Curriculum Structure: CSDA

Year 1(Foundation): Semester-I

Code	Course Name	L-T-P-Credits	Credit Hours L+T+P/2
BO CDA 101	Mathematics - I	3-1-0-8	4
BO CDA 103	Foundations of Computer Science	3-0-3-9	4.5
BO CDA 105	Foundations of Data Analytics	3-0-3-9	4.5
BO CDA 107	Foundations of English for Professionals	3-0-2-8	4
	Total Credits / Credit Hours	34	17

Year 1(Foundation): Semester-II

Code	Course Name	L-T-P-Credits	Credit Hours L+T+P/2
BO CDA 102	Mathematics II	3-1-0-8	4
BO CDA 104	Programming and Data Structures with Python	3-0-3-9	4.5
BO CDA 106	Numerical methods for Data Science	3-0-3-9	4.5
BO CDA 108	Capstone Project I	0-0-0-12	12
	Total Credits / Credit Hours	38	25

Year 2 (Diploma): Semester-I

Code	Course Name	L-T-P-Credits	Credit Hours L+T+P/2
BO CDA 201	Statistics for Data Science	3-1-2-10	5
BO CDA 203	Design of Algorithms	3-0-3-9	4.5
BO CDA 205	Machine Learning Techniques	3-0-3-9	4.5
BO CDA 207	Financial Economics	3-0-0-6	3
	Total Credits / Credit Hours	34	17

Year 2 (Diploma): Semester-II

Code	Course Name	L-T-P-Credits	Credit Hours L+T+P/2
BO CDA 202	Database management	3-0-3-9	4.5
BO CDA 204	Computer Organization	3-0-3-9	4.5
BO CDA 206	Advanced Machine Learning Techniques	3-0-3-9	4.5
BO CDA 208	Web Development and App Design	3-0-3-9	4.5
	Total Credits / Credit Hours	36	18

Mandatory **BO CDA 210: Summer Industry Project (24 credits)**: To work on a project relevant to Industry/contemporary problems of Industrial significance for award of Diploma and/or entering to the third year for the degree module.

This project aims to enable a candidate to identify a fundamental problem of valuable practical significance for the industry and work towards its viable solution. Students will work on a specified project, in online/offline mode, under a mentor from academia and/or industry for a period expending up to three months after completion of the fourth semester. There will be a project evaluation committee which will examine the students after completion of his/her project for awarding grades. The instruments of assessment will be the final project report and a presentation.

Students are encouraged to explore and identify suitable industries/institutions for the project, and the IIT Patna placement cell would like to guide and facilitate their efforts. The project abstract defining aim, methodology, and deliverable has to be submitted to IIT Patna with due approval of the *project evaluation committee* for further monitoring on the progress of the work.

Year 3 (Degree): Semester-I

Code	Course Name	L-T-P-Credits	Credit Hours L+T+P/2
BO CDA 301	Computer and Network Security	3-0-3-9	4.5
BO CDA 303	Operating Systems	3-0-3-9	4.5
BO CDA 305	Artificial Intelligence Techniques	3-1-2-10	5
BO CDA 307	Industrial and Organizational Psychology	3-0-0-6	3
BO CDA 3xx	Elective I	3-0-x-x	3
	Total Minimum Credits / Credit Hours	40	20

Year 3 (Degree): Semester-II

Code	Course Name	L-T-P-Credits	Credit Hours L+T+P/2
BO CDA 302	Big Data Analytics	3-1-2-10	5
BO CDA 304	Capstone Project II	0-0-0-16	16
BO CDA 3xx	Elective II	3-0-x-x	3
BO CDA 3xx	Elective III	3-0-x-x	3
	Total Minimum Credits / Credit Hours	38	27

Total Minimum Credits =220 + 24* = 244
*credits for mandatory Summer Industry Project after fourth semester
Total Minimum Credit Hours = 148