

PROGRAMME-DIPLOMA IN MECHATRONICS
PROGRAMME STRUCTURE
SCHEME AT A GLANCE

Level	Name of Level	Number of Courses offered	Number of Courses to be Completed	TH	TU	PR	Total Credits	Marks
Level-1	Foundation Courses	09	09 Compulsory	16	01	18	26	950
Level-2	Basic Technology Courses	08	08 Compulsory	17	--	16	25	900
Level-3	Allied Courses	08	04 (03 Compulsory & 01 Electives)	06	---	06	09	250
Level-4	Applied Technology Courses	08	08 Compulsory	18	--	48	40	1175
Level-5	Diversified Courses	09	05 (03 Compulsory & 02 Electives)	15	---	10	20	725
TOTAL		42	31 Compulsory + 03 Electives -- 34	72	01	98	120	4000
Grand Total		42	34					

Abbreviations:

TH: Theory, TU: Tutorial, PR: Practical.

Credit Ratio: (In terms of hours allotted) TH:PR = 43.11 : 56.89

TH:PR Weightage wise ratio: = 62.5 : 37.5

Clas award Weightage : TH :PR : 58.82 : 41.18

(Common courses for ME and Mechatronics are = EDG, MED, MPR, IHP, AMP, DME)

PROGRAMME-DIPLOMA IN MECHATRONICS

PROGRAMME STRUCTURE LEVEL-1 FOUNDATION COURSES

Sr. No.	Course Code	Course Title	Course Abbr.	TEACHING SCHEME				EXAMINATION SCHEME						
				TH	TU	PR	Total Credits	Theory Paper		Test	PR	OR	TW	Total
								Hrs	Mark					
01	21101	Communication Skills	CMS	02	--	02	03	03	80	20	--	--	50	150
02	21102	Engineering Mathematics	EMT	02	01	--	03	03	80	20	--	--	--	100
03	21103	Applied Mathematics	AMT	03	-	--	03	03	80	20	--	--	--	100
04	21104	Applied Physics	PHY	03	--	02	04	02	80#	20#	--	--	50	150
05	21105	Applied Chemistry	CHY	03	--	02	04	02	80#	20#	--	--	50	150
06	21107	Engineering Graphics	EGR	--	--	04	02	--	--	--	--	--	50	50
07	21108	Engineering Mechanics	EMH	03	--	02	04	03	80	20	--	--	50	150
08	21109	Workshop Practice	WSP	--	--	04	02	--	--	--	--	--	50	50
09	21110	Introduction to IT System	ITS	--	--	02	01	--	--	--	--	--	50	50
TOTAL			--	16	01	18	26	16	480	120	--	--	350	950

Level: 1

Total courses : 09
 Total Credits : 26
 Total marks : 950

Abbreviations:

Abbr: Course Abbreviation, TH: Theory, TU: Tutorial, PR: Practical, OR: Oral, TW: Term Work, #: Online Examination

Course code Indication:

First two digit : Indicates last digit of Year of Implementation of Curriculum
 Second digit : Indicates Level.
 Third & Fourth digit : Indicates Course Number.

Assessment of PR / OR / TW:

- 1) All orals and practical are to be assessed by external & internal examiners.
- 2) TW are to be assessed by internal examiners.

PROGRAMME-DIPLOMA IN MECHATRONICS
PROGRAMME STRUCTURE
LEVEL-2
BASIC TECHNOLOGY COURSES

Sr. No.	Course Code	Course Title	Course Abbr	TEACHING SCHEME				EXAMINATION SCHEME						
				TH	TU	PR	Total Credits	Theory Paper		Test	PR	OR	TW	Total
								Hrs	Mark					
1	21210	Engineering Drawing	EDG	02	--	02	03	04	80	20	--	--	25	125
2	21214	Manufacturing Processes	MPR	03	--	02	04	03	80	20	--	--	25	125
3	21216	Mechanical Engineering Drawing	MED	02	--	02	03	03	80	20	--	--	25	125
4	21270	Basic C Programming	BCP	01	--	02	02	--	--	--	--	25	50	75
5	21271	Analog Circuits and Digital Electronics	ACE	03	--	02	04	03	80	20	-	--	25	125
6	21272	Electrical Engineering	ELE	03	--	02	04	03	80	20	--	--	25	125
7	21273	Electronic Workshop	EWS	--	--	02	01	--	--	--	--	--	50	50
8	21274	Basic Mechanical Engg.	BME	03	--	02	04	03	80	20	-	--	50	150
TOTAL			--	17	--	16	25	22	480	120	-	25	275	900

Level: 2

Total Courses : 08
Total Credits : 25
Total Marks : 900

Abbreviations:

Abbr: Course Abbreviation, TH: Theory, TU: Tutorial, PR: Practical, OR: Oral, TW: Term Work

Assessment of PR / OR / TW:

- 1) All orals & practical are to be assessed by external & internal examiners.
- 2) TW are to be assessed by internal examiners.

PROGRAMME-DIPLOMA IN MECHATRONICS
PROGRAMME STRUCTURE
LEVEL-3
ALLIED COURSES

Sr. No.	Course Code	Course Title	Course Abbr	TEACHING SCHEME				EXAMINATION SCHEME						
				TH	TU	PR	Total Credits	Theory Paper		Test	PR	OR	TW	Total
								Hrs	Mark					
1	21301	Entrepreneurship and Startups	EPS	01	--	02	02	--	--	--	--	--	50	50
2	21308	Industrial Organization and Management	IOM	03	--	--	03	03	80	20	--	--	--	100
3	21303	Programming and Problem Solving	PPS	01	--	02	02	-	-	-	-	-	50	50
Elective I: Any ONE of the following														
	21319	Computer Aided Drawing and Drafting	COD	01	--	02	02	--	--	--	--	--	50	50
	21305	Artificial Intelligence	AIE	01	---	02	02	---	---	---	---	---	50	50
	21306	Internet of Things	IOT	01	---	02	02	---	---	---	---	---	50	50
TOTAL			--	06	---	06	09	03	80	20	---	---	150	350

Level: 3

Total Courses : 04
Total Credits : 09
Total Marks : 250

Abbreviations:

Abbr: Course Abbreviation, TH: Theory, TU: Tutorial, PR: Practical, OR: Oral, TW: Term Work

Assessment of PR / OR / TW:

- 1) All orals & practicals are to be assessed by external & internal examiners.
- 2) TW are to be assessed by internal examiners.

PROGRAMME-DIPLOMA IN MECHATRONICS
PROGRAMME STRUCTURE
LEVEL-4
APPLIED TECHNOLOGY COURSES

Sr. No.	Course Code	Course Title	Course Abbr	TEACHING SCHEME				EXAMINATION SCHEME						
				TH	TU	PR	Total Credits	Theory Paper		Test	PR	OR	TW	Total
								Hrs	Mark					
01	21410	Industrial Training	ITR	--	--	32	14	--	--	--	--	100	100	200
02	21411	Project	PRO	--	--	04	02	--	--	--	--	50	50	100
03	21414	Design of Machine Elements	DME	03	--	02	04	04	80	20	---	25	25	150
04	21416	Advanced Manufacturing Processes	AMP	03	--	02	04	03	80	20	25	--	25	150
05	21462	Industrial Instrumentation & Measurements	IIM	03	--	02	04	03	80	20	--	25	25	150
06	21463	Microcontrollers & Embedded Systems	MES	03	--	02	04	03	80	20	--	25	25	150
07	21464	Control Systems	CLS	03	--	02	04	03	80	20	--	25	25	150
08	21465	Flexible manufacturing system.	FMS	03	-	02	04	03	80	20	-	-	25	125
TOTAL			--	18	--	48	40	19	480	120	25	250	300	1175

Level: 4

Total Courses : 08
Total Credits : 40
Total Marks : 1175

Abbreviations:

Abbr: Course Abbreviation, TH: Theory, TU: Tutorial, PR: Practical, OR: Work

Assessment of PR / OR / TW: Oral, TW: Term

- 1) All orals and practical are to be assessed by external & internal examiners.
- 2) TW are to be assessed by internal examiners.

PROGRAMME-DIPLOMA IN MECHATRONICS
PROGRAMME STRUCTURE
LEVEL-5
DIVERSIFIED COURSES

Sr. No.	Course Code	Course Title	Course Abbr.	TEACHING SCHEME				EXAMINATION SCHEME						
				TH	TU	PR	Total Credits	Theory Paper		Test	PR	OR	TW	Total
								Hrs.	Mark					
01	21505	Industrial Hydraulics and Pneumatics	IHP	03	--	02	04	03	80	20	25	--	25	150
02	21576	Computer Integrated Manufacturing	CIM	03	--	02	04	03	80	20	---	25	25	150
03	21575	PLC Programming and SCADA	PLS	03	--	02	04	03	80	20	--	--	25	125
Elective II: Any Two of the following														
04 and 05	21574	Solid Modeling And Additive Manufacturing	SAM	03	--	02	04	03	80	20	--	25	25	150
	21577	Industrial Robotics And Automation	IRA	03	--	02	04	03	80	20	--	25	25	150
	21578	Automotive Mechatronics	AUM	03	--	02	04	03	80	20	---	25	25	150
	21579	Industry 4.0	I4.0	03	--	02	04	03	80	20	---	25	25	150
	21512	Tool Engineering	TLE	03	--	02	04	03	80	20	---	25	25	150
	21513	Farm Equipment and Machineries	FEM	03	--	02	04	03	80	20	---	25	25	150
TOTAL			--	15	---	10	20	15	400	100	25	75	125	725

Level: 5

Total Courses : 05
Total Credits : 20
Total Marks : 725

Assessment of PR / OR / TW:

- 1) All orals and practical are to be assessed by external & internal examiners.
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PROGRAMME-DIPLOMA IN MECHATRONICS
PROGRAMME STRUCTURE
AUDIT COURSES

Sr. No.	Course Code	Course Title	Contact Hours Per Week (TH)	Contact Hours Per Week (PR)	Total Contact Hours Per Week
1	21001	Environmental science	2	--	2
2	21002	Sports and Yoga	--	2	2
3	21003	Essence of Indian Knowledge and Tradition	2	--	2
4	21004	Indian Constitution	2	--	2

Total Courses : 04
Total Credits : Nil
Total Marks : --

PROGRAMME-DIPLOMA IN MECHATRONICS

Courses for Award of Class

Sr.No.	Course code	Course Title	Course Abbr.	TEACHING SCHEME				EXAMINATION SCHEME						
				TH	TU	PR	Total Credits	Theory Paper		Test	PR	OR	TW	Total
								Hrs	Mark					
01	21308	Industrial Organization and Management	IOM	03	--	--	03	03	80	20	--	--	--	100
02	21414	Design of Machine Elements	DME	03	--	02	04	04	80	20	--	25	25	150
03	21576	Computer Integrated Manufacturing	CIM	03	--	02	04	03	80	20	---	25	25	150
04	21575	PLC Programming and SCADA	PLS	03	--	02	04	03	80	20	--	--	25	125
05	21416	Advanced Manufacturing Process	AMP	03	--	02	04	03	80	20	25	--	25	150
06	21505	Industrial Hydraulics and Pneumatics	IHP	03	--	02	04	03	80	20	25	--	25	150
07	21465	Flexible manufacturing system.	FMS	03	--	02	04	03	80	20	--	--	25	125
08	21463	Microcontrollers & Embedded Systems	MES	03	--	02	04	03	80	20	--	25	25	150
09	21411	Project	PRO	--	--	04	02	--	--	--	--	50	50	100
10	21410	Industrial Training	INT	--	--	32	14	--	--	--	--	100	100	200
Any TWO from Elective II														
11 and 12	21574	Solid Modeling And Additive Manufacturing	SAM	03	--	02	04	03	80	20	--	25	25	150
	21577	Industrial Robotics And Automation	IRA	03	--	02	04	03	80	20	--	25	25	150
	21578	Automotive Mechatronics	AUM	03	--	02	04	03	80	20	---	25	25	150
	21579	Industry 4.0	I4.0	03	--	02	04	03	80	20	---	25	25	150
	21512	Tool Engineering	TLE	03	--	02	04	03	80	20	---	25	25	150
	21513	Farm Equipment and Machineries	FEM	03	--	02	04	03	80	20	---	25	25	150
TOTAL			--	30	--	47	55	31	800	200	50	275	375	1700

Total Courses : 12
 Total Credits : 55
 Total Marks : 1700

Assessment of PR / OR / TW:

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PROGRAMME-DIPLOMA IN MECHATRONICS
SAMPLE PATH (Credit Basis)
ENTRY LEVEL-10+

Nature of Course	First Year		Second Year		Third Year		Total
	Odd Term	Even Term	Odd Term	Even Term	Odd Term	Even Term	
Compulsory	21108 (04) EMH	21105 (04) CHY	21216 (03) MED	21462 (04) IIM	21463 (04) MES	21410 (14) ITR	
	21104 (04) PHY	21101 (03) CMS	21274 (04) BME	21515 (04) IHP	21414 (04) DME		
	21102 (03) EMT	21210 (03) EDG	21271 (04) ACE	21416 (04) AMP	21308 (03) IOM		
	21107 (02) EGR	21103 (03) AMT	21272 (04) ELE	21464 (04) CLS	21575 (04) PLS		
	21109 (02) WSP	21270 (02) BCP	21214 (04) MPR	21465 (04) FMS	21414 (02) PRO		
	21110 (01) ITS	21273 (01) EWS	21301 (02) EPS		21576 (04) CIM		
		21303 (02) PPO					
Total Credit (Compulsory)	16	18	21	20	21	14	110
Elective	--		Any ONE course from Elective I 21319 COD, 21305 ARI, 21306 IOT (02)	Any ONE course from Elective II 21586 SAM 21577 IRA 21579 I4.0 21512 TLE 21513 FEM 21578 AUM : (04)	Any ONE course from Elective II 21586 SAM 21577 IRA 21579 I4.0 21512 TLE 21513 FEM 21578 AUM : (04)		
Total Credit (Elective)	--	--	02	04	04		10
Total courses	06	07	07	06	07	01	34
Audit Courses	SPY (00)	EVS (00)	IKT (00)	ICT (00)			
Total Credit (Elective + Compulsory)	16	18	23	24	25	14	120
Grand Total of Credits							120

Note: Figures in bracket indicates total credits.

PROGRAMME-DIPLOMA IN MECHATRONICS
SAMPLE PATH (Hour Basis)
ENTRY LEVEL-10+

Nature of Course	First Year		Second Year		Third Year		Total
	Odd Term	Even Term	Odd Term	Even Term	Odd Term	Even Term	
Compulsory	21108 (05) EMH	21105 (05) CHY	21216 (04) MED	21462 (05) IIM	21463 (05) MES	21411 (32) ITR	
	21104 (05) PHY	21101 (04) CMS	21274 (05) BME	21515 (05) IHP	21414 (05) DME		
	21102 (03) EMT	21210 (04) EDG	21271 (05) ACE	21416 (05) AMP	21308 (03) IOM		
	21107 (04) EGR	21103 (03) AMT	21272 (05) ELE	21464 (05) CLS	21575 (05) PLS		
	21109 (04) WSP	21273 (03) BCP	21214 (05) MPR	21465 (05) FMS	21414 (04) PRO		
	21110 (02) ITS	21276 (02) EWS	21301 (03) EPS		21576 (05) CIM		
		21303 (03) PPO					
Total Hrs. (Compulsory)	23	24	27	25	27	32	158
Elective	--		Any ONE course from Elective I 21319 COD, 21305 ARI, 21306 IOT (03)	Any ONE course from Elective II 21586 SAM 21577 IRA 21579 I4.0 21512 TLE 21513 FEM 21578 AUM : (05)	Any ONE course from Elective II 21586 SAM 21577 IRA 21579 I4.0 21512 TLE 21513 FEM 21578 AUM : (05)		
Total Hrs. (Elective)	--	--	03	05	05		13
Total courses	06	07	07	06	07	01	34
Audit Courses	SPY (00)	EVS (00)		IKT (00)		ICT (00)	
Total Hrs (Elective + Compulsory)	23	24	30	30	32	32	171
Grand Total of Hrs.							171