JABALPUR ENGINEERING COLLEGE, JABALPUR (MP)
(An Autonomous Institute of Govt. of M.P.)
Affiliated to Rajiv Gandhi Technological University, Bhopal (MP)
Scheme of Study and Examination (w.e.f. July 2010)

M.E. III Sem. Branch : Mech. Engg. Specialization : Heat Power

Course Code	Subject	Periods			EVALUATION SCHEME					Credits
					SESSIONAL EXAM			ESE	SUB TOTAL	
		L	T	P	TA	CT	TOT			
ME-127	Climatology Engineering	3	1	-	10	20	30	70	100	4
	Elective - III (Any One)									
ME-128A	Cryogenic Engg.									
ME-128B	Advances in I. C. Engine Technology	3	1	-	10	20	30	70	100	4
ME-128C	Computer Aided Design of Thermal Systems									
(PRACTICAL/DRAWING/DESIGN)										
ME-129L	Seminar/ Project	-	-	4	100	-	100	-	100	4
ME-130L	Software Training (4 weeks)	-	-	-	-	-	-	100	100	4
ME-131L	Preliminaries of Dissertation Presentation	-		4	40	-	40	60	100	4
	Total	**6**	**2**	**8**	**160**	**40**	**200**	**300**	**500**	**20**

T.A. Teachers Assessment, CT- Class Test, ESE - End Semester Examination, Total Marks 500
Total Periods : 16 Total Credits : 20

NOTE : The students shall go on industrial training at the end of second semester and the evaluation shall be done at the end of third semester. The student has to present a report on the training and also has to face a viva voice examination infront of a panel headed by head of the department. The seminar /project shall be asigned by the supervisor

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
ME HP	**CLIMATOLOGY ENGINEERING**	**ME-127**	Min "D"	Min "D"	5.0

CLIMATOLOGY ENGINEERING

Properties of air-water-vapour mixtures, psychrometry.

Air-conditioning processes and equipment, comfort factors

Methods of ventilation, special ventilation applications.

Airflow around buildings, Heat and mass transfer through building, load calculations.

Air distribution devices, illumination and day lighting, Energy efficient buildings.

Books :

1. Referegeration & A/C by W.F.Streckan & Jones.
2. Referegeration & A/C by C.P.Arora
3. Referegeration & A/C by Manohar & Prasad

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
ME HP	**CRYOGENIC ENGINEERING**	**ME-128A**	Min "D"	Min "D"	5.0

CRYOGENIC ENGINEERING

(1) Introduction, Application involving cryogenic engineering.
Low temperature properties of engineering materials.
Mechanical, Thermal, Electrical & Magnetic properties of metals, alloys & non metals at cryogenic temperature, Properties of cryogenic fluids.

(2) Refrigeration and liquefaction systems

- Refrigeration and liquefaction principles.
- Joule Thomson expansion
- Isentropic expansion
- Production of solid carbon dioxide & its Analysis
- Liquefaction systems for gases other than Neon, Hydrogen & Helium.
  * Working on the principle of the Joule Thomson expansion
  Simple Linde – Hampson System, Precooled Linde – Hampson System, Linde Dual pressure system.
  * Working on the principle of Isentropic expansion.
  Simple gas expansion cycle, Claude cycle, Kapitza system, Heylandt system
  * Cascade processes
- Cold gas Refrigerators (Simple Introduction)
- Liquefaction systems for Neon, Hydrogen & Helium (Simple Introduction)

(3) Low temperature systems equipment
Heat exchangers, Compressors, Expanders
Introduction to gas separation.

(4) Cryogenic Insulation & Cryogenic Instrumentation Measurement of Flow, Pressure & temperature, Applications of cryogenics in Industry & Research.

Books :

1. Cryogenic Systems by R.F. Barron
2. Cryogenic Process Engineering by Klaus D. Timmerhaus & Thomas M. Flynn
3. Cryogenic Engineering by T.M. Flynn

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	ADVANCES IN I. C. ENGINE TECHNOLOGY	**ME-128B**	Min "D"	Min "D"	5.0

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	COMPUTER AIDED DESIGN OF THERMAL SYSTEMS	**ME-128C**	Min "D"	Min "D"	5.0

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	SEMINAR/PROJECT	ME-129L			5.0

SEMINAR/PROJECT

The student shall take up a small project under the supervision of a supervisor and shall complete the task. He has to present the report before a committee credit by H.O.D. and answer the queries

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	SOFTWARE TRAINING	ME-130L	Min "D"	Min "D"	5.0

SOFTWARE TRAINING

The student shall go for Software Training at the end of Second Semester during summer and shall prepare a report on the Practical Training undergone there. He has to present the report at the time of practical examination of Third Semester.

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	PRELIMINARIES OF DISSERTATION PRESENTATION	ME-131L	Min "D"	Min "D"	5.0

PRELIMINARIES OF DISSERTATION PRESENTATION

The student shall prepare a literature review of the dissertation work to be undertaken. He shall also prepare the scheme of dissertation