradesh, INDIA
(Established by AP Government Act No. 30 of 2008)

Lr. No. JNTUK/DAP/RAC/B. Tech/B. Pharmacy/II Year/2021-22

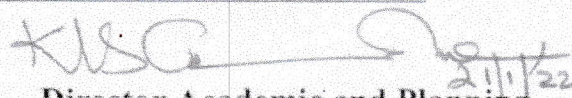
Date: 21-01-2022

Dr. KVSG Murali Krishna,
M.E., Ph.D.
Director, Academic and Planning
JNTUK, Kakinada

To
All the Principals of Affiliated Colleges
JNTUK, Kakinada.

Revised Academic Calendar for II Year - B. Tech/B. Pharmacy for the AY 2021-22

I SEMESTER			
Description	From	To	Weeks
Commencement of Class Work	01.10.2021		
I Unit of Instructions	01.10.2021	20.11.2021	7W
I Mid Examinations	22.11.2021	27.11.2021	1W
II Unit of Instructions	29.11.2021	05.02.2022	10W
II Mid Examinations & Practicals	07.02.2022	12.02.2022	1W
End Examinations	14.02.2022	26.02.2022	2W
Commencement of II Semester Class Work	28.02.2022		
II SEMESTER			
I Unit of Instructions	28.02.2022	23.04.2022	8W
I Mid Examinations	18.04.2022	23.04.2022	
II Unit of Instructions	25.04.2022	18.06.2022	8W
II Mid Examinations	13.06.2022	18.06.2022	
Preparation & Practicals	20.06.2022	25.06.2022	1W
End Examinations	27.06.2022	09.07.2022	2W
Commencement of next Year Class Work	11.07.2022		


Director Academic and Planning
JNTUK Kakinada

Copy to the Secretary to Hon'ble Vice Chancellor, JNTUK
Copy to the PA to Rector, JNTUK
Copy to the PA to Registrar, JNTUK
Copy to Director Academic Audit, JNTUK
Copy to Director of Evaluation, JNTUK



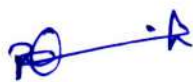
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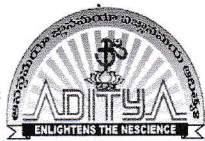
DEPARTMENT OF MECHANICAL ENGINEERING

ACADEMIC YEAR – 2021-22

EVENT CALENDAR			
Description	From	To	Weeks/Days
Commencement of IV-I class work	01.09.2021	08.01.2022	19W
Workshop on Introduction to Ansys using CFD	06.09.2021	11.09.2021	1W
Commencement of III-I class work	15.09.2021	22.01.2022	19W
Guest lecture on Advanced technologies in Automobile	04.11.2021		1D
Commencement of II-I class work	01.10.2021	12.02.2022	19W
Commencement of IV-II class work	17.01.2022	28.05.2022	19W
Commencement of III-II class work	31.01.2022	11.06.2022	19W
Seminar on CFD and its applications	18.02.2022		1D
Commencement of II-II class work	28.02.2022	18.06.2022	16W
Seminar on welding technologies	23.03.2022		1D
Internship training to IV years	01.07.2022	31.07.2022	4W
Internship training to III years	18.07.2022	30.08.2022	6W


Head-ME


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SURAMPALEM



Aditya College of Engineering & Technology

Aditya Nagar, ADB Road, Surampalem - 533437

DEPARTMENT OF MECHANICAL ENGINEERING

2021-22 1st Semester

LESSON PLAN

PROGRAM: B.TECH	CLASS: II- I MECHANICAL – A
COURSE NAME: Metallurgy and Material Science	FACULTY NAME: A.Swathi

L.No	Topic/ Sub Topic	Reference	Teaching method ^{##}
1.	Structure of Metals and Constitution of alloys: Bonds in Solids, Metallic bond,	R1(1-8)	C&T
2.	crystallization of metals, Packing Factor - SC, BCC, FCC& HCP	R1(9-12)	S/P
3.	Line density, plane density	R1(13-19)	S/P
4.	Grain and grain boundaries, effect of grain boundaries on the Properties of metal	R1(35-38)	C&T
5.	alloys – determination of grain size	R1(25-32)	
6.	Imperfections – point, line, surface and volume- Slip and Twinning.	R1(29-35)	C&T
7.	Necessity of alloying, types of solid solutions,	R1(160-161)	C&T
8.	Hume Rotherys rules, intermediate alloy phases, and electron compounds	R1(161-162)	C&T
9.	Equilibrium Diagrams : Experimental methods of construction of equilibrium diagrams, Isomorphous alloy systems	R1(166-169)	C&T
10.	equilibrium cooling and heating of alloys,	R1(169-171)	S/P
11.	Lever rule, coring miscibility gaps,	R1(174-179)	S/P
12.	eutectic systems, congruent melting intermediate phases	R1(181-189)	
13.	peritectic reaction. Transformations in the solid state, allotropy, eutectoid, peritectoid reactions	R1(189-196)	S/P
14.	phase rule, relationship between equilibrium diagrams and properties of alloys	R1(198-202)	S/P
15.	Study of binary phase diagrams such as Cu-Ni and Fe-Fe ₃ C.	R1(308-309)	S/P
16.	UNIT –II Ferrous metals and alloys: Structure and properties of White Cast iron, Malleable Cast iron	R1(455-459)	S/P
17.	grey cast iron, Spheroidal graphite cast iron, Alloy cast irons	R1(469-473)	
18.	Classification of steels, structure and properties of plain carbon steels, Low alloy steels	R1(420-422)	C&T
19.	Hadfield manganese steels, tool and die steels	R1(436-442)	S/P
20.	Non-ferrous Metals and Alloys: Structure and properties of Copper and its alloys	R1(483-484)	S/P
21.	Aluminium and its alloys	R1(489-491)	S/P
22.	Titanium and its alloys	R1(505-506)	S/P
23.	Magnesium and its alloys, Super alloys	R1(506-507)	S/P
24.	UNIT – III Heat treatment of Alloys: Effect of alloying elements on Fe-Fe ₃ C system,	R1(308-311)	C&T
25.	Annealing, normalizing	R1(373-377)	S/P
26.	Hardening, TTT diagrams	R1(378-382)	C&T

27.	tempering, hardenability,	R1(386-389)	S/P
28.	surface - hardening methods,	R1(389-390)	S/P
29.	Age hardening treatment, Cryogenic treatment of alloys.	R1(390-395)	S/P
30.	UNIT – IV Powder Metallurgy: Basic processes- Methods of producing metal powders	R1(531-539)	C&T
31.	Milling, atomization	R1(539-542)	S/P
32.	Granulation-Reduction Electrolytic Deposition	R1(542-546)	S/P
33.	Compacting methods	R1(546-550)	C&T
34.	Sintering - Methods of manufacturing sintered parts.	R1(551-555)	S/P
35.	Sintering Secondary operations- Sizing, coining, machining	R1(555-556)	S/P
36.	Factors determining the use of powder metallurgy	R1(556-558)	S/P
37.	Application of powder metallurgy process.	R1(558-559)	S/P
38.	UNIT – V Ceramic and composite materials: Crystalline ceramics	R1(561-563)	S/P
39.	glasses	R1(563-566)	S/P
40.	cermets,	R1(554-555)	S/P
41.	abrasive materials	R1(572-574)	S/P
42.	Classification of composites	R1(575-576)	S/P
43.	various methods of component manufacture of composites	R1(576-578)	C&T
44.	particle – reinforced materials,	R1(578-582)	C&T
45.	fiber reinforced materials	R1(582-584)	C&T
46.	metal ceramic mixtures	R1(584-586)	S/P
47.	metal – matrix composites	R1(586-588)	C&T
48.	C – C composites	R1(588-592)	S/P
49.	Nano-materials – definition	R1(592-593)	S/P
50.	Nano-materials properties and application	R1(594-598)	C&T

Teaching Methods: C&T:-Chalk & Talk; S/P:-Slides/PPT; Videos; SEM: Seminar; DEMO; CHART; ET/GL:Expert Talk/Guest Lecture; QUIZ; GD:-Group discussion; RTCS: Real time case studies; JAR:-Journal article review; PD:-Poster design; OL:-Online lecture/ White Board through Microsoft Teams

TEXT BOOKS:

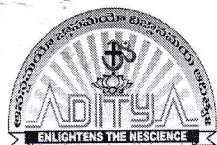
1. Introduction to Physical Metallurgy - Sidney H. Avener -McGrawHill
2. Essential of Materials science and engineering - Donald R.Askeland -Cengage.

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1. Material Science and Metallurgy – Dr. V.D.kodgire- Everest PublishingHouse
2. Materials Science and engineering - Callister&Baalasubrahmanyam- Wiley Publications
3. Material Science for Engineering students – Fischer – ElsevierPublishers
4. Material science and Engineering - V. Rahghavan-PHIPublishers
5. Introduction to Material Science and Engineering – Yip-Wah Chung CRCPress
6. Material Science and Metallurgy – A V K Suryanarayana – B SPublications
7. Material Science and Metallurgy – U. C. Jindal – PearsonPublications


Faculty Signature


HoD-ME



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2021-22 1st Semester

Tutorial Plan

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16.	Milling, atomization	R1(539-542)	S/P
17.	Factors determining the use of powder metallurgy	R1(556-558)	C&T
18.	Application of powder metallurgy process.	R1(558-559)	C&T
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20.	Glasses	R1(563-566)	C&T
21.	Cermets,	R1(554-555)	C&T
22.	Abrasive materials	R1(572-574)	C&T

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