

ANITS (A)
Department of Mechanical engineering
R-19-Revised Course structure

I Year

Semester - I

Course Code	Title of the course	Category	Periods						Sessionals Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
MEC111	Engineering Mathematics - I	BS	3	0	0	2	4	9	40	60	100	3
MEC112	Engineering Physics	BS	3	0	0	1	3	7	40	60	100	3
MEC113	Engineering Chemistry	BS	3	0	0	1	3	7	40	60	100	3
MEC114	#Biology for Engineers	BS	2	1	0	1	3	7	100	---	100	3
MEC115	Engineering Drawing	ES	2	0	3	1	4	10	40	60	100	3.5
MEC116	Engineering Physics Lab	BS	0	0	3	0	1	4	50	50	100	1.5
MEC117	Engineering Chemistry Lab	BS	0	0	3	0	1	4	50	50	100	1.5
MEC118	Engineering Workshop	ES	0	0	3	0	1	4	50	50	100	1.5
MEC119	Human Values and Professional Ethics(Mandatory non-credit course)	MC	0	0	0	3	1	4	50		50	0
Total			13	1	12	9	21	56	460	390	850	20

I Year

Semester - II

Code	Title of the course	Category	Periods						Sessionals Marks	end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
MEC121	Engineering Mathematics - II	BS	2	1	0	2	4	9	40	60	100	3
MEC122	English	HS	3	0	0	0	2	5	40	60	100	3
MEC123	*Advanced Engineering drawing	ES	2	0	2	2	4	10	50	50	100	3
MEC124	Basic Electronics Engineering	ES	3	0	0	1	3	7	40	60	100	3
MEC125	Problem solving with C	ES	3	0	0	0	2	5	40	60	100	3
MEC126	Language Laboratory	HS	0	0	3	0	1	4	50	50	100	1.5
MEC127	Problem solving with C- lab.	ES	0	0	3	3	3	9	50	50	100	1.5
MEC128	Environmental studies (Mandatory non-credit course)	MC	0	0	0	3	3	6	50		50	0
Total			13	1	8	11	22	55	360	390	750	18

II Year

Semester - I

Code	Title of the course	Category	Periods					Total	Sessionals Marks	end Exam marks	Total Marks	Credits
			L	T	P	E	O					
MEC211	Engineering Mathematics - III	BS	2	1	0	2	4	9	40	60	100	3
MEC212	Material science & Metallurgy	PC	3	0	0	1	2	6	40	60	100	3
MEC213	Engineering Mechanics	PC	2	1	0	2	4	9	40	60	100	3
MEC214	Mechanics of solids	PC	2	1	0	2	4	9	40	60	100	3
MEC215	Basic Thermodynamics	PC	2	1	0	2	4	9	40	60	100	3
MEC216	Manufacturing Processes	PC	3	0	0	2	2	7	40	60	100	3
MEC217	Mechanics of solids-Lab	PC	0	0	3	0	1	4	50	50	100	1.5
MEC218	Manufacturing- Lab	PC	0	0	3	0	1	4	50	50	100	1.5
Total			14	4	6	11	22	57	340	460	800	21

II Year

Semester - II

Code	Title of the course	Category	Periods					Total	Sessionals Marks	end Exam marks	Total Marks	Credits
			L	T	P	E	O					
MEC 221	Engineering Mathematics - IV	BS	2	1	0	2	4	9	40	60	100	3
MEC 222	Basic Electrical Engineering	ES	2	1	0	1	3	7	40	60	100	3
MEC 223	Applied Thermal Engineering-I	PC	2	1	0	2	4	9	40	60	100	3
MEC 224	Kinematics of Machinery	PC	2	1	0	2	4	9	40	60	100	3
MEC 225	Metal cutting, Machine Tools & Metrology	PC	3	0	0	2	2	7	40	60	100	3
MEC 226	Mechanical Engineering Drawing	PC	1	0	4	0	3	8	40	60	100	3
MEC 227	Machine Tools Lab	PC	0	0	3	0	1	4	50	50	100	1.5
MEC 228	**Basic Electrical Engineering-Lab	ES	0	0	3	0	1	4	50	--	50	1.5
Total			12	4	10	9	22	57	340	410	750	21

III Year

Semester - I

Course Code	Title of the course	Category	Periods					Total	Sessionals Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O					
MEC 311	***Open Elective-I	OE	3	0	0	1	2	6	40	60	100	3
MEC 312	Humanities Elective	HS	3	0	0	1	2	6	40	60	100	3
MEC 313	Design Thinking	ES	2	0	2	1	2	6	40	60	100	3
MEC 314	Dynamics of Machinery	PC	2	1	0	2	4	9	40	60	100	3
MEC 315	Applied Thermal Engineering-II	PC	2	1	0	2	4	9	40	60	100	3
MEC 316	Design of Machine Elements-I	PC	2	1	0	2	4	9	40	60	100	3
MEC 317	Quantitative Aptitude-I & Verbal Aptitude	HS	0	0	3	1	3	7	100	0	100	1.5
MEC 318	Thermal Engineering Lab	PC	0	0	3	0	1	4	50	50	100	1.5
MEC 319	Applied Mechanics-Lab	PC	0	0	3	0	1	4	50	50	100	1.5
	Total		15	3	9	10	23	60	440	460	900	22.5

III Year

Semester - II

Course Code	Title of the course	Category	Periods					Total	Sessionals Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O					
MEC 321	***Open Elective-II	OE	3	0	0	0	2	5	50	50	100	3
MEC 322	Professional Elective-I	PE	3	0	0	1	2	6	40	60	100	3
MEC 323	Professional Elective-II	PE	3	0	0	1	3	7	40	60	100	3
MEC 324	Operations Research	PC	2	1	0	1	4	8	40	60	100	3
MEC 325	Fluid Mechanics & Hydraulic Machinery	PC	2	1	0	2	3	8	40	60	100	3
MEC 326	Design of Machine Elements-II	PC	2	1	0	2	4	9	40	60	100	3
MEC 327	Quantitative Aptitude-II & Soft Skills	HS	0	0	3	2	3	8	100	0	100	1.5
MEC 329	Metrology & Mechatronics-Lab	PC	0	0	3	0	1	4	50	50	100	1.5
MEC 328	Fluid Mechanics & Hydraulic Machinery - Lab	PC	0	0	3	0	1	4	50	50	100	1.5
	Total		15	3	9	9	23	59	450	450	900	22.5

IV Year

Semester - I

Course Code	Title of the course	Category	Periods					Total	Sessionals Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O					
MEC 411	***Open Elective-III	OE	3	0	0	0	2	5	40	60	100	3
MEC 412	Professional Elective-III	PE	3	0	0	1	2	6	40	60	100	3
MEC 413	Professional Elective-IV	PE	3	0	0	1	3	7	40	60	100	3
MEC 414	Computer Aided Design & Manufacturing	PC	2	1	0	2	2	7	40	60	100	3
MEC 415	Heat Transfer	PC	2	1	0	2	4	9	40	60	100	3
MEC 416	Computer Aided Design & Manufacturing Lab	PC	0	0	3	0	2	5	50	50	100	1.5
MEC 417	Heat Transfer-Lab	PC	0	0	3	0	1	4	50	50	100	1.5
MEC 418	****Industrial Training	PR	0	0	0	0	0	0	--	100	100	1
MEC 419	Project Phase-I	PR	0	0	4	0	4	8	--	100	100	2
Total			13	2	10	6	20	51	300	600	900	21

IV Year

Semester - II

Course Code	Title of the course	Category	Periods					Total	Sessionals Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O					
MEC 421	***Open Elective-IV	OE	3	0	0	0	2	5	40	60	100	3
MEC 422	*****Professional Elective-V	PE	3	0	0	1	2	6	40	60	100	3
MEC 423	Project Phase-II	PR	0	0	16	0	16	32	100	100	200	8
Total			6	0	16	1	20	43	180	220	400	14

Total Credits

160

The assessment for the subject Biology for Engineers shall be “INTERNAL ONLY” for 100 Marks. The subject will not have external end exam.

* The External examination shall be conducted in two parts each for one and half hour duration under the purview of an internal and external examiner. The first part shall be in the conventional drawing format (manually) and the second using Auto CAD software. In conventional drawing, the student has to attempt two problems out of three questions, which will be purely based on drawing. The second part will consist of two questions, the first being a theoretical question on AutoCAD and the second will be an application of AutoCAD(on computer) to produce a drawing.

** The assessment for Basic Electrical Engineering Lab shall be “INTERNAL ONLY” for 50 Marks.

*** Open electives can be interdisciplinary subjects/Emerging subjects/ MOOCS (will be decided by the department).

**** The industrial training programme should be done by the student at the end of III year II semester. The minimum duration of industrial training should not be less than 15 working days. The evaluation process has to be carried out in the final year first semester.

*****Those who are going for full semester project internship in an industry can opt for 2 MOOCS courses in lieu to 2 courses offered in IV-II. The grade for the MOOCS courses will be awarded based on an evaluation by the departmental committee.

List of Professional electives and other electives

Professional Elective-I	Production Planning & Control	Gas Turbines & Jet Proplusions	Additive Manufacturing	Non-Destructive Testing
Professional Elective-II	Refrigeration & Air-conditioning	Statistical Quality Control	Computational Fluid Dynamics	Nano Technology
Professional Elective-III	Automobile Engineering	Automation in Manufacturing	Unconventional machining process	Quality & Reliability Engineering
Professional Elective-IV	FEA	Alternate fuels	Industrial Tribology	Advanced Mechanics of Materials
Professional Elective-V	Mechanical Measurements & Control systems	Non-Conventional Energy sources	Power Plant Engineering	Condition Monitoring

Open Electives: Artificial Intelligence, Internet of things, C++, Java, Python, MATLAB etc.

Emerging Subjects: Robotics, Additive Manufacturing, Mechtronics etc.

- Humanities Elective-A) MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS
 B) INDUSTRIAL ENGINEERING AND MANAGEMENT
 C) ENTREPRENEURSHIP DEVELOPMENT
 D) SUPPLY CHAIN MANAGEMANT