RAJALAKSHMI ENGINEERING COLLEGE
(An Autonomous Institution Affiliated to Anna University Chennai)

B.E. ROBOTICS AND AUTOMATION
R-2023
CURRICULUM
(CHOICE BASED CREDIT SYSTEM)

RAJALAKSHMI ENGINEERING COLLEGE

(An Autonomous Institution Affiliated to Anna University Chennai)

CURRICULUM AND SYLLABUS REGULATIONS – 2023

CHOICE BASED CREDIT SYSTEM

B.E. ROBOTICS AND AUTOMATION

SEMESTER I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY COURSE								
1.	HS23111	Technical Communication I	HSMC	2	2	0	0	2
2.	MA23112	Algebra and Calculus	BS	4	3	1	0	4
3.	GE23111	Engineering Graphics	ES	4	2	2	0	4
4	RO23111	Introduction To Mechanical Systems	ES	3	2	1	0	3
LAB ORIENTED THEORY COURSE								
5.	EE23132	Basic Electrical Engineering	ES	5	3	0	2	4
LABORATORY COURSE								
6.	GE23121	Engineering Practices – Civil and Mechanical	ES	2	0	0	2	1
7.	GE23122	Engineering Practices- Electrical and Electronics	ES	2	0	0	2	1
MANDATORY COURSE								
8.	MC23112	Environmental Science and Engineering	MC	3	3	0	0	0
9.	GE23117	தமிழர்மரபு /Heritage of Tamils	HSMC	1	1	0	0	1
			TOTAL	**26**	**16**	**4**	**6**	**20**

SEMESTER II

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY COURSE								
1.	MA23212	Differential Equations and Complex Variables	BS	4	3	1	0	4
LAB ORIENTED THEORY COURSE								
2.	CY23131	Chemistry for Electronics Engineering	BS	5	3	0	2	4
3.	PH23131	Physics of Materials	BS	5	3	0	2	4
4.	GE23233	Problem solving and Python programming	ES	6	2	0	4	4
LABORATORY COURSE								
5.	HS23221 / HS23222	Technical Communication II / English for Professional Competence	HSMC	2	0	0	2	1
6.	RO23221	Computer Aided Modeling Laboratory	ES	4	0	0	4	2
MANDATORY COURSE								
7.	GE23217	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	HSMC	1	1	0	0	1
8.	MC23111	Indian Constitution and Freedom Movement	MC	3	3	0	0	0
			TOTAL	**30**	**15**	**1**	**14**	**20**

SEMESTER III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY COURSE								
1.	MA23311	Transforms and Partial Differential Equations	BS	4	3	1	0	4
2.	RO23311	Mechanism and Robot Kinematics	PC	4	3	1	0	4
3.	RO23312	Microcontrollers and Real Time Embedded Systems	PC	3	3	0	0	3
LAB ORIENTED THEORY COURSE								
4.	RO23331	Analog and Digital Electronics	PC	5	3	0	2	4
5.	RO23332	Mechanics of Materials	ES	5	3	0	2	4
LABORATORY COURSE								
6.	CS23422	Python Programming for Machine Learning	ES	4	0	0	4	2
			TOTAL	**25**	**15**	**2**	**8**	**21**

SEMESTER IV

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY COURSE								
1.	RO23411	Design of Automated Machine Elements-I	PC	4	3	1	0	4
2.	RO23412	Fluid Power Systems	PC	3	3	0	0	3
3.	RO23413	Industrial Automation and Control	PC	4	3	1	0	4
4.	RO23414	Sensors in Automation	PC	3	3	0	0	3
LAB ORIENTED THEORY COURSE								
5.	MA23432	Statistics and Numerical Methods	BS	5	3	0	2	4
LABORATORY COURSE								
6.	RO23421	Mechanisms and Robotics laboratory	PC	4	0	0	4	2
7.	RO23422	Industrial Automation Laboratory	PC	4	0	0	4	2
8.	RO23423	Internship	EEC	2	0	0	2	1
9.	GE23427	Soft skills – I	EEC	2	0	0	2	1
			TOTAL	**31**	**15**	**2**	**14**	**24**

SEMESTER V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY COURSE								
1.	RO23511	Robot Dynamics and Control	PC	4	3	1	0	4
2.	RO23512	Wheeled Mobile Robots	PC	3	3	0	0	3
3.		Open Elective – I	OE	3	3	0	0	3
4.		Professional Elective –I	PE	3	3	0	0	3
LAB ORIENTED THEORY COURSE								
5.	RO23531	AI for Robotics	PC	5	3	0	2	4
6.	RO23532	Elements of Manufacturing Process	PC	4	2	0	2	3
LABORATORY COURSE								
7.	RO23521	Mobile Robotics laboratory	PC	4	0	0	4	2
8.	GE23527	Soft Skills – II	EEC	2	0	0	2	1
			TOTAL	**28**	**17**	**1**	**10**	**23**

SEMESTER VI

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY COURSE								
1.	RO23611	Design of Automated Machine Elements-II	PC	4	3	1	0	4
2.	RO23612	Resource Management Techniques	HSMC	3	3	0	0	3
3.		Professional Elective – II	PE	3	3	0	0	3
4.		Professional Elective – III	PE	3	3	0	0	3
LAB ORIENTED THEORY COURSE								
5.	RO23631	Robot Path Planning and Programming	PC	5	3	0	2	4
6.	RO23632	Robotic Vision and Intelligence	PC	5	3	0	2	4
LABORATORY COURSE								
7.	RO23621	Innovation and Design thinking for Robotics and Automation	EEC	3	0	1	2	2
8.	GE23627	Problem solving Techniques	EEC	2	0	0	2	1
			TOTAL	**28**	**18**	**2**	**8**	**24**

SEMESTER VII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY COURSE								
1.	RO23711	Aerial Robotics	PC	3	3	0	0	3
2.	RO23712	Humanoid Robotics	PC	3	3	0	0	3
3.		Professional Elective – IV	PE	3	3	0	0	3
4.		Open Elective – II	OE	3	3	0	0	3
LAB ORIENTED THEORY COURSE								
5.	RO23731	Robotic operating System	PC	4	2	0	2	3
LABORATORY COURSE								
6.	RO23721	Robotics and Automation Problem Solving using AI, ML and DL	PC	4	0	0	4	2
7.	RO23722	Project Work- Phase I	EEC	4	0	0	4	2
			TOTAL	**24**	**14**	**0**	**10**	**19**

SEMESTER VIII

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
THEORY COURSE								
1.		Professional Elective - V	PE	3	3	0	0	3
2.		Professional Elective - VI	PE	3	3	0	0	3
PRACTICAL COURSE								
3.	RO23821	Project Work- Phase II	EEC	16	0	0	16	8
TOTAL				**22**	**6**	**0**	**16**	**14**

TOTAL NO. OF CREDITS: 165

SUMMARY

DEPARTMENT OF ROBOTICS AND AUTOMATION											
	Subject Area	**Credits Per Semester**								Credits Total	Percentage %
	Semester	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**		
1.	Humanities, Social Studies and management science (HSMC)	3	2				3			8	4.8
2.	Basic Sciences (BS)	4	12	4	4					24	14.6
3.	Engineering Sciences (ES)	13	6	6						25	15.2
4.	Professional Core (PC)			11	18	16	12	11		68	41.2
5.	Professional Electives (PE)					3	6	3	6	18	10.9
6.	Open Electives (OE)					3		3		6	3.6
7.	Project Work/ Employability Enhancement Course (PR/EEC)				2	1	3	2	8	16	9.7
	TOTAL	20	20	21	24	23	24	19	14	165	
8.	Non-Credit*/ (Mandatory)	√	√	–	-	-	-	-	-		