

# **GANDHINAGAR UNIVERSITY**

Established and Incorporated under Gujarat Private Universities Act 2009 Amendment: Guj. Act No. 7 of 2022

# Gandhinagar Institute Technology Post Graduate Program in Engineering/Technology

Master of Technology (Software Engineering)
Master of Technology (Thermal Engineering)
Master of Technology (CAD-CAM)

Master of Technology Computer Engineering (Cyber Security)

# **Academic Regulations**

#### **R.1 ADMISSION**

A candidate for admission to the two-year Master of Technology (M.Tech.) must have eligibility as per the AICTE/Gujarat Government/ACPC/UGC rules for the program.

#### **R.2** PROGRAMME OF STUDY

A student shall follow the prescribed programme set out in the programme of study enclosed at Annexure -1 to 4 for the respective programme.

#### **R.3** EXEMPTIONS

Exemptions are not applicable for the MTech. Program.

#### **R.4 REGISTRATION**

Subject registration is required only for the elective subjects offered in the respective programme for enrolled students in the respective regular program/course.

A student shall not be permitted to attend any classes without completing his/her registration formalities. The registration formalities must be completed by the student in person or on e-Governance software of the Gandhinagar University.

#### **R.5** REQUIREMENTS FOR REGISTRATION

The student has successfully completed the pre-requisites for the subject, and the subject is being offered in the semester.

## R.6 ASSESSMENT OF STUDENT PERFORMANCE IN SUBJECTS

Grading in each subject are assigned based on earned marks. The performance of a student in a subject is judged through (i) Continuous Internal Evaluation of theory and practical (ii) End-Semester Theory and practical Examinations. The minimum passing criteria in each subject is 50%.

Continuous internal evaluation component may be done through written tests (MSE/RMSE) and/or quizzes, Seminar, assignment etc. in case of theory and practical performance in lab/case study/viva in case of practical.

External Viva-voce and Dissertation will be conducted only at the end of the respective semester by the University and overall passing (out of total marks) will be 50%.

## **R.7 EXAMINATIONS**

The end-semester examinations (Theory and Practical) for all subjects offered in each semester of an academic year will be conducted by the University.

No student shall be permitted for the end semester examination if he/she has not completed the required term work as per the rules and regulations in force.

The ratio between the external and internal theory assessment will be **60:40**.

#### **R.8** LETTER GRADES

The overall performance of a student in a course is represented by a letter grade with equivalent grade points as below:

AA	10	CC	06
AB	09	CD	05
BB	08	DD	04
BC	07	FF	00

A subject is completed successfully, i.e., credit is earned for a subject, when a letter grade DD or better is obtained in the subject.

#### **R.9** FAILURE IN A SUBJECT

A student does not earn any credit for a subject when he/she gets a letter grade FF in the subject.

The letter grade FF obtained in a subject will be shown in the final transcript issued to the student whether he/she subsequently obtains another letter grade in a repeat attempt.

## R.10 PERFORMANCE EVALUATION (SGPA AND CGPA)

The student's performance in a semester will be indicated by the semester grade point average (SGPA). The SGPA and CGPA (Cumulative grade point average) are calculated below.

$$SGPA = \frac{\sum_{i=1}^{n} C_i G_i}{\sum_{i=1}^{n} C_i}$$

Where  $C_i$  is the number of credits of the course i;  $G_i$  is the grade point for the course i; where i = 1 to n, n = number of courses in a semester.

Performance at the end of two or more consecutive semesters will be indicated by the CGPA. CGPA is calculated as below.

$$CGPA = \frac{\sum_{i=1}^{n} C_{i}G_{i}}{\sum_{i=1}^{n} C_{i}}$$

Where  $C_i$  is the number of credits of the course i;  $G_i$  is the grade point for the course i; where i = 1 to n, n = n number of courses of all semesters up to which CGPA is computed.

#### R.11 DISCONTINUATION FROM REGULAR STUDY

Students who have more than **4 backlog** up to the current semester excluding immediate previous semester are not eligible to continue study till the said criteria is fulfilled.

In such a case, student shall not be permitted for regular study of concerned next semester.

#### **R.12 REPEAT SUBJECTS**

A Subject which usually accounts for a higher rate of failure may be offered again as a repeat subject or subjects as the case may be in the following semester.

Repeat subjects are not offered to students as a matter of right. These subjects are offered subject to the availability of manpower and other facilities.

## R.13 REQUIREMENTS FOR THE AWARD OF DEGREE

A total of **70** credits as prescribed under the programme of studies.

A minimum Cumulative Grade Point Average (CGPA) of 4.00.

No course with letter grade FF.

A student who for whatever reason is not able to complete the programme within the normal period or the minimum duration prescribed for the programme, may be allowed two years period beyond the normal period to clear the backlogs to be qualified for the degree.

The general formula, therefore, should be as follows:

Time Span = N + 2 years for the completion of the programme.

Where N stands for the normal minimum duration prescribed for the completion of the programme.

In exceptional circumstances a further extension of one more year may be granted upon the representation to Honorable Vice Chancellor (Provost) stating the reason for extension request with supporting documents.

During the extended period, student shall be considered as private candidate and also not eligible for ranking.

#### R.14 AWARD OF CLASS

The class awarded to a student with his Master of Valuation degree is decided by final CGPA as under.

DISTINCTION - CGPA  $\geq$  7.5 FIRST CLASS - CGPA  $\geq$  6.0 SECOND CLASS - CGPA  $\geq$  5.0 PASS CLASS - CGPA < 5.0

## **R.15 TRANSCRIPT**

The Transcript issued to the student at the time of leaving the University will contain a consolidated record of all the courses taken by him, grades obtained, **SGPA**, **CGPA** etc.

## **R.16 ATTENDANCE**

A Student will be required to attend at least 75% of the total theory lectures organized in each subject during the semester.

The subjects to be covered in the syllabi of respective programme are given at M.Tech. SE-Annexure 1, CAD-CAM Annexure 2 and Thermal Engineering Annexure 3.

## MTech. (Cyber Security) Annexure 1.

Program Name: Master of Technology (02)

Program Code: CE (007) Software Engineering

Semester / Year : First Year Master of Technology -

Semester I Effective From Academic Year: 2022-23

				]			s per					
						wee	ek	Theory (Marks)		Practical		
Subject								University	Continuous	University	Continuous	Total
Code	Course Type	Subject Name	Credit	L	T	P	Total	Assessment	Assessment	Assessment	Assessment	(Marks)
		Advance Software										
10070101	Core I	Engineering	4	3	0	2	5	60	40	30	20	150
		Advance Data										
		Structures &										
10070102	Core II	Algorithms	4	3	0	2	5	60	40	30	20	150
10000153	Audit Course	Constitution of India	0	2	0	0	2	0	50	0	0	50
		Research										
10000151	MLC	Methodology and IPR	3	1	1	2	4	0	0	80	20	100
	Program											
	Elective I	-	4	3	0	2	5	60	40	30	20	150
	Program											
	Elective II	-	4	3	0	2	5	60	40	30	20	150
			19				26					750

10070103	Program Elective I	Data Science
10070104	Program Elective I	Data Warehousing & Data Mining
10070105	Program Elective I	High Performance Computing
10070106	Program Elective II	Image Processing
10070107	Program Elective II	Wireless Sensor Network
10070108	Program Elective II	Data Security & Access Control

Program Name: Master of Technology (02)	Program Code: CE (007) Software Engineering
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Semester / Year : First Year Master of Technology - Semester II

Effective From Academic Year: 2022-23

					Ho	our	s per					
						wee	-	Theory (Marks)		Practical		
Subject								University	Continuous	University	Continuous	Total
Code	Course Type	Subject Name	Credit	L	T	P	Total	Assessment	Assessment	Assessment	Assessment	(Marks)
10000251	Audit Course	Technical Writing	0	2	0	0	2	0	50	0	0	50
		Software Project										150
10070201	Core III	Management	4	3	0	2	5	60	40	30	20	130
		Research Review &										
10070202	Core	Seminar	3	0	0	6	6	0	0	0	100	100
10070203	Core IV	Distributed Systems	4	3	0	2	5	60	40	30	20	150
	Program											
	Elective III	-	4	3	0	2	5	60	40	30	20	150
	Program											
	Elective IV	-	4	3	0	2	5	60	40	30	20	150
			19				28					750

10070204	Program Elective III	Machine Learning
10070205	Program Elective III	Data Visualization
10070206	Program Elective III	Blockchain Technology
10070207	Program Elective IV	Computer Vision
10070208	Program Elective IV	Cloud Computing
10070209	Program Elective IV	Natural Language Processing

Program N	Name: Master of	Technology (02)				Program Code: CE (007) Software Engineering								
Semester / Semester I		Year Master of Techno	logy -			Eff	ective	From Academic	Year: 2023-24					
					lou eel	rs p k	er	Theory (Marks)	)	Practical (Mark	as)			
Subject Code	Course Type	Subject Name	Credit	L	Т	P	Total	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)		
10070301	Internal Review	Internal Review I	2	0	0	4	4	0	0	0	100	100		
10070302	Dissertation	Dissertation Phase I	14	0	0	28	28	0	0	100	0	100		
			16				32					200		
Semester / Semester I		Year Master of Techno	logy -			Eff	ective	From Academic	Year: 2023-24					
					lou eel	rs p k	oer	Theory (Marks)	)	Practical (Mark	(s)			
Subject Code	Course Type	Subject Name	Credit	L	Т	P	Total	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)		
10070401	Internal Review	Internal Review II	2	0	0	4	4	0	0	0	100	100		
10070402	Dissertation	Dissertation Phase II	14	0	0	28	28	0	0	100	0	100		

## **Annexure 2: MTech. CAD-CAM**

Program Name: Master of Technology (02) Program Code: ME CAD-CAM (008)

Semester / Year : First Year Master of Technology -

Semester I Effective From Academic Year: 2022-23

Semester 1						L	necuv	e From Acaden	ne rear: 2022-2	23		
				]			s per	TDI.	(Mr. 1)	<b>D</b>		
						we	ек	•	(Marks)		(Marks)	
Subject	Course							University	Continuous	University	Continuous	Total
Code	Type	Subject Name	Credit	L	T	P	Total	Assessment	Assessment	Assessment	Assessment	(Marks)
	Audit											
10000152	Course	Disaster Management	0	2	0	0	2	0	50	0	0	50
		Research Methodology										
10000151	MLC	and IPR	3	1	1	2	4	0	0	80	20	100
		Applied Mathematics for										
10080109	Core-1	Engineers	4	4	0	0	4	60	40	0	0	100
		Computer Aided Tools										
10080101	Core-2	for Manufacturing	4	3	0	2	5	60	40	30	20	150
		Computer Application in										
10080102	Core-3	Design	5	3	0	4	7	60	40	30	20	150
	Program											
	Elective I	-	5	4	0	2	6	60	40	30	20	150
			21				26					700
							•	•	•			•

	Program	
10080111	Elective I	Rapid Prototyping
	Program	Advanced Finite element
10080112	Elective I	Analysis
		Design of
10080113	Elective I	Manufacturing Systems

Semester / Year : First Year Master of Technology -

Semester II Effective From Academic Year: 2022-23

Course Type	Subject Name	Cr	]	Ho	ur	s per					
Type	Subject Name	~~		Hours per week			Theory (Marks)		Practical	Total	
	2 52 G	ed it	L	Т	P	Total	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	(Marks)
udit Course	Technical Writing	0	2	0	0	2	0	50	0	0	50
Ore-4	Mechanism Design and Analysis	3	3	0	0	3	60	40	0	0	100
Core-5	CNC Technology	4	3	0	2	5	60	40	30	20	150
rogram Elective II	-	5	4	0	2	6	60	40	30	20	150
rogram Elective III	-	6	4	2	0	6	60	40	0	0	100
'ore		3	0	0	6	6	0	0	0	100	100
rogram Elective IV	-	2	2	0	0	2	60	40	0	0	100
	·	23				30	<u> </u>	·		_	750
	ore-4 ore-5 orgram ective II orgram ective III ore orgram ective IV	Mechanism Design and Analysis  Ore-5 CNC Technology  orgram ective II  orgram ective III  Ore Research Review & Seminar  orgram -	Mechanism Design and Analysis  Ore-5 CNC Technology  Gogram ective III  Ore  Research Review & Seminar  Cogram ective IV  23	Mechanism Design and Analysis  Ore-5 CNC Technology 4 3  Orgram ective II  Orgram ective III  Ore Research Review & Seminar  Orgram ective IV  - 2 2	Mechanism Design and Analysis   3   3   0     Ore-5   CNC Technology   4   3   0     Orgram	Mechanism Design and Analysis   3   3   0   0	Mechanism Design and Analysis   3   3   0   0   3     Dre-5   CNC Technology   4   3   0   2   5     Program ective II   -	Mechanism Design and Analysis   3   3   0   0   3   60     Ore-5   CNC Technology   4   3   0   2   5   60     Orgram	Mechanism Design and Analysis   3   3   0   0   3   60   40     Ore-5   CNC Technology   4   3   0   2   5   60   40     Orgram	Mechanism Design and Analysis   3   3   0   0   3   60   40   0	Mechanism Design and Analysis   3   3   0   0   3   60   40   0   0

10080211 Program Elective II	Mechanical Behaviour of Material
10080212 Program Elective II	Design for Manufacturing and Assembly
10080213 Program Elective II	Lean and Advanced Manufacturing System
10080221 Program Elective III	Computer Control and Process Planning
10080222 Program Elective III	Quality Management
10080223 Program Elective III	Industrial Robotics
10080231 Program Elective IV	Cost Management of Engineering Projects
10080232 Program Elective IV	Industrial Safety
10080233 Program Elective IV	Composite Materials

Program Name: Master of Technology (02)

Semester / Year : Second Year Master of
Technology - Semester III

Program Code: ME CAD-CAM (008)

Effective From Academic Year:

					Hours per week			Theory	(Marks)	Practical		
Subject Code	Course Type	Subject Name	Credit	L				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
	Internal	Internal										, ,
10080301	Review	Review I	2	0	0	4	4	0	0	0	100	100
		Dissertation										
10080302	Dissertation	Phase I	14	0	0	28	28	0	0	100	0	100
			16				32					200

<b>Program Name: Master of Technology (02)</b>	Program Code: ME CAD-CAM (008)
Semester / Year : Second Year Master of	
Technology - Semester IV	Effective From Academic Year:

					Hours per		s per					
					week			Theory	(Marks)	Practical		
Subject								University	Continuous	University	Continuous	Total
Code	<b>Course Type</b>	Subject Name	Credit	L	T	P	<b>Total</b>	Assessment	Assessment	Assessment	Assessment	(Marks)
	Internal	Internal										
10080401	Review	Review II	2	0	0	4	4	0	0	0	100	100
		Dissertation										
10080402	Dissertation	Phase II	14	0	0	28	28	0	0	100	0	100
			16				32					200

**Annexure 3: MTech. (Thermal Engineering)** 

Subject	Course	Subject Name	Credit			our we	s per ek	Theory	(Marks)	Practical	l (Marks)	Total
Code	Type	Subject Name	Creun		T	P	Total	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	(Marks)
	Audit											
10000152	Course	Disaster Management	0	2	0	0	2	0	50	0	0	50
10000151	MLC	Research Methodology and IPR	3	1	1	2	4	0	0	80	20	100
10080109	Core-1	Applied Mathematics for Engineers	4	4	0	0	4	60	40	0	0	100
10090101	Core-2	Advanced Thermodynamics & Heat Transfer	4	3	0	2	4	60	40	30	20	150
10090102	Core-3	Advanced Fluid Mechanics	4	3	0	2	5	60	40	30	20	150
	Program Elective I	-	4	3	0	2		60	40	30	20	150
			19				24					700
10090111	Program Elective I	Advanced Refrigeration										

Program
10090112 Elective I Combustion Engineering

10090113 Elective I Cryogenics Engineering

Program

Program Name:	Master of Technology (	(02)				Pro	gram (	Code: ME TE	(009)			
Semester / Year :	First Year Master of	Technology - Semester II				Eff	ective F	rom Academ	ic Year: 2022	2-23		
				Н	our	s pe	r week	Theory	(Marks)	Practical	(Marks)	
Subject Code	Course Type	Subject Name	Credit	L	Т	P	Total	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
10000251	Audit Course	Technical Writing	0	2	0	0	2	0	50	0	0	50
10090201	Core-4	Design of Heat Exchanger	4	3	0	2	5	60	40	30	20	150
10090202	Core-5	Energy Management in Thermal system	4	3	1	0	4	60	40	0	0	100
	Program Elective II	-	4	3	0	2	5	60	40	30	20	150
	Program Elective III	-	4	3	0	2	5	60	40	30	20	150
10090209	Core	Research Review & Seminar	3	0	0	6	6	0	0	0	100	100
	Program Elective IV	-	2	2	0	0	2	60	40	0	0	100
			21				29					800

10090211	Program Elective II	Advanced Internal Combustion Engine
10090212	Program Elective II	Computational Fluid Dynamics
10090213	Program Elective II	Design and Optimization of Thermal Systems
10090221	Program Elective III	Advanced Air Conditioning
10090222	Program Elective III	Solar Energy Engineering Advanced Thermal Turbo
10090223	Program Elective III	Machines
10080231	Program Elective IV	Cost Management of Engineering Projects
10080232	Program Elective IV	Industrial Safety
10080233	Program Elective IV	Composite Materials

Program	Name: Mast	er of Technolog	y (02)	Pr	ograi	n C	ode: M	E TE (009)									
Semester	/ Year: Seco	nd Year Master	of														
Technolog	gy - Semeste	r III		Ef	fectiv	e Fı	rom Ac	ademic Year:									
				H	ours per week Theory (Marks) Practical (Marks)												
Subject	Course				University Continuous University Continuous												
Code	Type	<b>Subject Name</b>	Credit	L	T	P	Total	Assessment	Assessment	Assessment	Assessment						
	Internal	Internal															
10090301	Review	Review I	2	0	0	4	4	0	0	0	100	100					
		Dissertation															
10090302	Dissertation	Phase I	14	0 0 28 28 0 0 100 0													

Program N	ame: Master o	of Technology (	02)			Pro	gram C	ode: ME TE (0	<b>)09</b> )			
Semester /	Year : Second	Year Master of	f Technol	ogy -								
Semester I	V					Effe	ective F	rom Academic	Year:			
												Total
	Pubicat				ours j	per v	veek	Theory (	Marks)	Practical	l (Marks)	(Marks)
Subject	•							University	Continuous	University	Continuous	
Code	<b>Course Type</b>	<b>Subject Name</b>	Credit	L	T	P	Total	Assessment	Assessment	Assessment	Assessment	
	Internal	Internal										
10090401	Review	Review II	2	0	0	4	4	0	0	0	100	100
		Dissertation										
10090402	0090402 Dissertation Phase II 14 0				0	28	28	0	0	100	0	100
	16						32					200

## MTech. Computer Engineering (Cyber Security) Annexure 4.

<b>Program Nam</b>	ne: Master of Technology (02)				Pro	gram C	ode:					
Semester / Yea	nester / Year : First Year Master of Technology - Semester I					ective F	rom Academio	Year: 2023-2	24			
			Н	[ou	rs pe	r week	Theory	(Marks)	Practical (Marks)		Total	
Subject Code	Subject Name	Credit	L	Т	P	Total	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	(Marks)	
	Network Security Fundamentals	4	2	1	2	5	60	40	30	20	150	
	Cryptography and Network Security	4	2	1	2	5	60	40	30	20	150	
	Information Security Management	4	2	1	2	5	60	40	30	20	150	
	Secure Software Development	4	2	1	2	5	60	40	30	20	150	
	Legal and Ethical Aspects of Cybersecurity	4	2	1	2	5	60	40	30	20	150	
		20				25					750	

Program Nam	e: Master of Technology (02)				Pro	gram C	ode:				
Semester / Yea	ar : First Year Master of Technology - S	Semester II			Effe	ective F	rom Academio	c Year: 2023-2	4		
			Н	oui	rs pe	r week	Theory	(Marks)	Practical	(Marks)	Total
<b>Subject Code</b>	Subject Name	Credit	L	Т	P	Total	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	(Marks)
	Advanced Network Security	4	2	1	2	5	60	40	30	20	150
	Web Application Security	4	2	1	2	5	60	40	30	20	150
	Intrusion Detection and Prevention	4	2	1	2	5	60	40	30	20	150

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Systems

Architecture

Secure System Design and

Cyber Threat Intelligence

Program Nam	e: Master of Technology (02)				Pro	gram C	ode:				
Semester / Yea	r : First Year Master of Technology - Seme	ster III			Effe	ctive F	rom Academio	Year: 2023-2	4		
			Н	oui	rs pe	r week	Theory	(Marks)	Practical (Marks)		Total
<b>Subject Code</b>	Subject Name	Credit	T	Т	P	Total	University	Continuous	University	Continuous	(Marks)
			L	1	1	Total	Assessment	Assessment	Assessment	Assessment	(11111115)
	Digital Forensics and Incident Response	3	1	1	2	4	60	40	30	20	150
	Wireless and Mobile Security	3	1	1	2	4	60	40	30	20	150
	Cloud Security	3	2	0	2	4	60	40	30	20	150
	Cybersecurity Risk Management	3	2	0	2	4	60	40	30	20	150
	Mini Project/Dissertation Phase-I	6	0	0	12	12	0	0	100	0	100
		18				28					850

Program Nam	e: Master of Technology (02)				Pro	gram C	ode:				
Semester / Yea	r : First Year Master of Technology - Seme	ster IV			Effe	ctive F1	om Academic	Year: 2023-2	4		
			Н	our	s pe	r week	Theory	(Marks)	Practical	(Marks)	Total
Subject Code	Subject Name	Credit	L	Т	P	Total	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	(Marks)
	Secure Coding and Software Testing	3	1	1	2	4	60	40	30	20	150
	Secure IoT (Internet of Things)	4	2	1	2	5	60	40	30	20	150
	Cybersecurity Audit and Compliance	4	2	1	2	5	60	40	30	20	150
	Mini Project /Dissertation Phase-II	6	0	0	12	12	0	0	100	0	100
		17				26					550