Indian Institute of Technology Palakkad
Curriculum

Program : **Master of Technology**
Stream : **Data Science**
Year : **2024 Onwards**

IIT PALAKKAD

Introduction:

The Department of Data Science at IIT Palakkad presents the curriculum of a transdisciplinary master program M. Tech degree in Data Science (MDS). The curriculum contains core courses and electives along with capstone projects. Along with training on theoretical foundation the curriculum also supports considerable training on hands-on and practical skills through projects, lab courses. Electives will help students to pick appropriate tracks for their specialization.

The department of data science is proposing a revision in the MTech in Data Science curriculum. The major reason behind this revision though is the new regulations for the MTech programs, but there are also some additional factors which we considered based on our experience in running this program for the last a few years and also based on the feedback received from the students. The current curriculum makes the first semester a bit overloaded and students coming from various backgrounds found it hard to cope up. Another reason of revision is the introduction of GATE in Data Science and Artificial Intelligence (DA)..

The credit requirement of the program is as follows:

Credit requirements :

Category of the course	Credits
Program Major Core (PMC)	17
Program Major Electives (PME)	9
Project Based Courses	20
Open Electives(OE) / Humanities and Social Sciences Elective (HSE) (Early Bird Project)	6 (3)
Internship (upto 6 weeks, optional)	0
Communication Skills	1
Technical Writing	1
Research Methodology	2
Total	56

The list of PMC's with their credits is below :

Core Courses

SL no	Course Number	Course Name	Credit	Offer
1	DS5xxx	Mathematics for Data Science	3-0-0-3	Odd
2	DS5xxx	Data Engineering	1-0-3-3	Odd
3	DS5102	Big Data Lab	1-0-3-3	Even
4	DS5xxx	Machine Learning	3-0-2-4	Odd
5	DS5xxx	Deep Learning	3-0-2-4	Even
		Total	17	

To guide the students towards arriving at a feasible ordering of courses, a course plan is proposed below. It is not mandatory to follow this plan. Multiple variations of this plan may be possible. However, students need to ensure that the credit requirements as mentioned in the table above are met. While this system allows flexibility for students to take courses in an order different from that mentioned below, the constraint that prerequisites for each course have to be cleared in advance to be able to take it, necessitates a judicious choice to complete the program within the expected time frame.

Semester I

No.	Course code	Course Title	L	T	P	C	Category
1	DS5XXX	Mathematics for Data Science	3	0	0	3	PMC
2	DS5003	Data Engineering	1	0	3	3	PMC
3	DS5XXX	Machine Learning	3	0	2	4	PMC
4	DSXXXX	Open Elective / HSS Elective 1	3	0	0	3	OE
5	GNXXXX	Communication skills	1	0	0	1	Institute Common Course (ICC)
6	GNXXXX	Technical writing	1	0	0	1	Institute Common Course (ICC)
		Semester Total				15	

Semester II

No.	Course code	Course Title	L	T	P	C	Category
1	DS5XXX	Deep Learning	3	0	2	4	PMC
2	DS5102	Big Data Lab	1	0	3	3	PMC
3	DSXXXX	Professional Major Elective 1	3	0	0	3	PME
4	DSXXXX	Professional Major Elective 2	3	0	0	3	PME
5	DSXXXX	Open Elective / HSS Elective 2	3	0	0	3	OE
6	GN6001	Research Methodologies	2	0	0	2	
		Semester Total				18	

Summer

No.	Course code	Course Title	L	T	P	C	Category
1	DS5190	MTP Stage 0/Internship	0	0	0	0	Project
		Summer Total				0	

Semester III

No.	Course code	Course Title	L	T	P	C	Category
1	DS5110	MTP Stage 1	0	0	10	10	Project
2	DSXXXX	Professional Major Elective 3	3	0	0	3	PME
3							
4							
		Semester Total				13	

Semester IV

No.	Course code	Course Title	L	T	P	C	Category
1	DS5120	MTP Stage 2	0	0	10	10	Project
2							
3							
		Semester Total				10	

A list of approved PME's can be found below:

S No.	Course Name	Credits
1	Optimization	3
2	Natural Language Processing	3
3	Image processing	3
4	Computer Vision	3
5	Time Series modeling and analysis	3
6	Data Mining	3
7	Information Retreival	3
8	Business Analytics	3
9	Responsible AI	3
10	Probabilistic Graphical Model	3