RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

AN AUTONOMOUS INSTITUTION

M.Tech., Data Science

CURRICULUM FOR SEMESTER I TO IV

REGULATIONS 2023

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Kuthambakkam, Chennai 600124

RAJALAKSHMI INSTITUTE OF TECHNOLOGY

An Autonomous Institution, Affiliated to Anna University

REGULATIONS 2023

CHOICE BASED CREDIT SYSTEM

M.Tech., Data Science

I VISION OF THE DEPARTMENT

- To be a center of excellence in data science empower professionals with cutting edge knowledge and skills in advanced data science techniques to solve complex real-world problems for societal progress through responsible and ethical data analysis practices.

II MISSION OF THE DEPARTMENT

- Enhancing professional's employability by providing a comprehensive training process that equips them with essential skills.
- Applying rational thinking to design and develop innovative products in collaboration with industry stakeholders, ensuring alignment with global standards and demands.
- Instilling ethics and values among professionals to promote responsible and effective engineering practices.

III PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

- Professionals will have successful innovators, entrepreneurs who will be able to adapt to an ever-changing world and its demands for computational and data analytic skills.
- Professionals will undertake research work or pursue higher studies by acquiring in depth knowledge in data science and allied fields.

IV PROGRAM OUTCOMES (POS)

1. An ability to independently carry out research /investigation and development work to solve practical problems.

2. An ability to write and present a substantial technical report/document.

3. Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

4. Professionals should be able to analyze and relate critically to different sources of information, datasets and data processes; and apply these to structure and formulate data-driven reasoning.

5. Professionals should be able to apply modern data science methods to the solution of real-world business problems, communicate findings, and effectively present results using data visualization techniques for societal benefits.

6. Recognize and analyze ethical issues in business related to intellectual property, data security, integrity, and privacy.

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REGULATIONS – 2023

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CURRICULUM AND SYLLABI FOR SEMESTER I TO IV

SEMESTER I

S.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1	MA23116	Applied Probability and Statistics for Data Science	FC	3	1	0	4	4
2	DS23111	Advanced Data Structures and Algorithms	PCC	3	0	0	3	3
3	DS23112	Fundamentals of Computer Science	PCC	3	0	0	3	3
4	DS23113	Network Technologies	PCC	3	0	0	3	3
5	RM23111	Research Methodology	RMC	3	0	0	3	3
LABORATORY ORIENTED COURSES								
6	DS23131	Database Practices	PCC	3	0	2	5	4
LABORATORY COURSES								
7	DS23121	Advanced Data Structures and Algorithms Laboratory	PCC	0	0	4	4	2
TOTAL								**22**

SEMESTER II

S.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1	MA23216	Multivariate Data Analysis	FC	3	1	0	4	4
2	DS23211	Data Visualization Techniques	PCC	3	0	0	3	3
3	DS23212	Machine Learning for Data Science	PCC	3	0	0	3	3
4	DS23213	Ethics for Data Science	PCC	3	0	0	3	3
5	DS23214	Cloud Computing Technologies	PCC	3	0	0	3	3
6		Professional Elective I	PEC	3	0	0	3	3
LABORATORY ORIENTED COURSES								
7	DS23221	Data Visualization Laboratory	PCC	0	0	4	4	2
8	DS23222	Machine Learning for Data science Laboratory	PCC	0	0	4	4	2
9	DS23223	Term Paper Writing and Seminar	EEC	0	0	2	2	1
TOTAL								**24**

SEMESTER III

S.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
THEORY COURSES								
1		Professional Elective II	PEC	3	0	0	3	3
2		Professional Elective III	PEC	3	0	0	3	3
LABORATORY COURSES								
3	DS23321	Project Work I/Industry Project	EEC	0	0	12	12	6
4	DS23322	Internship (4 Weeks)	EEC	0	0	0	0	2
5	DS23323	Technical Seminar	EEC	0	0	0	0	1
TOTAL								**15**

SEMESTER IV

S.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1	DS23421	Project Work II/ Industry Project	EEC	0	0	24	24	12
TOTAL								**12**

TOTAL CREDITS:73

PROFESSIONAL ELECTIVES

PROFESSIONAL ELECTIVE I - DATA ANALYTICS

S.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1.	DS23001	Agriculture Data Analytics	PEC	3	0	0	3	3
2.	DS23002	Business Analytics	PEC	3	0	0	3	3
3.	DS23003	Health Care Analytics	PEC	3	0	0	3	3
4.	DS23004	Image and Video Analytics	PEC	3	0	0	3	3
5	DS23005	Time Series Analytics	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE II - EMERGING AI

S.No.	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1.	DS23006	AI in IOT	PEC	3	0	0	3	3
2.	DS23007	AI Powered Chat Bot	PEC	3	0	0	3	3
3.	DS23008	Applied Machine Learning	PEC	3	0	0	3	3
4.	DS23009	Computer Vision	PEC	3	0	0	3	3
5	DS23010	Ethics for AI	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE III - EMERGING TECHNOLOGIES

S.No	Course Code	Course Title	Category	Periods Per Week			Total Contact Periods	Credits
				L	T	P		
1.	DS23011	Augmented Reality/ Virtual Reality	PEC	3	0	0	3	3
2.	DS23012	Blockchain Technologies	PEC	3	0	0	3	3
3.	DS23013	Social Network Analysis	PEC	3	0	0	3	3
4.	DS23014	Big Data Technologies	PEC	3	0	0	3	3
5.	DS23015	Web Analytics	PEC	3	0	0	3	3

SUMMARY

S. No.	NAME OF THE PROGRAMME: M.TECH., DATA SCIENCES					
	SUBJECT AREA	CREDITS PER SEMESTER				TOTAL CREDITS
SEMESTER		I	II	III	IV	
1	FC	4	0	0	0	4
2	PCC	16	19	0	0	35
3	PEC	0	3	6	0	9
4	EEC	0	1	9	12	22
5	RMC	3	0	0	0	3
TOTAL CREDITS		**23**	**23**	**15**	**12**	**73**