

Curriculum of B.Tech AI & DS Program

Knowledge Disciplines	I - Year		II – Year		III - Year		IV - Year	
	Bridge	Introduction	Foundation	Concentration	Specialization	ProtoSem	Fellowship	Fellowship
	Sem I	Sem II	Sem III	Sem IV	Sem V	Sem VI	Sem VII	Sem VIII
Fundamental Science	Engineering Physics (Physics Practicum) (4)	Advanced Physics (3)	Random Process and Optimization (4)					
Math and Statistics	Linear Algebra and Calculus (MATLAB Practicum) (4)	Discrete Mathematics (3)	Multivariate Calculus and Forecasting (4)					
		Probability and Statistics (R Practicum) (4)						
Computer Science	Introduction to Python (Python Practicum) (3)	Object-Oriented Programming and Data Structures (Python Practicum) (3)	Algorithms and Optimization of Programs (Python Practicum) (4)	Computer Networks (3)	Cloud Architecture (AWS Practicum) (4)			
	Introduction to Computational Machines (HW Practicum) (3)		Operating System (3)					
Artificial Intelligence		Introduction to AI & ML (Python Practicum) (3)	Applied Machine Learning(PyTorch/ Tensorflow)(4)	Neural Networks and Deep Learnings (Keras and MXnet Practicum) (4)	Reinforcement Learning (4)	ProtoSem [Core] (12) [Advanced Technology Electives] (6) [Open Elective-II] (3) [Minimum Usable Prototype] (3)	Fellowship (10) [Certification Courses] (4)	Fellowship (9) [Certification Courses] (4)
Data Science		Introduction to Data Science (Sheets Practicum) (3)	Data Collection & Data Management (Oracle and SQL Practicum) (3)	Data Mining & Modeling (Rapid Miner Practicum) (3)	Exploratory Data Analysis and Visualization (4)			
Advanced Technology					Advanced Technology Electives -I (3)			
Arts and Humanities	Fundamentals of Communication I (English Practicum) (3)	Growth Lab I (NC)	Growth Lab II (NC)	Growth Lab III (NC)	Open Elective - I (3)			
	Introduction to Indic Culture and Sciences (1)	Externship I (NC)	Tools and Technologies for Wellness (1)	Externship II (NC)	Philosophy of Wellness (1)		Externship III (NC)	
Business & Entrepreneurship			Principles of Economics (2)	Finance for Engineers (3)	Marketing Fundamentals (3)			

Innovation and Design	Engineering Sprints (3)	Innovation Sprints (3)	Design Sprints (3)	Ideation Sprints (3)			
Credits: 21	Credits: 22	Credits: 24	Credits: 20	Credits: 22	Credits: 24	Credits: 14	Credits: 13

Total Credits: 160

Consolidated Course Information

Course Type : Professional Core (PC), Professional Elective (PE), Humanities and Social Science (HS), Basic Science(BS), Engineering Science(ES), Open Elective(OE), Project Work(PW)

Semester I										
S.No	Course Title	Course Code	Course Mode	Course Type	L	T	P	J	C	Prerequisite
1	Engineering Physics	U18PHI1202	Embedded - Theory & Lab	BS	3	0	2	0	4	
2	Linear Algebra and Calculus	U18MAI1203	Embedded - Theory & Lab	BS	3	0	2	0	4	
3	Introduction to Computational Machines	U18AII1204	Embedded - Theory & Lab	ES	2	0	2	0	3	
4	Introduction to Python	U18AII1205	Embedded - Theory & Lab	ES	2	0	2	0	3	
5	Professional Communication	U18ENI0202	Embedded - Theory & Lab	HS	2	0	2	0	3	
6	Introduction to Indic Culture and Technologies	U18AIC1006	One Credit Course	HS	1	0	0	0	1	
7	Engineering Sprints	U18AII1607	Embedded - Project & Lab	ES	0	0	4	2	3	
8	Heritage of Tamils	U18TLR1001	Theory	Mandatory (non CGPA)	1	0	0	0	1	
9	Disruptive Technologies	U18CSR1001	Theory	Value Added Course (non CGPA)	2	0	0	0	2	
Total Credits					21					

Semester II										
S.No	Course Title	Course Code	Course Mode	Course Type	L	T	P	J	C	Prerequisite
1	Advanced Physics	U18PHT2203	Theory	BS	3	0	0	0	3	U18PHI1202
2	Discrete Mathematics	U18MAT2001	Theory	BS	3	0	0	0	3	
3	Probability and Statistics	U18MAI2203	Embedded - Theory & Lab	BS	3	0	2	0	4	
4	Object-Oriented Programming and Data Structures	U18AII2204	Embedded - Theory & Lab	PC	2	0	2	0	3	U18AII1205
5	Introduction to AI & ML	U18AII2205	Embedded - Theory & Lab	PC	2	0	2	0	3	U18AII1205
6	Introduction to Data Science	U18AII2206	Embedded - Theory & Lab	PC	2	0	2	0	3	
7	Growth Lab I	U18AIP2607	Embedded - Project & Lab	HS	-	-	-	-	-	
8	Externship I	U18AIP2708	Project	HS	-	-	-	-	-	
9	Innovation Sprints	U18AII2609	Embedded - Project & Lab	ES	0	0	4	2	3	
10	Tamils and Technology	U18TLR2001	Theory	Mandatory (non CGPA)	1	0	0	0	1	
Total Credits					22					

Course Type : Professional Core (PC), Professional Elective (PE), Humanities and Social Science (HS), Basic Science(BS), Engineering Science(ES), Open Elective(OE), Project Work(PW)

	Semester III									
S.No	Course Title	Course Code	Course Mode	Course Type	L	T	P	J	C	Prerequisite
1	Multivariate Calculus and Forecasting	U18MAI3201	Embedded - Theory & Lab	BS	3	0	2	0	4	U18MAI1203
2	Algorithms and Optimization of Programs	U18AII3202	Embedded - Theory & Lab	PC	3	0	2	0	4	U18AII2204
3	Operating System	U18AII3203	Embedded - Theory & Lab	PC	2	0	2	0	3	---
4	Applied Machine Learning	U18AII3204	Embedded - Theory & Lab	PC	3	0	2	0	4	U18AII2205
5	Data Collection & Data Management	U18AII3205	Embedded - Theory & Lab	PC	2	0	2	0	3	---
6	Tools and Technologies for Wellness	U18AIC3006	One Credit	HS	1	0	0	0	1	---
7	Growth lab II	U18AIP3607	Embedded - Project & Lab	HS		-	-	-	-	---
8	Principles of Economics	U18AIT3008	Theory	ES	2	0	0	0	2	---
9	Design Sprints	U18AII3609	Embedded - Project & Lab	ES	0	0	4	2	3	---
	Total Credits				24					

	Semester IV									
S.No	Course Title	Course Code	Course Type	Course Type	L	T	P	J	C	Prerequisite
1	Random Process and Optimization	U18MAT4105	Theory	BS	3	1	0	0	4	---
2	Computer Networks	U18AII4201	Embedded - Theory & Lab	PC	2	0	2	0	3	---
3	Neural Networks and Deep Learning	U18AII4202	Embedded - Theory & Lab	PC	3	0	2	0	4	U18AII2205
4	Data Mining & Modeling	U18AII4203	Embedded - Theory & Lab	PC	2	0	2	0	3	U18MAI2203
5	Growth Lab III	U18AIP4604	Embedded - Project & Lab	HS	-	-	-	-	-	---
6	Externship II	U18AIP4705	Project	HS	-	-	-	-	-	---
7	Finance for Engineers	U18AIT4006	Theory	ES	3	0	0	0	3	---
8	Ideation Sprints	U18AII4607	Embedded - Project & Lab	ES	0	0	4	2	3	---
9	Environmental Science and Engineering	U18CHT4000	Theory	BS	3	0	0	0	0	
	Total Credits				20					

Course Type : Professional Core (PC), Professional Elective (PE), Humanities and Social Science (HS), Basic Science(BS), Engineering Science(ES), Open Elective(OE), Project Work(PW)

Semester V										
S.No	Course Title	Course Code	Course Mode	Course Type	L	T	P	J	C	Pre-requisite
1	Cloud Architecture	U18AII5201	Embedded - Theory & Lab	PC	3	0	2	0	4	---
2	Exploratory Data Analysis and Visualization	U18AII5202	Embedded - Theory & Lab	PC	3	0	2	0	4	U18MAI2203
3	Reinforcement Learning	U18AII5203	Embedded - Theory & Lab	PC	3	0	2	0	4	U18AII4202
4	Advanced Technology Elective 1	U18AIE520X	Theory	PE	3	0	0	0	3	---
5	Elective 1	U18XXE5XXX	Theory	OE	3	0	0	0	3	---
6	Marketing Fundamentals	U18AIT5004	Theory	ES	3	0	0	0	3	---
7	Philosophy of Wellness	U18AIC5005	One Credit	HS	1	0	0	0	1	---
8	Constitution of India	U18INT5000	Theory	Mandatory	1	0	0	0	0	
Total Credits					22					

Semester VI										
S.No	Course Title	Course Code	Course Mode	Course Type	L	T	P	J	C	Pre-requisite
1	Applied Design Thinking	U18AII6201	Embedded - Theory & Lab	PC	3	0	2	0	4	---
1	Prototype Development	U18AII6202	Embedded - Theory & Lab	PC	3	0	2	0	4	---
2	Industrial IoT	U18AII6203	Embedded - Theory & Lab	PC	3	0	2	0	4	---
3	Advanced Technology Elective 2	U18AIE6XXX	Theory	PE	3	0	0	0	3	---
4	Advanced Technology Elective 3	U18AIE6XXX	Theory	PE	3	0	0	0	3	---
5	Elective 2	U18XXE6XXX	Theory	OE	3	0	0	0	3	---
6	Minimum Usage Prototype	U18AIP6604	Project	PW	0	0	0	6	3	---
Total Credits					24					

Course Type : Professional Core (PC), Professional Elective (PE), Humanities and Social Science (HS), Basic Science(BS), Engineering Science(ES), Open Elective(OE), Project Work(PW)

	Semester VII									
S.No	Course Title	Course Code	Course Mode	Course Type	L	T	P	J	C	Pre-requisite
1	Fellowship I	U18AIP7701	Project	PW	0	0	0	20	10	
2	Advanced Technology Certification I	U18AIR7102	eRIDE	PC	0	0	0	8	4	
3	Externship III	U18AIP7703	Project	HS	-	-	-	-	-	
	Total Credits				14					

	Semester VIII									
S.No	Course Title	Course Code	Course Mode	Course Type	L	T	P	J	C	Pre-requisite
1	Fellowship II	U18AIP8701	Project	PW	0	0	0	18	9	
2	Advanced Technology Certification II	U18AIR8102	eRIDE	PC	0	0	0	8	4	
	Total Credits				13					

Total: 160 credits