



FACULTY OF
ENGINEERING AND
TECHNOLOGY



2024 - 25

M.Sc. Data Science & Big Data Analytics

Programme Structure

Division	Faculty of Engineering and Technology
School Name	School of Computer Science & Engineering
Department Name	Department of Computer Science and Applications
Programme Name	M.Sc. Data Science & Big Data Analytics

Course Basket

Course Type	Description
Programme Core	Courses dealing with foundations, depth and breadth of the major in which a student is admitted at MIT-WPU
Programme Electives	Open electives under the Programme allow students to specialise in a particular area connected to their major.
University Core	Courses that reflect the core MITWPU values and the mission of Life Transformation of students.
University Electives	Multidisciplinary courses across the faculties at MIT-WPU and outside the Programme core.

Credit Distribution

Course Basket		% Credit Allotment	Credits Assigned
Programme core		35.20%	31
Programme electives		18.20%	16
Programme research	Break up of research credits	36.37% Total credits	32 Total credits
	Mini project	6.82%	6
	Research Paper Writing	2.27%	2
	MOOC	4.55%	4
Full Time Industrial Internship		22.73%	20
University core	Research methodology	4.50%	04 (first semester)
University core	Peace + Yoga	5.70%	05 (02+02+01)*
Total		100	88

Semester	Course Type	Course Name / Course Title	Total Credits
I	Programme Major	Big Data Architecture & Ecosystem	5
I	Programme Major	Data Warehousing & Data Mining	4
I	Programme Major	Statistics for Machine Learning	4
I	Programme Capstone Project, Problem-Based Learning, Seminar and Internships	Mini Project I	2
I	University Core	Scientific Studies of Mind, Matter, Spirit and Consciousness	2
I	University Core	Yoga	1
I	University Core	Research Methodology	4
		Total:	22

II	Programme Major	Apache Spark and Scala	3
II	Programme Major	Machine Learning Algorithms	5
II	Programme Capstone Project, Problem-Based Learning, Seminar and Internships	Mini Project II	2
II	Programme Elective 1	PE1 - Data Analysis using SQL	4
II		PE1-Data Science and Internet of Things	
II		PE1 - Business Intelligence	
II	Programme Elective 2	PE1- Cloud Computing	4
II		PE2 - No SQL Databases (MongoDB)	
II		PE2 -Data Exploring and Visualization in R	
II		PE2 -MATLAB	
II		PE2 -Text Analytics	

Semester	Course Type	Course Name / Course Title	Total Credits
II	University Core	Peace Building: Global Initiatives	2
II	Programme Capstone Project, Problem-Based Learning, Seminar and Internships	Research Paper Writing	2
		Total:	22

III	Programme Major	Artificial Intelligence	5
III	Programme Major	Principles of Deep Learning	5
III	Programme Capstone Project, Problem-Based Learning, Seminar and Internships	Mini Project III	2
III	Programme Capstone Project, Problem-Based Learning, Seminar and Internships	MOOC	2
III	Programme Elective 3	PE3 - Big Data Security	4
III		PE3 - Cyber Security	
III		PE3 - Digital Image Processing and Computer Vision	
III		PE3 - Cloud Analytics	
III	Programme Elective 4	PE4 - Data Analytics and Pipeline Architecture	4
III		PE4- Natural Language Processing	
III		PE4 - Time series analysis and Forecasting	
III		PE4 - Ethics and Privacy in Data Science	
		Total	22

Semester	Course Type	Course Name / Course Title	Total Credits
IV	Programme Capstone Project, Problem-Based Learning, Seminar and Internships	Full time Industrial Training	20
IV	Programme Capstone Project, Problem-Based Learning, Seminar and Internships	MOOC	2
		Total:	22

Elective Tracks

Semester	Course Type	Course Name / Course Title
II	Programme Elective - I	PE1 - Data Analysis using SQL
II	Programme Elective - I	PE1-Data Science and Internet of Things
II	Programme Elective - I	PE1 - Business Intelligence
II	Programme Elective - I	PE1- Cloud Computing
II	Programme Elective - II	PE2 - No SQL Databases (MongoDB)
II	Programme Elective - II	PE2 -Data Exploring and Visualization in R
II	Programme Elective - II	PE2 -MATLAB
II	Programme Elective - II	PE2 -Text Mining
III	Programme Elective – III	PE3 - Big Data Security
III	Programme Elective – III	PE3 - Cyber Security
III	Programme Elective – III	PE3 - Digital Image Processing and Computer Vision
III	Programme Elective – III	PE3 - Cloud Analytics
III	Programme Elective – IV	PE4 - Data Analytics and Pipeline Architecture
III	Programme Elective – IV	PE4- Natural Language Processing
III	Programme Elective – IV	PE4 - Time series analysis and Forecasting
III	Programme Elective – IV	PE4 - Ethics and Privacy in Data Science

*Modifications to the programmes and courses are contingent upon adherence to university guidelines and procedures. Any proposed changes must undergo a thorough review process, including consultation with relevant academic departments, approval from the appropriate administrative bodies, and compliance with accreditation standards.

Additionally, consideration will be given to feedback from students, faculty, and other stakeholders to ensure that modifications align with the overall educational objectives and mission of the university. The implementation of any approved changes will be communicated transparently to the university community, and appropriate measures will be taken to facilitate a smooth transition for all affected parties.