

COURSE STRUCTURE

For

METALLURGICAL ENGINEERING

(Applicable for batches admitted from 2016-2017)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA - 533 003, Andhra Pradesh, India

I Year - I Semester

S.No.	Subjects	L	T	P	Credits
1-HS	English – I	4	--	--	3
2-BS	Mathematics - I	4	--	--	3
3-ES	Engineering Chemistry	4	--	--	3
4-BS	Engineering Mechanics	4	--	--	3
5-BS	Computer Programming	4	--	--	3
6-ES	Environmental Studies	4	--	--	3
7-HS	Engineering /Applied Chemistry Laboratory	--	--	3	2
8-BS	English - Communication Skills Lab - I	--	--	3	2
9-ES	C Programming Lab	--	--	3	2
Total Credits					24

I Year - II Semester

S.No.	Subjects	L	T	P	Credits
1-HS	English – II	4	--	--	3
2-BS	Mathematics – II (Mathematical Methods)	4	--	--	3
3-BS	Mathematics – III	4	--	--	3
4-ES	Engineering Physics	4	--	--	3
5-HS	Basic Electrical and Electronics Engineering	4	--	--	3
6-ES	Engineering Drawing	4	--	--	3
7-BS	English - Communication Skills Lab - II	--	--	3	2
8-HS	Engineering/Applied Physics Lab	--	--	3	2
9-ES	Engineering Physics /Applied – Virtual Labs - Assignments	--	--	2	--
10	Engg. Workshop & IT Workshop	--	--	3	2
Total Credits					24

II Year - I Semester

S.No.	Subjects	L	T	P	Credits
1	Probability and statistics	4	--	--	3
2	Physical Metallurgy	4	--	--	3
3	Metallurgical Thermodynamics - I	4	--	--	3
4	Mechanics of Solids and Fluids	4	--	--	3
5	Principles of Extractive Metallurgy	4	--	--	3
6	Polymers	4	--	--	3
7	Physical Metallurgy Lab	--	--	3	2
8	Mechanics of Solids Lab	--	--	3	2
Total Credits					22

II Year - II Semester

S.No.	Subjects	L	T	P	Credits
1	Mineral Processing	4	--	--	3
2	Iron Making	4	--	--	3
3	Fuels, Furnaces and Refractories	4	--	--	3
4	Metallurgical Thermodynamics -II	4	--	--	3
5	Non Ferrous Extractive Metallurgy	4	--	--	3
6	Alternative Sources of Energy	4	--	--	3
7	Mineral Processing Lab	--	--	3	2
8	Fuels and Metallurgical Analysis Lab	--	--	3	2
Total Credits					22

III Year - I Semester

S.No.	Subjects	L	T	P	Credits
1	Foundry Technology	4	--	--	3
2	Steel Making	4	--	--	3
3	Managerial Economics and Financial Analysis	4	--	--	3
4	Phase Transformations and Heat - Treatment	4	--	--	3
5	Material Testing and Evaluation	4	--	--	3
6	Foundry Technology Lab	--	--	3	2
7	Heat Treatment Lab	--	--	3	2
8	Material Testing and Evaluation Lab	--	--	3	2
9	IPR & Patents	--	2	--	--
Total Credits					21

III Year - II Semester

S.No.	Subjects	L	T	P	Credits
1	Materials Joining Techniques	4	--	--	3
2	Industrial Engineering and Management	4	--	--	3
3	Materials Characterization	4	--	--	3
4	Metal Forming	4	--	--	3
5	OPEN ELECTIVE 1. Waste Water Management 2. Robotics 3. DBMS 4. CAD/CAM 5. Functional Materials 6. Metallurgical Analysis	4	--	--	3
6	Materials Joining Lab	--	--	3	2
7	Metal Forming Lab	--	--	3	2
8	Materials Characterization Lab	--	--	3	2
9MC	Professional Ethics & Human Values	--	3	--	--
Total Credits					21

IV Year - I Semester

S.No.	Subjects	L	T	P	Credits
1	Process Modelling	4	--	--	3
2	Electro Metallurgy and Corrosion	4	--	--	3
3	Ceramic Materials	4	--	--	3
4	Powder Metallurgy	4	--	--	3
5	Elective I 1. Nuclear Materials 2. Magnetic and Electronic Materials 3. Light Metals and Alloys	4	--	--	3
6	Elective II 1. High Temperature Materials 2. Metallurgical Failure Analysis 3. Biomaterials	4	--	--	3
7	Process Modelling Lab	--	--	2	2
8	Electro Metallurgy and Corrosion Lab	--	--	2	2
Total Credits					22

IV Year - II Semester

S.No.	Subjects	L	T	P	Credits
1	Composite Materials	4	--	--	3
2	Ferro Alloys Technology	4	--	--	3
3	Nanomaterials	4	--	--	3
4	Elective III 1. Surface Engineering 2. Ladle Metallurgy and Continuous Casting 3. Industrial Tribology	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
Total Credits					24

Total Course Credits = 48+44 + 42 + 46 = 180