



BIKANER TECHNICAL UNIVERSITY, BIKANER

बीकानेर तकनीकी विश्वविद्यालय, बीकानेर

OFFICE OF THE DEAN ACADEMICS



SCHEME OF UNDERGRADUATE DEGREE COURSE

Mechatronics



Effective for the students admitted in year 2021-22 and onwards.



B.Tech.: Mechatronics
2nd Year - III Semester

f THEORY										
SN	Category	Course Code	Course Title	Hours			Marks			Credit
				L	T	P	IA	ETE	Total	
1	DC	3MX4-01	Engineering Thermodynamics	3	1	0	30	70	100	4
2		3MX4-02	Digital System Design	3	0	0	30	70	100	3
3		3MX4-03	Manufacturing Processes	3	0	0	30	70	100	3
4		3MX4-04	Materials Engineering and Technology	3	0	0	30	70	100	3
5		3MX4-05	Elements of Electronics	3	0	0	30	70	100	3
6	UC	3MX2-01	Engineering Mechanics	2	1	0	30	70	100	3
Sub Total				17	2	0	180	420	600	19
PRACTICAL & SESSIONAL										
7	DC	3MX4-20	Machine Drawing Practice	0	0	2	60	40	100	1
8		3MX4-21	Production Practice Lab	0	0	2	60	40	100	1
9		3MX4-22	Electronic Devices and Circuits Lab	0	0	2	60	40	100	1
10		3MX4-23	Digital System Design Lab	0	0	2	60	40	100	1
11	UI	3MX7-30	Professional Training	0	0	2*	60	40	100	1
12	CCA	3MX8-00	SODECA/NCC/NSS/ANANDAM/IPR	0	0	-	-	100	100	1
Sub- Total				0	0	10	300	300	600	6
TOTAL OF III SEMESTER				17	2	10	480	720	1200	25

L = Lecture, **T** = Tutorial, **P** = Practical, **IA**=Internal Assessment, **ETE**=End Term Exam, **Cr**=Credits

*for calculation of contact hours



B.Tech. : Mechatronics
2nd Year - IV Semester

THEORY										
SN	Category	Course Code	Course Title	Hours			Marks			Credit
				L	T	P	IA	ETE	Total	
1	DC	4MX4-01	Mechanics of Solids	3	1	0	30	70	100	4
2		4MX4-02	Fluid Mechanics	3	1	0	30	70	100	4
3		4MX4-03	Analog Electronics	3	0	0	30	70	100	3
4		4MX4-04	Sensors and Instrumentation	3	0	0	30	70	100	3
5		4MX4-05	Internal Combustion Engines and Hybrid Controls	3	0	0	30	70	100	3
6	UC	4MX2-01	Advanced Engineering Mathematics	2	1	0	30	70	100	3
Sub Total				17	3	0	180	420	600	20
PRACTICAL & SESSIONAL										
7	DC	4MX4-20	Materials Testing Lab	0	0	2	60	40	100	1
8		4MX4-21	Fluid Mechanics Lab	0	0	2	60	40	100	1
9		4MX4-22	Sensors and Instrumentation Lab	0	0	2	60	40	100	1
10		4MX4-23	Analog Electronics Lab	0	0	2	60	40	100	1
11	CCA	4MX8-00	SODECA/NCC/NSS/ANANDAM/IPR	-	-	-	-	100	100	1
Sub- Total				0	0	8	240	260	500	5
TOTAL OF IV SEMESTER				17	3	8	420	680	1100	25

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B.Tech. : Mechatronics
3rd Year - V Semester

THEORY										
SN	Category	Course code	Course Title	Hours			Marks			Credit
				L	T	P	IA	ETE	Total	
1	DC	5MX4-01	Linear Integrated Circuits	3	0	0	30	70	100	3
2		5MX4-02	Linear Control Theory	3	0	0	30	70	100	3
3		5MX4-03	Microcontroller based System Design	3	0	0	30	70	100	3
4		5MX4-04	Theory of Machines	3	0	0	30	70	100	3
5		5MX4-05	Pneumatics and Hydraulic Systems	3	0	0	30	70	100	3
6	DE		DE-I (Any one)	2	0	0	30	70	100	2
		5MX5-11	CAD and CAM							
		5MX5-12	Heat Transfer							
		5MX5-13	Metrology and Measurements							
		5MX5-14	Digital Signal Processing							
Sub Total				17	0	0	180	420	600	17
PRACTICAL & SESSIONAL										
7	DC	5MX4-20	Pneumatics and Hydraulic Lab	0	0	2	60	40	100	1
8		5MX4-21	Theory of Machines Lab	0	0	2	60	40	100	1
9		5MX4-22	Microcontroller Lab	0	0	2	60	40	100	1
10	DE		DE II(Any one)	0	0	4	60	40	100	2
		5MX4-23	CAD/CAM Lab							
		5MX4-24	Heat Transfer Lab							
		5MX4-25	Metrology Lab							
		5MX4-26	Digital Signal Processing Lab							
11	UI	5MX7-30	Industrial Training	0	0	2*	60	40	100	3
12	CCA	5MX8-00	SODECA/NCC/NSS/ANANDAM/IPR	-	-	-	-	100	100	1
			SUB TOTAL	0	0	12	300	300	600	9
			TOTAL OF V SEMESTER	17	0	12	480	720	1200	26

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B.Tech. : Mechatronics
3rd Year - VI Semester

THEORY										
S.N.	Category	Course Code	Course Title	Hours			Marks			Credit
				L	T	P	IA	ETE	Total	
1	DC	6MX4-01	Industrial Engineering	3	0	0	30	70	100	3
2		6MX4-02	Computational Fluid Dynamics	3	0	0	30	70	100	3
3		6MX4-03	Power Electronics and Electrical Devices	3	0	0	30	70	100	3
4		6MX4-04	Machine design	3	0	0	30	70	100	3
5		6MX4-05	MEMS and Microsystems	2	0	0	30	70	100	2
6	DE		DE-III (Any one)	2	0	0	30	70	100	2
		6MX5-11	Industrial Automation							
		6MX5-12	Finite Element Methods							
		6MX5-13	Modelling and Simulation of Manufacturing Systems							
Sub Total				16	0	0	180	420	600	16
PRACTICAL & SESSIONAL										
7	DC	6MX4-20	Machine Design Lab	0	0	3	60	40	100	1.5
8		6MX4-21	Drives, Control and Simulation Lab	0	0	2	60	40	100	1
9		6MX4-22	MATLAB Programming	0	0	3	60	40	100	1.5
10	UI	6MX7-50	Mini Project			4*	60	40	100	2
11	CCA	6MX8-00	SODECA/NCC/NSS/ ANANDAM/IPR	-	-	-	-	100	100	2
			SUB TOTAL	0	0	12	240	260	500	8
	TOTAL OF VI SEMESTER			16	0	12	420	680	1100	24

L = Lecture, T = Tutorial, P = Practical, IA=Internal Assessment, ETE=End Term Exam, Cr=Credits

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B.Tech. : Mechatronics
4th Year - VII Semester

THEORY											
SN	Category	Course Code	Course Title	Hours			Marks			Credit	
				L	T	P	IA	ETE	Total		
1	DC	7MX4-01	Design of Mechatronics System	3	0	0	30	70	100	3	
2	DE		DE-IV(Any one)	2	0	0	30	70	100	2	
		7MX5-11	Robotics and Machine Vision								
		7MX5-12	Integrated Circuit Technology								
		7MX5-13	VLSI Design								
		7MX5-14	Machine Learning								
3	UE		University Elective I (Any one)	3	0	0	30	70	100	3	
		7MX6-60	Virtual Instrumentation								
		7MX6-61	Modern Control Theory								
		7MX6-62	Principles of Managements								
		7MX6-63	Environmental and Sustainability Assessment								
		7MX6-64	Additive Manufacturing Systems								
		7MX6-65	Entrepreneurship Development								
	SUB TOTAL			8	0	0	90	210	300	8	
PRACTICAL & SESSIONAL											
4	DC	7MX4-20	Mechatronics Lab	0	0	2	60	40	100	1	
5	UI	7MX7-30	Industrial Training	0	0	2*	60	40	100	3	
6		7MX7-50	Project Stage-1	0	0	4*	60	40	100	2	
7	CCA	7MX8-00	SODECA/NCC/NSS/ ANANDAM/IPR	-	-	-	-	100	100	1	
		SUB TOTAL			0	0	8	180	220	400	7
		TOTAL OF VII SEMESTER			8	0	8	270	430	700	15

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*for calculation of contact hours



B.Tech. : Mechatronics
4th Year - VIII Semester

THEORY										
SN	Category	Course Code	Course Title	Hours			Marks			Credit
				L	T	P	IA	ETE	Total	
1	UE		University Elective II (Any one)	3	0	0	30	70	100	3
		8MX6-60	Bionics and Medical Mechatronics							
		8MX6-61	Smart Materials							
		8MX6-62	Intellectual Property Rights							
		8MX6-63	Advanced Electronics Systems							
		8MX6-64	Internet of Things and Cloud based Manufacturing							
SUB TOTAL				3	0	0	30	70	100	3
PRACTICAL & SESSIONAL										
2	UI	8MX7-50	Project stage II	0	0	4*	60	40	100	4
3		8MX7-40	Seminar	0	0	2*	60	40	100	2
4	CCA	8MX8-00	SODECA/NCC/NSS/ANANDAM/IPR	-	-	-	-	100	100	2
		SUB TOTAL		0	0	6	120	180	300	8
		TOTAL OF VIII SEMESTER		3	0	6	150	250	400	11

L = Lecture, **T** = Tutorial, **P** = Practical, **IA**=Internal Assessment, **ETE**=End Term Exam, **Cr**=Credits

*for calculation of contact hours

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