RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES
Constituted under the Act 18 of 2008
Nuzvid campus, Krishna District

B. Tech --Metallurgical and Materials Engineering, Batch 2015

I Year – SEMESTER – I

COURSE STRUCTURE

Subject Code	Subject Name	L-T-P	Credits
CY1102	Engineering Chemistry	3-1-0	4
MA1101	Engineering Mathematics-1	3-1-0	4
CE1101	Engineering Drawing	3-1-0	4
MM1101	Fuels Furnaces & Refractories	3-1-0	4
MM1102	Mineral Processing & Extractive Metallurgy	3-1-0	4
CY1701	Engineering Chemistry Lab	0-0-2	2
MM1701	Mineral Processing & Extractive Metallurgy Lab	0-0-2	2
CEL01	Communicative English Lab - I	1-1-0	2
Total Credits			**26**

I Year – SEMESTER – II

COURSE STRUCTURE

Subject Code	Subject Name	L-T-P	Credits
MA1201	Engineering Mathematics-II	3-1-0	4
MM1201	Physical Metallurgy	3-1-0	4
MM1202	Mechanical Behavior of Materials	3-1-0	4
MM1203	Iron Making	3-1-0	4
MM1204	Metallurgical Thermodynamics	0-0-2	4
MM1801	Physical Metallurgy Lab	0-0-2	2
MM1802	Mechanical Behavior of Materials Lab	0-0-2	2
ME1801	Work shop	0-0-2	2
CEL02	Communicative English Lab - II	1-1-0	2
Total Credits			**28**

I Year – SUMMER SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	L-T-P	Credits
CS1108	Programming & Data Structures in C	3-1-0	4
CS1708	Programming & Data Structures in C Lab	0-0-2	2
Total Credits			**6**

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II Year – SEMESTER – I

COURSE STRUCTURE

Subject Code	Subject Name	L-T-P	Credits
MM2101	Steel Making	3-1-0	4
MM2102	Phase Transformations & Heat Treatment	3-1-0	4
MM2103	Powder Metallurgy	3-1-0	4
MM2104	Metal Forming Technology	3-1-0	4
MM2105	Corrosion and Environmental Degradation of Materials	3-1-0	4
MM2701	Phase Transformations & Heat Treatment Lab	0-0-2	2
MM2702	Corrosion and Environmental Degradation of Materials Lab	0-0-2	2
CEL03	Communicative English Lab - III	1-1-0	2
Total Credits			**26**

II Year – SEMESTER – II

COURSE STRUCTURE

Subject Code	Subject Name	L-T-P	Credits
MM2201	Foundry Technology	3-1-0	4
MM2202	Non Ferrous Extractive Metallurgy (NFEM)	3-1-0	4
MM2203	Materials Characterization Techniques	3-1-0	4
MM2204	Non Destructive Testing	3-1-0	4
MM2205	Materials Joining Technology	3-1-0	4
MM2801	Foundry Technology Lab	0-0-2	2
PCL04	Professional Communication Lab - IV	1-1-0	2
Total Credits			**24**

II Year – SUMMER SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	L-T-P	Credits
MM2901	Materials Characterization Techniques Lab	3-1-0	2
MM2902	Non Destructive Testing Lab	0-0-2	2
MM2903	Metal Forming & Materials Joining Technology Lab	0-0-2	2
Total Credits			**6**

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III Year – SEMESTER – I

COURSE STRUCTURE

Subject Code	Subject Name			L-T-P	Credits
MM31XX	Elective	MM3101	Basic Electrical and electronics + Lab	3-0-1	
		MM3104	Secondary Steel Making		
		MM3107	Electron Microscopy		4
MM31XX	Elective	MM3102	Introduction to Ceramic Technology	3-1-0	
		MM3105	Metals biotechnology		
		MM3108	Light Metals & alloys		4
MM31XX	Elective	MM3103	Creep, Fatigue and Fracture	3-1-0	
		MM3106	Super alloys		
		MM3109	Polymer blends and alloys		4
MM31XX	Free Elective			3-1-0	4
	Mini Project				4
				Total Credits	**20**

III Year – SEMESTER – II

COURSE STRUCTURE

Subject Code	Subject Name			L-T-P	Credits
MM32XX	Elective	MM3201	Materials Engineering	3-1-0	
		MM3204	Semi conductors		
		MM3207	Finite element method in materials engineering		4
MM32XX	Elective	MM3202	Engineering Polymers	3-1-0	
		MM3205	Phase field modeling in materials engineering		
		MM3208	Alloy design and selection of materials		4
MM32XX	Elective	MM3203	Composite Materials	3-1-0	
		MM3206	Manufacture of industrial polymers		
		MM3209	Energy Materials and Fuel cell Technology		4
MM32XX	Free Elective			3-1-0	4
	Mini Project				4
				Total Credits	**20**

III Year – SUMMER SEMESTER

COURSE STRUCTURE

Subject Code	Subject Name	L-T-P	Credits
	Summer Internship		4
Total Credits			**4**

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IV Year – SEMESTER – I

COURSE STRUCTURE

Subject Code	Subject Name			L-T-P	Credits
MM41XX	Elective	MM4101	Computational Approaches in MME	3-1-0	4
		MM4103	Electro-ceramics		
		MM4105	Materials and Energy balance in Metallurgical Processes		
MM41XX	Elective	MM4102	Nano Materials	3-1-0	4
		MM4104	Polymer Product design		
		MM4106	Introduction to crystallographic texture and related phenomenon		
		MM4107	Surface Engineering		
MM41XX	Free Elective			3-1-0	4
	Project				6
				Total Credits	**18**

IV Year – SEMESTER – II
COURSE STRUCTURE

Subject Code	Subject Name			L-T-P	Credits
MM42XX	Elective	MM4201	Advanced Materials and processes	3-1-0	4
		MM4203	Additive manufacturing Techniques		
		MM4205	Advanced Characterization Techniques		
MM42XX	Elective	MM4202	High temperature materials	3-1-0	4
		MM4204	Nuclear Materials		
		MM4206	Technology of polymer composites		
MM42XX	Free Elective			3-1-0	4
	Community Service				2
	Project				6
Total Credits					**20**

S.No	Semester	Credits
1	E1-SEM-I	**26**
2	E1-SEM-II	**28**
3	E1- SEM-III	**06**
4	E2-SEM-I	**26**
5	E2-SEM-II	**24**
6	E2- SEM-III	**06**
7	E3-SEM-I	**20**
8	E3-SEM-II	**20**
9	E3- SEM-III	**04**
10	E4-SEM-I	**18**
11	E4-SEM-II	**20**
	Total	**198**

Minor: 8 Courses

S.NO.	Course Name
Course-1	Physical Metallurgy
Course-2	Mechanical behaviour of materials
Course-3	Mineral Processing and Extractive Metallurgy
Course-4	Materials Engineering
Course-5	Phase transformations and Heat treatment
	Metallurgical Thermodynamics
	Foundry Technology
Course-6	Iron Making
	Material Characterization Techniques
	Metal Forming Technology
Course-7	Steel Making
	Powder Metallurgy
	Material Joining Technology
Course-8	Composite Materials
	Non Ferrous Extractive Metallurgy
	Corrosion and Environmental Degradation of Materials

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List of Electives:

Subject Code	Subject Name	Prerequisite	L-T-P	Credits
MM3101	1. Basic Electrical and electronics + Lab	None	3-0-1	**4**
MM3102	2. Introduction to Ceramic Technology	None	3-1-0	**4**
MM3103	3.Creep, Fatigue and Fracture	None	3-1-0	**4**
MM3104	4. Secondary Steel Making	None	3-1-0	**4**
MM3105	5. Metals biotechnology	None	3-1-0	**4**
MM3106	6. Super alloys	None	3-1-0	**4**
MM3107	7. Electron Microscopy	None	3-1-0	**4**
MM3108	8. Light Metals & alloys	None	3-1-0	**4**
MM3109	9. Polymer blends and alloys	None	3-1-0	**4**
MM3201	10. Materials Engineering	None	3-1-0	**4**
MM3202	11.Engineering Polymers	None	3-1-0	**4**
MM3203	12. Composite Materials	None	3-1-0	**4**
MM3204	13. Semi conductors	None	3-1-0	**4**
MM3205	14. Phase field modeling in materials engineering	None	3-1-0	**4**
MM3206	15. Manufacture of industrial polymers	None	3-1-0	**4**
MM3207	16. Finite element method in materials engineering	None	3-1-0	**4**
MM3208	17. Alloy design and selection of materials	None	3-1-0	**4**
MM3209	18. Energy Materials and Fuel cell Technology	None	3-1-0	**4**
MM4101	19. Computational Approaches in MME	None	3-1-0	**4**
MM4102	20. Nano Materials	None	3-1-0	**4**
MM4103	21. Electro-ceramics	None	3-1-0	**4**
MM4104	22. Polymer Product design	None	3-1-0	**4**
MM4105	23. Materials and Energy balance in Metallurgical Processes	None	3-1-0	**4**
MM4106	24. Introduction to crystallographic texture and related phenomenon	None	3-1-0	**4**
MM4107	25. Surface Engineering	None	3-1-0	**4**
MM4201	26. Advanced materials and Processes	None	3-1-0	**4**
MM4202	27. High temperature materials	None	3-1-0	**4**
MM4203	28. Additive manufacturing Techniques	None	3-1-0	**4**
MM4204	28. Nuclear Materials	None	3-1-0	**4**
MM4205	29. Advanced Characterization Techniques	None	3-1-0	**4**
MM4206	30. Technology of polymer composites	None	3-1-0	**4**