

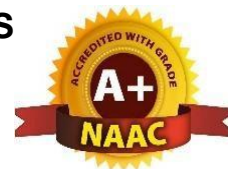


SIDDHARTHA INSTITUTE OF TECHNOLOGY & SCIENCES (UGC – AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A+' Grade

Narapally, Korremula Road, Ghatkesar, Medchal-Malkajgiri(Dist)-501 301



B.Tech - Mechanical Engineering

Course Structure (SITS - R22)

Applicable From 2022-23 Admitted Batch

Structure Breakup

S. No	Category	Breakup of credits (Total 160 credits)
1	Humanities and Social Sciences including Management Courses (HSMC)	7
2	Basic Sciences Courses(BS)	18.5
3	Engineering Sciences Courses including Workshop, Drawing basics of Electrical/Mechanical/Computer etc.(ES)	22.5
4	Professional Core Courses(PC)	67
5	Professional Electives(PE)	18
6	Open Electives(OE)	9
7	Project work, Seminar and Internship in Industry or elsewhere (PS)	18
8	Mandatory Courses	-
TOTAL		160

B.Tech - Mechanical Engineering
Course Structure (SITS - R22)
 Applicable From 2022-23 Admitted Batch

I YEAR I SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2210001	Matrices and Calculus	BS	3	1	0	4	40	60	100
2	2210009	Applied Physics	BS	3	1	0	4	40	60	100
3	2210501	C Programming and Data Structures	ES	3	0	0	3	40	60	100
4	2210302	Engineering Workshop	ES	0	1	3	2.5	40	60	100
5	2210011	English for Skill Enhancement	HS	2	0	0	2	40	60	100
6	2210371	Elements of Mechanical Engineering	PC	0	0	2	1	50	-	50
7	2210071	Applied Physics Laboratory	BS	0	0	3	1.5	40	60	100
8	2210571	C Programming and Data Structures Laboratory	ES	0	0	2	1	40	60	100
9	2210073	English Language and Communication Skills Laboratory	HS	0	0	2	1	40	60	100
10	221MC01	Environmental Science	*MC	3	0	0	0	-	-	-
		Induction Programme		-	-	-	-	-	-	-
TOTAL				14	3	12	20	370	480	850

I YEAR II SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2220002	Ordinary Differential Equations and Vector Calculus	BS	3	1	0	4	40	60	100
2	2220010	Engineering Chemistry	BS	3	1	0	4	40	60	100
3	2220301	Computer Aided Engineering Graphics	ES	1	0	4	3	40	60	100
4	2220326	Engineering Mechanics	ES	3	0	0	3	40	60	100
5	2220327	Engineering Materials	PC	2	0	0	2	40	60	100
6	2220575	Python Programming Laboratory	ES	0	1	2	2	40	60	100
7	2220072	Engineering Chemistry Laboratory	BS	0	0	2	1	40	60	100
8	2220372	Fuels & Lubricants Laboratory	PC	0	0	2	1	40	60	100
TOTAL				12	3	10	20	320	480	800

***MC-Satisfactory/Unsatisfactory**

II YEAR I SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2230004	Probability, Statistics & Complex Variables	ES	3	1	0	4	40	60	100
2	2230328	Mechanics of Solids	PC	3	0	0	3	40	60	100
3	2230329	Metallurgy & Material Science	PC	3	0	0	3	40	60	100
4	2230330	Production Technology	PC	3	0	0	3	40	60	100
5	2230331	Thermodynamics	PC	3	1	0	4	40	60	100
6	2230373	Production Technology Laboratory	PC	0	0	2	1	40	60	100
7	2230374	Material Science & Mechanics of Solids Laboratory	PC	0	0	2	1	40	60	100
8	2230375	Computer Aided Machine Drawing Lab	PC	0	0	2	1	40	60	100
9	223MC02	Constitution of India	*MC	3	0	0	0	-	-	-
TOTAL				18	2	6	20	320	480	800

II YEAR II SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2240202	Basic Electrical and Electronics Engineering	ES	3	0	0	3	40	60	100
2	2240332	Kinematics of Machinery	PC	3	0	0	3	40	60	100
3	2240333	Fluid Mechanics & Hydraulic Machines	PC	3	0	0	3	40	60	100
4	2240334	IC Engines & Gas Turbines	PC	3	0	0	3	40	60	100
5	2240335	Instrumentation and Control Systems	PC	3	0	0	3	40	60	100
6	2240272	Basic Electrical and Electronics Engineering Laboratory	ES	0	0	2	1	40	60	100
7	2240376	Fluid Mechanics & Hydraulic Machines Laboratory	PC	0	0	2	1	40	60	100
8	2240377	Instrumentation and Control Systems Laboratory	PC	0	0	2	1	40	60	100
9	224PS01	Real-time Research Project / Field-Based Project	PS	0	0	4	2	50	-	50
10	224MC03	Gender Sensitization Lab	*MC	0	0	2	0	-	-	-
TOTAL				15	0	12	20	370	480	850

***MC-Satisfactory/Unsatisfactory**

III YEAR I SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2250336	Dynamics of Machinery	PC	3	0	0	3	40	60	100
2	2250337	Design of Machine Elements	PC	3	0	0	3	40	60	100
3	2250338	Metrology & Machine Tools	PC	3	0	0	3	40	60	100
4	2250012	Business Economics & Financial Analysis	HS	3	0	0	3	40	60	100
5	2250339	Steam Power & Jet Propulsion	PC	3	0	0	3	40	60	100
6	2250340	CAD/CAM	PC	2	0	0	2	40	60	100
7	2250378	Thermal Engineering Laboratory	PC	0	0	2	1	40	60	100
8	2250379	Metrology & Machine Tools Laboratory	PC	0	0	2	1	40	60	100
9	2250380	Kinematics & Dynamics Laboratory	PC	0	0	2	1	40	60	100
10	225MC04	Intellectual Property Rights	*MC	3	0	0	0	-	-	-
TOTAL				20	0	6	20	360	540	900

III YEAR II SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2260341	Machine Design	PC	3	0	0	3	40	60	100
2	2260342	Heat Transfer	PC	3	0	0	3	40	60	100
3	2260343	Finite Element Methods	PC	3	0	0	3	40	60	100
4		Professional Elective - I	PE	3	0	0	3	40	60	100
5		Open Elective - I	OE	3	0	0	3	40	60	100
6	2260381	Heat Transfer Lab	PC	0	0	2	1	40	60	100
7	2260382	Computer Aided Engineering Laboratory	PC	0	0	2	1	40	60	100
8	2260074	Advanced English Communication Skills Laboratory	HS	0	0	2	1	40	60	100
9	226PS02	Industry Oriented Mini Project / Internship	PS	0	0	4	2	-	100	100
10	226MC01	Environmental Science	*MC	3	0	0	0	-	-	-
TOTAL				18	0	10	20	320	580	900

*MC-Satisfactory/Unsatisfactory

**MC-Environmental Science in III Yr II Sem Should be Registered by Lateral Entry Students Only.

IV YEAR I SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2270014	Industrial Management	PC	2	0	0	2	40	60	100
2	2270344	Refrigeration & Air Conditioning	PC	3	0	0	3	40	60	100
3		Professional Elective – II	PE	3	0	0	3	40	60	100
4		Professional Elective – III	PE	3	0	0	3	40	60	100
5		Professional Elective - IV	PE	3	0	0	3	40	60	100
6		Open Elective - II	OE	3	0	0	3	40	60	100
7	227PS03	Project Stage - I	PS	0	0	6	3	100	-	100
TOTAL				17	0	6	20	340	360	700

IV YEAR II SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1		Professional Elective – V	PE	3	0	0	3	40	60	100
2		Professional Elective - VI	PE	3	0	0	3	40	60	100
3		Open Elective - III	OE	3	0	0	3	40	60	100
4	228PS04	Project Stage – II including seminar	PS	0	0	22	11	40	60	100
TOTAL				9	0	22	20	160	240	400

***MC-Satisfactory/Unsatisfactory**

Professional Elective (PE) Courses**PE-I: Professional Elective - I**

S. No.	Course Code	Course Title
1	22603A1	Unconventional Machining Processes
2	22603A2	Power Plant Engineering
3	22603A3	Mechanical Vibrations
4	22603A4	Microprocessors in Automation

PE-II: Professional Elective - II

S. No.	Course Code	Course Title
1	22703A5	Artificial Intelligence in Mechanical Engineering
2	22703A6	Automobile Engineering
3	22703A7	Industrial Robotics
4	22703A8	Mechatronics

PE-III: Professional Elective - III

S. No.	Course Code	Course Title
1	22703A9	Production Planning & Control
2	22703B1	Computational Fluid Dynamics
3	22703B2	Composite Materials
4	22703B3	Solar energy technology

PE-IV: Professional Elective - IV

S. No.	Course Code	Course Title
1	22703B4	Re-Engineering
2	22703B5	Non-Conventional Energy Sources
3	22703B6	Operations Research
4	22703B7	Electric and Hybrid Vehicles

PE-V: Professional Elective - V

S. No.	Course Code	Course Title
1	22803B8	Automation in Manufacturing
2	22803B9	Turbo Machinery
3	22803C1	Additive Manufacturing
4	22802C2	Energy Conservation and Management

PE-VI: Professional Elective - VI

S. No.	Course Code	Course Title
1	22803C3	Industry 4.0
2	22803C4	Fluid Power System
3	22805C5	Fuzzy Logic and ANN
4	22803C6	Total Quality Management

Open Elective (OE) Courses

S. No	Open Elective	Course Code	Course Title
1	Open Elective- I	22603G1	Basic Mechanical Engineering
		22603G2	Renewable energy Sources
2	Open Elective–II	22703G3	Quantitative Analysis for Business Decisions
		22703G4	Industrial Engineering &Management
3	Open Elective-III	22803G5	Entrepreneurship Development
		22803G6	Elements of Electric and Hybrid vehicles

Note: *Open Elective subject's syllabus is provided in a separate document. Student should take open electives from the list of offered by other departments/branches only.*