DHIRAJLAL GANDHI COLLEGE OF TECHNOLOGY

SALEM (Autonomous)

M.E – CAD/CAM

Curriculum (I to IV Semesters)

Autonomous Regulations – 2024

VISION:

- To provide the highest quality in engineering education and establish the state of the art research for innovation that will enable the students to excel in their field.

MISSION:

- To achieve high ethical and professional standards through effective teaching and learning process.
- To provide infrastructure for research and development activities.
- To offer consultancy services for the industries.
- To provide guidance to neighborhood and cultivate the spirit of entrepreneurship.

I. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1 To Impart knowledge to students in recent advances in the Computer Aided Manufacturing to educate them to prosper in Manufacturing engineering and research related professions.

PEO2 To enhance the scientific and engineering fundamentals to provide students with a solid foundation required to solve analytical problems

PEO3 To coach students with good design and engineering skills so as to comprehend, analyze, design, and produce novel materials, products and solutions for the contemporary manufacturing issues.

PEO4 To inculcate students with professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate Computer Integrated Manufacturing engineering issues to broader engineering and social context.

II. PROGRAM OUTCOMES (POs)

POs	GRADUATE ATTRIBUTES
PO1	An ability to independently carry out research/investigation and development work to solve practical problems.
PO2	An ability to write and present a substantial technical report/document.
PO3	Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

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PO4 Graduate will demonstrate skills to use modern engineering tools, software and equipment to analyze engineering problems.

PO5 Graduates will demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks in the design and manufacturing applications.

PO6 Responsibility of understanding ethically and professionally and develop confidence for self-education and ability for life-long learning.

III. PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1 Apply mechanical engineering and interdisciplinary knowledge for analyzing, designing and manufacturing products to address the needs of the society.

PSO2 Apply state of the art tools and techniques to conceptualize, design and introduce new products, processes, systems and services.

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CURRICULUM FOR I TO IV SEMESTER

CURRICULUM DETAILS

M.E. – CAD/CAM

SEMESTER – I											
S.NO	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS	MAXIMUM MARKS		
				L	T	P		C	CA	EE	TOTAL
	THEORY										
1.	24TPD101	Computer Applications in Design	PCC	3	0	0	3	3	40	60	100
2.	24TPD102	Design for Sustainability	PCC	3	0	0	3	3	40	60	100
3.	24TPD103	Advanced Manufacturing Processes	PCC	3	0	0	3	3	40	60	100
4.	24TPD104	Computer Aided Tools for Manufacturing	PCC	3	0	0	3	3	40	60	100
5.	24TPD105	Research Methodology and IPR	RMC	2	0	0	2	2	40	60	100
6.	-	Professional Elective - I	PEC	3	0	0	3	3	40	60	100
7.	-	Audit Course – I*	AC	2	0	0	2	0	100	0	100
	PRACTICALS										
8.	24LPD101	Computer Aided Design Laboratory	PCC	0	0	4	4	2	60	40	100
9.	24LPD102	Computer Aided Manufacturing Laboratory	PCC	0	0	4	4	2	60	40	100
TOTAL				19	0	8	27	21	460	440	900

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SEMESTER – II											
S.NO	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS	MAXIMUM MARKS		
				L	T	P		C	CA	EE	TOTAL
	THEORY										
1.	24TPD201	Product Life cycle Management	PCC	3	0	0	3	3	40	60	100
2.	24TPD202	Finite Element Methods in Mechanical Design	PCC	3	1	0	4	4	40	60	100
3.	24TPD203	Solid Freeform Manufacturing	PCC	3	0	0	3	3	40	60	100
4.	24TPD204	Industry 4.0	PCC	3	0	0	3	3	40	60	100
5.	-	Professional Elective – II	PEC	3	0	0	3	3	40	60	100
6.	-	Professional Elective – III	PEC	3	0	0	3	3	40	60	100
7.	-	Audit Course – II*	AC	2	0	0	2	0	100	0	100
	PRACTICALS										
8.	24LPD201	Rapid Prototyping Laboratory	PCC	0	0	4	4	2	60	40	100
9.	24LPD202	Simulation and Analysis Laboratory	PCC	0	0	4	4	2	60	40	100
TOTAL				20	1	8	29	23	460	440	900

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SEMESTER – III											
S.NO	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS	MAXIMUM MARKS		
				L	T	P		C	CA	EE	TOTAL
	THEORY										
1.		Professional Elective – IV	PEC	3	0	0	3	3	40	60	100
2.		Professional Elective – V	PEC	3	0	0	3	3	40	60	100
3.		Open Elective	OEC	3	0	0	3	3	40	60	100
	PRACTICALS										
8.	24LPD301	Technical Seminar	EEC	0	0	2	2	1	60	40	100
9.	24PPD301	Project Work – I	EEC	0	0	12	12	6	60	40	100
TOTAL				9	0	14	23	16	240	260	500

SEMESTER – IV											
S.NO	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS	MAXIMUM MARKS		
				L	T	P		C	CA	EE	TOTAL
	THEORY										
1.	24S003	Entrepreneurship Development	EEC	2	0	2	4	3	50	50	100
	PRACTICALS										
2.	24PPD301	Project Work – I	EEC	0	0	24	24	12	60	40	100
TOTAL				2	0	26	28	15	110	90	200
TOTAL CREDITS EARNED								75	1270	1230	2500

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SUMMARY OF CREDIT DISTRIBUTION

S.NO	COURSE CATEOGRY	CREDITS PER SEMESTER				TOTAL CREDITS
		I	II	III	IV	
1.	AC	0	0			0
2.	EEC			7	15	22
3.	PCC	16	17			33
4.	PEC	3	6	6		15
5.	OEC			3		3
6.	RMC	2				2
TOTAL CREDITS		21	23	16	15	75

CATEGORY

AC – Audit Course

EEC - Employment Enhance Course

PCC – Professional Core Course

PEC – Professional Elective Course

OEC – Open Elective Course

RMC - Research Methodology Course

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PROFESSIONAL CORE COURSES (PCC)

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24TPD101	Computer Applications in Design	PCC	3	0	0	3	3
2.	24TPD102	Design for Sustainability	PCC	3	0	0	3	3
3.	24TPD103	Advanced Manufacturing Processes	PCC	3	0	0	3	3
4.	24TPD104	Computer Aided Tools for Manufacturing	PCC	3	0	0	3	3
5.	24LPD101	Computer Aided Design Laboratory	PCC	0	0	4	4	2
6.	24LPD102	Computer aided Manufacturing Laboratory	PCC	0	0	4	4	2
7.	24TPD201	Product Lifecycle Management	PCC	3	0	0	3	3
8.	24TPD202	Finite Element Methods in Mechanical Design	PCC	3	1	0	4	4
9.	24TPD203	Solid Freeform Manufacturing	PCC	3	0	0	3	3
10.	24TPD204	Industry 4.0	PCC	3	0	0	3	3
11.	24LPD201	Rapid Prototyping Laboratory	PCC	0	0	4	4	2
12.	24LPD202	Simulation and Analysis Laboratory	PCC	0	0	4	4	2

RESEARCH METHODOLOGY AND IPR COURSE (RMC)

S.NO.	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
			L	T	P		C
1.	24TPD105	Research Methodology and IPR	2	0	0	2	2

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PROFESSIONAL ELECTIVE COURSES (PEC)

PROFESSIONAL ELECTIVE (I – V)

SEMESTER I, ELECTIVE I

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24EPD101	Integrated Product Development	PEC	3	0	0	3	3
2.	24EPD102	Composite Materials and Mechanics	PEC	3	0	0	3	3
3.	24EPD103	Computer Control in Process Planning	PEC	3	0	0	3	3

SEMESTER II, ELECTIVE II

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24EPD201	Advanced Finite Element Analysis	PEC	3	0	0	3	3
2.	24EPD202	Optimization Techniques in Design	PEC	3	0	0	3	3
3.	24EPD203	Advanced Machine tool Design	PEC	3	0	0	3	3
4.	24EPD204	Reverse Engineering	PEC	3	0	0	3	3

SEMESTER II, ELECTIVE III

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24EPD205	Industrial Safety Management	PEC	3	0	0	3	3
2.	24EPD206	Mechanical Measurements and Analysis	PEC	3	0	0	3	3
3.	24EPD207	Reliability in Engineering Systems	PEC	3	0	0	3	3

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SEMESTER III, ELECTIVE IV

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24EPD301	Performance Modeling and Analysis of Manufacturing Systems	PEC	3	0	0	3	3
2.	24EPD302	Creativity and Innovation	PEC	3	0	0	3	3
3.	24EPD303	Industrial Robotics and Expert systems	PEC	3	0	0	3	3
4.	24EPD304	Design for Cellular Manufacturing Systems	PEC	3	0	0	3	3
5.	24EPD305	Electronics Manufacturing Technology	PEC	3	0	0	3	3

SEMESTER III, ELECTIVE V

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24EPD306	Quality Concepts in Design	PEC	3	0	0	3	3
2.	24EPD307	Non – Destructive Testing	PEC	3	0	0	3	3
3.	24EPD308	Design of Hybrid and Electric Vehicles	PEC	3	0	0	3	3
4.	24EPD309	Material Handling Systems and Design	PEC	3	0	0	3	3
5.	24EPD310	Designing with Advanced Materials	PEC	3	0	0	3	3

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EMPLOYMENT ENHANCES COURSES (EEC)

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24LPD301	Technical Seminar	EEC	0	0	2	2	1
2.	24PPD301	Project Work I	EEC	0	0	12	12	6
3.	24PPD401	Project Work II	EEC	0	0	24	24	12

AUDIT COURSES (AC)

Registration for any of these courses is optional to students

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24APD001	English for Research Paper Writing	AC	2	0	0	2	0
2.	24APD002	Disaster Management	AC	2	0	0	2	0
3.	24APD003	Constitution of India	AC	2	0	0	2	0
4.	24APD004	நற்றமிழ் இலக்கியம்	AC	2	0	0	2	0

LIST OF OPEN ELECTIVES FOR PG PROGRAMMES COURSES (OEC)

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24OPT308	Integrated Water Resources Management	OEC	3	0	0	3	3
2.	24OPT309	Water, Sanitation and Health	OEC	3	0	0	3	3
3.	24OPT301	Principles of Sustainable Development	OEC	3	0	0	3	3
4.	24OPT310	Environmental Impact Assessment	OEC	3	0	0	3	3

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5.	24MPC311	Block chain Technologies	OEC	3	0	2	5	4
6.	24OPC303	Deep Learning	OEC	3	0	0	3	3
7.	24OPD008	Sustainable management	OEC	3	0	0	3	3
8.	24OPD003	Micro and Small Business Management	OEC	3	0	0	3	3
9.	24OPD005	Intellectual Property Rights	OEC	3	0	0	3	3
10.	24OPD007	Ethical Management	OEC	3	0	0	3	3
11.	24OPC302	IoT for Smart Systems	OEC	3	0	0	3	3
12.	24MPC203	Machine Learning and Deep Learning	OEC	3	0	0	3	3
13.	24OPD004	Renewable Energy Technology	OEC	3	0	0	3	3
14.	24OPS303	Smart Grid	OEC	3	0	0	3	3
15.	24TPC301	Security Practices	OEC	3	0	0	3	3
16.	24OPC305	Cloud computing Technologies	OEC	3	0	0	3	3
17.	24OPD002	Design Thinking	OEC	3	0	0	3	3
18.	24OPC306	Principles of Multimedia	OEC	3	0	0	3	3
19.	24OPC301	Big Data Analytics	OEC	3	0	0	3	3
20.	24OPC304	Internet of Things and Cloud	OEC	3	0	0	3	3
21.	24OPS307	Medical Robotics	OEC	3	0	0	3	3
22.	24OPS306	Embedded Automation	OEC	3	0	0	3	3
23.	24OPT304	Environmental Sustainability	OEC	3	0	0	3	3
24.	24EPC202	Cloud Computing Technologies	OEC	3	0	0	3	3
25.	24OPD006	Nano composite Materials	OEC	3	0	0	3	3
26.	24OPD001	IPR, Bio safety and Entrepreneurship	OEC	3	0	0	3	3

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RESEARCH METHODOLOGY COURSE (RMC)

S.NO.	COURSE CODE	COURSE TITLE	CAT	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		C
1.	24TPD105	Research Methodology and IPR	RMC	2	0	0	2	2

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