

**Metallurgical and Material Engineering Department**  
**JADAVPUR UNIVERSITY**  
**New Four-Year UG Course Curriculum in Metallurgical Engineering**

<b>FIRST YEAR, FIRST SEMESTER</b>			
<b>SUBJECT CODE</b>	<b>NAME OF THE SUBJECT</b>	<b>THEORETICAL/ SESSIONAL/ TUTORIAL</b>	<b>CREDIT HOURS PER WEEK</b>
<b>THEORETICAL SUBJECTS</b>			
Met/Chem/T/111	Chemistry-I	Theoretical	300
Met/CSE/T/112	Computer Programming	Theoretical	300
Met/Math/T/113	Mathematics-IN	Theoretical	300
Met/AM/ME/T/1A/114	Engineering Mechanics	Theoretical	400
Met/Ph/T/1A/115	Physics-IA	Theoretical	300
Met/BED/ME/T/116	Basic Engineering Drawing	Theoretical	000
<b>SESSIONAL SUBJECTS</b>			
Met/Ph/S/1 /111	Physics Laboratory-I	Sessional	003
Met/BED/ME/S/1/112	Basic Engineering Drawing	Sessional	003
Met/WS/ME/S/9/113	Workshop Practice-IX (Pattern Making and Moulding)	Sessional	003
Met/CSE/ S/114	Computer Programming	Sessional	003
<b>TOTAL CREDIT HOURS (16-0-12) : 16-0-0 (Theoretical); 0-0-12 (Sessional)</b> <b>Marks: Theoretical: 600; Sessional: 400; Total: 1000</b>			
<b>FIRST YEAR, SECOND SEMESTER</b>			
<b>SUBJECT CODE</b>	<b>NAME OF THE SUBJECT</b>	<b>THEORETICAL/ SESSIONAL/ TUTORIAL</b>	<b>CREDIT HOURS PER WEEK</b>
<b>THEORETICAL SUBJECTS</b>			
Met/Chem/T/121	Chemistry-II	Theoretical	300
Met/Math/T/122	Mathematics-IIN	Theoretical	300
Met/AM/ME/T/3/123	Strength of Materials	Theoretical	400
Met/ME/T/124	Heat Engineering	Theoretical	300
Met/Ph/T/2A/125	Physics-IIA	Theoretical	300
Met/AED/ME/T/1/126	Advanced Engineering Drawing	Theoretical	000
<b>SESSIONAL SUBJECTS</b>			
Met/Chem/S/124	Qualitative Analysis	Sessional	003
Met/Ph/S/2/125	Physics laboratory-II	Sessional	003
Met/AED/ME/S/1/126	Advanced engineering drawing	Sessional	003
Met/WS/ME/S/11/127	WORKSHOP PRACTICE-XI (Fitter Shop and Machine Shop)	Sessional	003
<b>TOTAL CREDIT HOURS (16-0-12) : 16-0-0 (Theoretical); 0-0-12 (Sessional)</b> <b>Marks: Theoretical: 600; Sessional: 400; Total: 1000</b>			

## SECOND YEAR, FIRST SEMESTER

SUBJECT CODE	NAME OF THE SUBJECT	THEORETICAL/ SESSIONAL/ TUTORIAL	CREDIT HOURS PER WEEK
<b>THEORETICAL SUBJECTS</b>			
Met/ChE/T/211	Fluid Flow and Heat Transfer	Theoretical	300
Met/Geo/T/212	Geology and Minerals Beneficiation <b>(Geology offered by Geological Sciences Deptt.)</b>	Theoretical	400 (Geology: 200) (Min. Ben.: 200)
Met/ETech/EE/T/A/213	Electrical Technology-A	Theoretical	300
Met/Math/T/214	Mathematics-IIIN	Theoretical	300
Met/MDD/ME/T/1/215	Machine Design and Drawing	Theoretical	300
Met/Hum/T/A /216	Humanities-A	Theoretical	300
<b>SESSIONAL SUBJECTS</b>			
Met/Geo/S/211	Geology Laboratory (offered by Geology Dept.)	Sessional	003
Met / S /212	Minerals Beneficiation Laboratory (offered by Metallurgical and Material Engg. Dept.)	Sessional	003
Met/MDD/ME/S/1/213	Machine Design and Drawing	Sessional	003
<b>TOTAL CREDIT HOURS (19-0-9): 19-0-0 (Theoretical); and 0-0-9 (Sessional)</b> <b>Marks: Theoretical: 600; Sessional: 300; Total: 900</b>			

## SECOND YEAR, SECOND SEMESTER

SUBJECT CODE	NAME OF THE SUBJECT	THEORETICAL/ SESSIONAL/ TUTORIAL	CREDIT HOURS PER WEEK
<b>THEORETICAL SUBJECTS</b>			
Met/CSE/T/221	Numerical Analysis	Theoretical	300
Met/ET/T/222	Applied Electronics and Instrumentation	Theoretical	300
Met/ T/223	Materials Science	Theoretical	300
Met / T / 224	Thermodynamics of Materials	Theoretical	310
Met/T/225	Mechanical Testing of Materials	Theoretical	300
Met / ChE / T / 226	Fuels and Combustion	Theoretical	300
<b>SESSIONAL SUBJECTS</b>			
Met/EE/S/221	Electrical Technology	Sessional	003
Met/CSE/S/222	Numerical Analysis	Sessional	003
Met/Chem/S/223	Metallurgical Analysis	Sessional	003
<b>TOTAL CREDIT HOURS (18-1-9) : 18-0-0 (Theoretical); 0-1-0 (Tutorial); 0-0-9 (Sessional)</b> <b>Marks: Theoretical: 600; Sessional: 300; Total: 900</b>			

### THIRD YEAR, FIRST SEMESTER

SUBJECT CODE	NAME OF THE SUBJECT	THEORETICAL/ SESSIONAL/ TUTORIAL	CREDIT HOURS PER WEEK
<b>THEORETICAL SUBJECTS</b>			
Met / T / 311	Deformation and Fracture Behaviour of Materials	Theoretical	300
Met / T / 312	Physical Metallurgy	Theoretical	300
Met / T / 313	Iron Making	Theoretical	300
Met / T / 314	Chemical Kinetics and Mass Transfer	Theoretical	310
Met / T / 315	Electro-Chemistry and Corrosion	Theoretical	300
<b>SESSIONAL SUBJECTS</b>			
Met / S / 311	Viva - Voce - I	Sessional	003
Met / S / 312	Physical Metallurgy Laboratory	Sessional	006
Met / S / 313	Electrochemistry and Corrosion	Sessional	003
Met / S / 314	Mechanical Testing	Sessional	003
<b>TOTAL CREDIT HOURS (15-1-15): 15-0-0 (Theoretical); 0-1-0 (Tutorial); 0-0-15 (Sessional)</b> <b>Marks: Theoretical: 500; Sessional: 400; Total: 900</b>			

### THIRD YEAR, SECOND SEMESTER

SUBJECT CODE	NAME OF THE SUBJECT	THEORETICAL/ SESSIONAL/ TUTORIAL	CREDIT HOURS PER WEEK
<b>THEORETICAL SUBJECTS</b>			
Met / T / 321	Steel Making	Theoretical	300
Met / T / 322	Foundry Metallurgy	Theoretical	300
Met / T / 323	Extraction of Non-ferrous Metals	Theoretical	300
Met / T / 324	Solid state Phase Transformation Processes	Theoretical	300
Met / T / 325	Physics of Metals	Theoretical	300
<b>SESSIONAL SUBJECTS</b>			
Met / S / 321	Viva - Voce - II	Sessional	003
Met / S / 322	Foundry Metallurgy	Sessional	003
Met / S / 323	Heat treatment Practice and Microstructure Analysis	Sessional	006
Met / S / 324	Computer Application in Metallurgy	Sessional	003
<b>TOTAL CREDIT HOURS (15-0-15): 15-0-0 (Theoretical), 0-0-15 (Sessional)</b> <b>Marks: Theoretical: 500; Sessional: 400; Total: 900</b>			

## FOURTH YEAR, FIRST SEMESTER

SUBJECT CODE	NAME OF THE SUBJECT	THEORETICAL/ SESSIONAL/ TUTORIAL	CREDIT HOURS PER WEEK
<b>THEORETICAL SUBJECTS</b>			
Met / T / 411	Alloy Steel Making and Ferroalloys	Theoretical	300
Met / T / 412	Metal Working Processes	Theoretical	300
Met / T / 413	Material Engineering	Theoretical	300
Met / T / 414	<b>Elective – I</b> a) Theory of Metallurgical Processes b) Light Metals and Alloys c) Composite Materials	Theoretical	300
<b>SESSIONAL SUBJECTS</b>			
Met / S / 411	Viva-Voce - III	Sessional	003
Met / S / 412	Materials Laboratory	Sessional	003
Met / S / 413	Seminar	Sessional	003
Met / S / 414	Project and Report	Sessional	006
<b>TOTAL CREDIT HOURS (12-0-15): 12-0-0 (Theoretical), 0-0-15 (Sessional)</b> <b>Marks: Theoretical: 400; Sessional: 400; Total: 800</b>			

## FOURTH YEAR, SECOND SEMESTER

SUBJECT CODE	NAME OF THE SUBJECT	THEORETICAL/ SESSIONAL/ TUTORIAL	CREDIT HOURS PER WEEK
<b>THEORETICAL SUBJECTS</b>			
Met / T / 421	X-ray and Electron Microscopy	Theoretical	300
Met / T / 422	Industrial Management and Engineering Economics	Theoretical	400 (Mgmt: 200) (Eco: 200)
Met / T / 423	Metal Joining and Powder Metallurgy	Theoretical	300
Met / T / 424	<b>Elective – II</b> a) Advanced Characterisation Techniques b) Coating Technology c) Nanostructured Materials	Theoretical	300
Met / T / 425	General Viva-Voce	Theoretical	
<b>SESSIONAL SUBJECTS</b>			
Met / S / 421	X-ray & Electron Microscopy Laboratory	Sessional	003
Met / S / 422	Materials Processing	Sessional	003
Met / S / 423	Extractive Metallurgy	Sessional	003
Met / S / 424	Project and Report	Sessional	006
<b>TOTAL CREDIT HOURS (13-0-15) : 12-0-0 (Theoretical); 0-0-15 (Sessional)</b> <b>Marks: Theoretical: 500; Sessional: 400; Total: 900</b>			