



Government Polytechnic, Nagpur

Diploma in Mechatronics



NEP 2020 Align Curriculum 2026 Program Structure

Semester: First

Sem Duration: 16 Weeks

NCrF Entry Level: 3.0

SN	Course Code	Course Title		Pre-requisite Course/ Credits	Course Category	Total IKS Hours	Learning Scheme (Hours/Week)				Notional Hours/ Week (Total Notional Hours)		Credits	Assessment Scheme (Marks)						Total Marks
														CL		TL/LL		SL		
							CL	TL	LL	SL	NLH		Cr	SA	FA	SA	FA	SA		
1	MH101K	Basic Mathematics		Nil	DSC	4	4	2	-	2	8	(120)	4	70 %	30	-	25	25 %	150	
2	PH101K	Applied Physics		Nil	DSC	2	4	-	2	2	8	(120)	4	70 %	30	25 %	25	25 %	175	
3	MK151K	Engineering Graphics (Mechatronics)		Nil	DSC	2	2	-	4	-	6	(90)	3	-	-	50 %	50	-	100	
4	EN101K	Communication Skills		Nil	AEC	-	3	-	2	1	6	(90)	3	70 %	30	25 %	25	25 %	175	
5	ME152K	Basics of Programming		Nil	SEC	-	-	-	4	-	4	(60)	2	-	-	50 %	50	-	100	
6	CM151K	Basics of Computer		Nil	SEC	-	-	-	2	2	4	(60)	2	-	-	25 %	25	25 %	75	
7	VE151K	Integrated Personality Development		Nil	VEC	-	-	-	2	2	4	(60)	2	-	-	25 %	25	25 %	75	
					Total	8	13	2	16	9	40	600	20	210	90	200	225	125	850	

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Symbols: Classroom Learning Summative Assessment: ** Objective Type Online 1 Hour Duration, *@ 3 Hour Duration, *# 4 Hour Duration, + Laboratory Learning Summative Assessment: + External Examiner, % Internal Examiner Only . ₹ Course for Award of Diploma, \$ Online Mode

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NEP 2020 Align Curriculum 2026 Program Structure

Semester: Second

Sem Duration: 16 Weeks

NCrF Entry Level: 3.0

SN	Course Code	Course Title	Pre-requisite Course/ Credits	Course Category	Total IKS Hours	Learning Scheme (Hours/Week)				Notional Hours/ Week (Total Notional Hours)		Credits	Assessment Scheme (Marks)					Total Marks
						CL	TL	LL	SL				CL	FA	SA	FA	SA	
										SA	FA							
1	MH102K	Applied Mathematics	Nil	DSC	4	4	2	-	2	8	(120)	4	70 %	30	-	25	25 %	150
2	CH101K	Applied Chemistry	Nil	DSC	2	4	-	2	2	8	(120)	4	70 %	30	25 %	25	25 %	175
3	EE103K	Basic Electrical and Electronics	Nil	DSC	-	3	-	2	1	6	(90)	3	70 %	30	25 %	25	25 %	175
4	MK101K	Basics of Mechanical Engineering	Nil	DSC	-	3	-	2	1	6	(90)	3	70 %	30	25 %	25	25 %	175
5	EN151K	Business Communication	Nil	AEC	-	2	-	2	-	4	(60)	2	-	-	25 %	25	-	50
6	WS155K	Workshop and Machining Tool Practice	Nil	SEC	-	-	-	4	-	4	(60)	2	-	-	50 %	50	-	100
7	VE152K	Environmental Sustainability	Nil	VEC	10	-	-	2	2	4	(60)	2	-	-	25 %	25	25 %	75
				Total	16	16	2	14	8	40	(600)	20	280	120	175	200	125	900

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NEP 2020 Align Curriculum 2026 Program Structure

Scheme: First Year Exit

Duration: 4 Weeks

NCrF Entry Level: 3.5

SN	Course Code	Course Title		Pre-requisite Course/ Credits	Course Category	Total IKS Hours	Learning Scheme (Hours/Week)				Notional Hours/ Week (Total Notional Hours)		Credits	Assessment Scheme (Marks)					Total Marks
														CL		TL/LL		SL	
							CL	TL	LL	SL	NLH			Cr	SA	FA	SA	FA	
1	IN151K	Internship (Basic Skills)		40 Cr	INP	-	-	-	-	8	8	(120)	4	-	-	-	-	50 +	50
					Total	0	0	0	0	8	8	(120)	4	0	0	0	0	50	50

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NEP 2020 Align Curriculum 2026 Program Structure

Semester: Third

Sem Duration: 16 Weeks

NCrF Entry Level: 3.5

SN	Course Code	Course Title	Pre-requisite Course/ Credits	Course Category	Total IKS Hours	Learning Scheme (Hours/Week)				Notional Hours/ Week (Total Notional Hours)		Credits	Assessment Scheme (Marks)						Total Marks
						CL	TL	LL	SL	NLH	Cr		CL		TL/LL		SL		
													SA	FA	SA	FA	SA		
1	MK201K	Analog & Digital Electronics	EE103K	DSC	-	4	-	2	2	8	(120)	4	70 %	30	25 +	25	25 %	175	
2	MK202K	Fundamentals of Mechatronics	MK101K	DSC	-	3	-	2	1	6	(90)	3	70 %	30	25 %	25	25 %	175	
3	MK203K	Communication Engineering	Nil	DSC	-	4	-	2	-	6	(90)	3	70 %	30	25 +	25	-	150	
4	MK204K	Theory of Machines	MK101K	DSC	-	4	-	2	2	8	120	4	70 %	30	25 +	25	25 %	175	
5	MK205K	Industrial Fluid Power	MK101K	DSC	-	3	-	2	1	6	(90)	3	70 %	30	25 +	25	25 %	175	
6	MK251K	Mechanical Working Drawing	MK151K	SEC	-	-	-	4	-	4	60	2	-	-	50 %	50	-	100	
7	VE251K	Indian Constitution	Nil	VEC	-	1	-	-	1	2	(30)	1	-	-	-	-	50 %	50	
				Total	0	19	0	14	7	40	(600)	20	350	150	175	175	150	1000	

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NEP 2020 Align Curriculum 2026 Program Structure

Semester: Fourth

Sem Duration: 16 Weeks

NCrF Entry Level: 3.5

SN	Course Code	Course Title		Pre-requisite Course/ Credits	Course Category	Total IKS Hours	Learning Scheme (Hours/Week)				Notional Hours/ Week (Total Notional Hours)		Credits	Assessment Scheme (Marks)					Total Marks
														CL		TL/LL		SL	
							CL	TL	LL	SL	NLH		Cr	SA	FA	SA	FA	SA	
1	MK206K	Microcontroller	₹	EE103K	DSC	-	4	-	2	2	8	120	4	70 %	30	25 +	25	25 %	175
2	MK207K	Control Systems		MK101K	DSC		3	-	2	1	6	(90)	3	70 %	30	25 +	25	25 %	175
3	MK208K	Manufacturing Process	₹	WS155K	DSC		3	-	2	1	6	90	3	70 %	30	25 +	25	25 %	175
4	##XXXK	Discipline Specific Elective		-	DSE	-	3	-	2	1	6	(90)	3	70 %	30	25 %	25	25 %	175
5	MK252K	Computer Aided Mechatronics Drafting		MK151K	SEC	-	-	-	4	-	4	(60)	2	-	-	50 %	50	-	100
6	##291K	Open Elective		Nil	OE	-	2	-	2	-	4	(60)	2	70 %	30	25 %	25	-	150
7	IN201K	Entrepreneurship & Startup		Nil	INP	-	2	-	2	-	4	(60)	2	-	-	25 %	25	-	50
8	VE252K	Yog & Meditation		Nil	VEC	30	-	-	2	-	2	30	1	-	-	25 %	25	-	50
					Total	30	17	0	18	5	40	600	20	350	150	225	225	100	1050

List of Discipline Specific Elective I

1	MK209K	Computer Integrated Manufacturing	WS155K
2	MK210K	Industrial Automation	MK101K
3	MK211K	CNC Programming	WS155K
3	MK212K	Product design and development	Nil

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NEP 2020 Align Curriculum 2026 Program Structure

Scheme: Second Year Exit

Duration: 4 Weeks

NCrF Entry Level: 4.0

SN	Course Code	Course Title		Pre-requisite Course/ Credits	Course Category	Total IKS Hours	Learning Scheme (Hours/Week)				Notional Hours/ Week (Total Notional Hours)		Credits	Assessment Scheme (Marks)					Total Marks
														CL		TL/LL		SL	
							CL	TL	LL	SL	NLH			Cr	SA	FA	SA	FA	
1	IN252K	Internship (Vocational Skills)		80 Cr	INP	-	-	-	-	8	8	(120)	4	-	-	-	-	50 +	50
					Total	0	0	0	0	8	8	(120)	4	0	0	0	0	50	50

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NEP 2020 Align Curriculum 2026 Program Structure



Semester: Fourth

List of Open Elective Courses

SN	Course Code	Course Title
1	CE291K	Civil Engineering Practice
2	ME291K	Elements of Mechanical Engineering
3	EE291K	Electrical Generation, Transmission and Distribution
4	EC291K	Microcontroller And Applications
5	IT291K	Python Programming
6	MT291K	Foundry Technology
7	TX291K	General Textile Technology
8	AE291K	Basics of Automobile
9	PK291K	Basics of Packaging Technology
10	CM291K	Web Development
11	AI291K	Basics of Artificial Intelligence
12	TR291K	Adventure Tourism
13	NP291K	Any one NPTEL Course of more than 8 week duration

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NEP 2020 Align Curriculum 2026 Program Structure



Semester: Fifth

Sem Duration: 16 Weeks

NCrF Entry Level: 4.0

SN	Course Code	Course Title		Pre-requisite Course/ Credits	Course Category	Total IKS Hours	Learning Scheme (Hours/Week)				Notional Hours/ Week (Total Notional Hours)		Credits	Assessment Scheme (Marks)						Total Marks
														CL		TL/LL		SL		
							CL	TL	LL	SL	NLH		Cr	SA	FA	SA	FA	SA		
1	MK301K	Embedded System Design	₹	MK201K	DSC	-	4	-	2	2	8	(120)	4	70 %	30	25 +	25	25 %	175	
2	MK302K	Automotive Mechatronics	₹	MK202K	DSC	-	3	-	2	1	6	(90)	3	70 %	30	25 +	25	25 %	175	
3	MK303K	Industrial Robotics	₹	MK202K	DSC	-	3	-	2	1	6	(90)	3	70 %	30	25 %	25	25 %	175	
4	MK304K	Industrial Instrumentation	₹	MK202K	DSC	-	3	-	2	1	6	90	3	70 %	30	25 +	25	25 %	175	
5	MKXXXX	Discipline Specific Elective	₹	-	DSE	-	4	-	2		6	90	3	70 %	30	25 %	25	-	150	
6	MK351K	Capstone Project	₹	40 Cr	SEC	-	-	-	4	-	4	(60)	2	-	-	75 +	75	-	150	
7	MK352K	Additive Manufacturing and 3D Printing	₹	MK151K	SEC	-	-	-	4	-	4	(60)	2	-	-	50 %	50	-	100	
					Total	0	17	0	18	5	40	(600)	20	350	150	250	250	100	1100	

List of Discipline Specific Elective II

1	MK305K	Mechatronics Systems using IOT	MK202K
2	MK306K	PLC-SCADA Programming	MK101K
3	MK307K	Computer Communication Networking	Nil

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NEP 2020 Align Curriculum 2026 Program Structure

Semester: Sixth

Sem Duration: 16 Weeks

NCrF Entry Level: 4.0

SN	Course Code	Course Title		Pre-requisite Course/ Credits	Course Category	Total IKS Hours	Learning Scheme (Hours/Week)				Notional Hours/ Week (Total Notional Hours)		Credits	Assessment Scheme (Marks)					Total Marks
														CL		TL/LL		SL	
							CL	TL	LL	SL	NLH		Cr	SA	FA	SA	FA	SA	
1	IN351K	Internship (16 Weeks)	₹	50 Cr	INP		-	-	2	30	32	(480)	16	-	-	100 +	-	100 %	200
2	SE351K	Seminar	₹	50 Cr	AEC	-	-	-	2	2	4	(60)	2	-	-	50 %	-	50 %	100
3	IN301K	Industrial Management	\$	Nil	INP	1	4	-	-	-	4	(60)	2	70 **	30	-	-	-	100
					Total	1	4	0	4	32	40	(600)	20	70	30	150	0	150	400

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NEP 2020 Align Curriculum 2026 Program Structure

List of Courses for Award of Diploma in Engineering



SN	Semester	Course Code	Course Title	Credits	Total Marks
1	Fourth	MK206K	Microcontroller	4	175
2	Fourth	MK208K	Manufacturing Process	3	175
3	Fifth	MK301K	Embedded System Design	4	175
4	Fifth	MK302K	Automotive Mechatronics	3	175
5	Fifth	MK303K	Industrial Robotics	3	175
6	Fifth	MK304K	Industrial Instrumentation	3	175
7	Fifth	MKXXXK	Discipline Specific Elective	3	150
8	Fifth	MK351K	Capstone Project	2	150
9	Fifth	MK352K	Additive Manufacturing and 3D Printing	2	100
10	Sixth	IN351K	Internship (16 Weeks)	16	200
11	Sixth	SE351K	Seminar	2	100
			Total	45	1750

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