

GOVERNMENT OF RAJASTHAN
BOARD OF TECHNICAL EDUCATION RAJASTHAN
JODHPUR

SEMESTER SCHEME-2020-21

(SESSION 2021-2022 & ONWARDS)



TEACHING AND EXAMINATION SCHEME
AND SYLLABUS

ELECTRONICS (ROBOTICS) ENGINEERING

(ER)

Curriculum Development Cell
Board of Technical Education, Rajasthan
W-6 Residency Road,
Jodhpur

GOVERNMENT OF RAJASTHAN
BOARD OF TECHNICAL EDUCATION RAJASTHAN, JODHPUR
TEACHING AND EXAMINATION SCHEME
(SEMESTER SCHEME-2020-21)

FOR DIPLOMA III SEMESTER ELECTRONICS (ROBOTICS) (ER)

SESSION 2022-2023 & ONWARDS

Subject Category	Subject Code	Subjects	Distribution of Time				Distribution of Max. Marks/Duration						Total Marks	Credits	
			Hours per week				End Semester Exam			Internal Assessment					
			L	T	P	Tot	TH	Hrs.	PR	Hrs.	CT	TU/As			PR(S)
PC	**ER 3001	An Introduction to Robotics	4	0	0	4	60	3	—	—	20	20	—	100	4
PC	*ER 3002	Electronic Devices and Circuits	3	0	0	3	60	3	—	—	20	20	—	100	3
PC	*ER 3003	Digital Electronics	3	0	0	3	60	3	—	—	20	20	—	100	3
PC	**ER 3004	Sensors and Instrumentation	3	0	0	3	60	3	—	—	20	20	—	100	3
PC	***ER 3005	Electric circuits and Network	2	1	0	3	60	3	—	—	20	20	—	100	3
PC	**ER 3006	An Introduction to Robotics Lab	0	0	2	2	—	—	40	—	—	—	60	100	1
PC	*ER 3007	Electronic Devices and Circuits Lab	0	0	2	2	—	—	40	—	—	—	60	100	1
PC	*ER 3008	Digital Electronics Lab	0	0	2	2	—	—	40	—	—	—	60	100	1
PC	**ER 3009	Sensors and Instrumentation Lab	0	0	2	2	—	—	40	—	—	—	60	100	1
SI	ER 3010	Summer Internship-I(4 weeks after II Sem)	—	—	—	—	—	—	—	100	—	—	—	100	2
VS	*ER 3333	Anandam (Joy of Giving)	—	—	1	1	—	—	—	—	—	—	—	100	2
		Students Centered Activities	0	0	3	3	—	—	—	—	—	—	—	—	—
		Total	15	1	12	28	300	300	260	100	100	340	1100	24	24

Grand Total :

1. L : Lecture
2. T : Tutorial
3. P : Practical
4. TH : Marks for End Semester Exam for Theory
5. PR : Marks for End Semester Exam for Practical
6. CT : Marks for class tests (Internal Assessment)
7. TU/Assi : Marks for tutorials/Assignment (Internal Assessment)
8. PR(S) : Marks for practical and viva (Internal Assessment)

1. *ER 3333 is same in all branches of Engineering
2. *ER 3002, *ER3007 and *ER 3008 are same as EF/EL/RA 3002, EF/EL/RA 3007 and EF/EL/RA 3008
3. *ER 3003 is same as EF/EL/RA/MT 3003
4. **ER 3001, **ER 3004, **ER 3006 and **ER 3009 are same as RA3001,RA 3004,RA 3006 and RA 3009 respectively
5. ***ER 3005 is same as EF/EL 3005

Student Centered Activities will be graded as A, B, C & D on the basis of attendance and interest of the student in learning.

GOVERNMENT OF RAJASTHAN
BOARD OF TECHNICAL EDUCATION RAJASTHAN, JODHPUR
TEACHING AND EXAMINATION SCHEME
(SEMESTER SCHEME-2020-21)
FOR DIPLOMA IV ELECTRONICS (ROBOTICS) (ER)
SESSION 2022-2023 & ONWARDS

Subject Category	Subject Code	Subjects	Distribution of Time			Distribution of Max. Marks/ Duration							Total Marks	Credits	
			Hours per week			End Semester Exam			Internal Assessment						
			L	T	P	Tot	TH	Hrs	PR	Hrs	CT	TU/Assi			PR(S)
PC	***ER 4001	Microcontroller and Applications	3	0	0	3	60	3	-	-	20	20	-	100	3
PC	**ER 4002	Subsystems of Robots	3	0	0	3	60	3	-	-	20	20	-	100	3
PC	**ER 4003	Special Machines and Controllers	3	0	0	3	60	3	-	-	20	20	-	100	3
PE	ER 4004	Programme Elective- I **ER40041- Kinematics and Dynamics of Machines ***ER40042- Simulation Software	3	0	0	3	60	3	-	-	20	20	-	100	3
PE	ER 4005	Programme Elective II ***ER40051- Linear Integrated Circuits *ER40052- Power Electronics	3	0	0	3	60	3	-	-	20	20	-	100	3
PC	***ER 4006	Microcontroller and Applications Lab	0	0	2	2	-	-	40	3	-	-	60	100	1
PC	**ER 4007	Special Machines and Controllers Lab	0	0	2	2	-	-	40	3	-	-	60	100	1
PE	ER 4008	Programme Elective- I Lab **ER40081- Kinematics and Dynamics of Machines Lab ***ER40082- Simulation Software Lab	0	0	2	2	-	-	40	3	-	-	60	100	1
PE	ER4009	Programme Elective II Lab ***ER40091- Linear Integrated Circuits Lab *ER40092- Power Electronics Lab	0	0	2	2	-	-	40	3	-	-	60	100	1
PR	ER 4010	Minor Project	0	0	4	4	-	-	40	-	-	-	60	100	2
AU	*ER 4222	Essence of Indian Knowledge and Tradition	2	0	0	2	-	-	-	-	-	-	-	-	0
VS	*ER 4444	Anandam (Joy of Giving)	-	-	1	1	-	-	-	-	-	-	100	100	2
		Students Centered Activities	0	0	3	3	-	-	-	-	-	-	-	-	-
		Total	17	0	16	33	300	300	200	100	100	400	Grand Total :	1100	23

- L : Lecture
- T : Tutorial
- P : Practical
- TH : Marks for End Semester Exam for Theory

- PR : Marks for End Semester Exam for Practical
- CT : Marks for class tests (Internal Assessment)
- TU/Assi : Marks for tutorials/Assignment (Internal Assessment)
- PR(S) : Marks for practical and viva (Internal Assessment)

1. *ER 4222 and *ER 4444 are same in all branches of Enggs.

2. *ER40052 and *ER40092 are same as EF/EL/RA 40052and EF/EL/RA 40092 respectively

3. **ER4002 **ER4003 **ER4004, **ER4007 and **ER 4081 are same as RA 4002 , RA 4003 , RA 40041 RA 4007 and RA 40081 respectively

4. ***ER 4001, ***ER 40042, ***ER 40051, ***ER 4006, ***ER 40082 and ***ER 40091 are same as EF/EL 4001, EF/EL 4042, EF/EL 4051, EF/EL 4006, EF/EL 40082 and EF/ER 40091 respectively

Student Centered Activities will be graded as A, B, C & D on the basis of attendance and interest of the student in learning

Note: Students will go for 6 Weeks Summer Internship in the Summer Vacations after Fourth Semester. The assessment of the Summer Internship will be done in Fifth Semester

GOVERNMENT OF RAJASTHAN
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TEACHING AND EXAMINATION SCHEME
(SEMESTER SCHEME-2020-21)
FOR DIPLOMA V SEMESTER ELECTRONICS (ROBOTICS) (ER)
SESSION 2022-2023 & ONWARDS

Subject Category	Subject Code	Subjects	Distribution of Time										Distribution of Max. Marks/ Duration				Total Marks	Credits
			Hours per week						End Semester Exam				Internal Assessment					
			L	T	P	Tot	TH	Hrs.	PR	Hrs.	CT	TU/Assi	PR(S)					
PC	***ER 5001	Embedded Systems	4	0	0	4	60	3	-	-	-	20	20	-	-	100	4	
PC	ER 5002	Robot Kinematics and Robot Programming	3	0	0	3	60	3	-	-	-	20	20	-	-	100	3	
OE	+ER 5100	Open Elective-I *ER 51001- Economic Policies in India *ER 51002- Engineering Economics & Accountancy	3	0	0	3	60	3	-	-	-	20	20	-	-	100	3	
PE	ER 5003	Programme Elective III *ER50031- Industrial Automation *ER50032- Control System And PLC	3	0	0	3	60	3	-	-	-	20	20	-	-	100	3	
PE	ER 5004	Programme Elective IV **ER50041- Object Oriented Programming & Data Structure (c++) **ER50042- Python Programming	3	0	0	3	60	3	-	-	-	20	20	-	-	100	3	
PC	***ER 5005	Embedded Systems Lab	0	0	2	2	-	-	40	3	-	-	-	60	100	1		
PC	ER 5006	Robot Kinematics and Robot Programming	0	0	2	2	-	-	40	3	-	-	-	60	100	1		
PE	ER 5007	Programme Elective III Lab *ER50071- Industrial Automation Lab *ER50072- Control System And PLC Lab	0	0	2	2	-	-	40	3	-	-	-	60	100	1		
PE	ER 5008	Programme Elective IV Lab **ER50081- Object Oriented Programming & Data Structure (c++) Lab **ER50082- Python Programming Lab	0	0	2	2	-	-	40	3	-	-	-	60	100	1		
SI	ER 5009	Summer Internship-II(6 weeks after IV'S Labem)	0	0	0	0	-	-	100	-	-	-	-	-	100	3		
PR	ER 5010	Major Project	0	0	2	2	-	-	-	-	-	-	-	-	-	-		
VS	+ER 5555	Anandam (Joy of Giving)	-	-	1	1	-	-	-	-	-	-	-	100	100	2		
		Students Centered Activities	0	0	3	3	-	-	-	-	-	-	-	-	-	-		
		Total	16	0	14	30	300	260	100	100	340	100	100	340	1100	25		

1. L : Lecture

2. T : Tutorial

3. P : Practical

4. TH : Marks for End Semester Exam for Theory

1. *ER 51001, *ER 51002 and *ER5555 are same in all branches of Engineering

2. *ER 50031, *ER50032, *ER 50071, *ER 50072, and are same as EF/EL/RA 50031, EF/EL/RA 50032, EF/EL/RA 50071, and EF/EL/RA 50072, respectively

3. **ER 50041, **ER 50042 **ER 50081 and **ER 50082 are same as RA50041, RA50042, RA 50081 and RA 50082 respectively

4. ***ER 5001 and ***ER 5005 are same as EF/EL 5001 and EF/EL 5005 respectively

Note: Major Project will be continued and Assessed in VI Semester

5. PR : Marks for End Semester Exam for Practical

6. CT : Marks for class tests (Internal Assessment)

7. TU/Assi : Marks for tutorials/Assignment (Internal Assessment)

8. PR(S) : Marks for practical and viva (Internal Assessment)

Grand Total :

GOVERNMENT OF RAJASTHAN
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TEACHING AND EXAMINATION SCHEME
(SEMESTER SCHEME-2020-21)
FOR DIPLOMA VI SEMESTER ELECTRONICS (ROBOTICS) (ER)
SESSION 2022-2023 & ONWARDS

Subject Category	Subject Code	Subjects	Distribution of Time						Distribution of Max. Marks/Duration						Total Marks	Credits		
			Hours per week						End Semester Exam								Internal Assessment	
			L	T	P	Tot	TH	Hrs	PR	Hrs	CT	TU/Assi	PR(S)					
HS	+ER 6111	Entrepreneurship and Startups	3	1	0	4	60	3	-	-	20	20	-	100	4			
OE	+ER 6200	Open Elective-II	3	0	0	3	60	3	-	-	20	20	-	100	3			
		+EL 62001- Project Management +EL 62002- Renewable Energy Technologies																
OE	+ER 6300	Open Elective-III	3	0	0	3	60	3	-	-	20	20	-	100	3			
		+EL 63001- Product Design +EL 63002- Disaster Management																
AU	+ER 6333	Indian Constitution	2	0	0	2	-	-	-	-	-	-	-	-	0			
PC	+ER 6001	Modeling and Simulation using MATLAB	4	0	0	4	60	3	-	-	20	20	-	100	4			
PC	+ER 6002	Modeling and Simulation using MATLAB Lab	0	0	2	2	-	-	40	3	-	-	60	100	1			
PR	ER 6003	Major Project	0	0	6	6	-	-	40	-	-	-	60	100	4			
SE	ER 6004	Seminar	1	0	0	1	-	-	-	-	-	-	100	100	1			
VS	+ER 6666	Anandam (Joy of Giving)	--	--	1	1	--	--	--	--	--	--	100	100	2			
		Students Centered Activities	0	0	3	3	--	--	--	--	--	--	--	--	--			
		Total	16	1	12	29	240	80	80	80	80	80	320	800	22			
													Grand Total :	800	22			

- L : Lecture
- T : Tutorial
- P : Practical
- TH : Marks for End Semester Exam for Theory

- PR : Marks for End Semester Exam for Practical
- CT : Marks for class tests (Internal Assessment)
- TU/Assi : Marks for tutorials/Assignment (Internal Assessment)
- PR(S) : Marks for practical and viva (Internal Assessment)

1.+ER 6111, +ER 62001, +ER 62002, +ER 63001, +ER 63002, +ER 6333 and +ER 6666 are same in all branches of Engineering

2.+ER 6001 and +ER 6002 are same as RA 6001 and RA 6002 respectively

Student Centered Activities will be graded as A, B, C & D on the basis of attendance and interest of the student in learning.