ARKA JAIN University
Jharkhand (Jamshedpur)

Recognized by UGC
Approved by AICTE

Scheme of Study of the Program

Bachelor of Computer Application

With Specialization in

Data Science

Internet of Things

Artificial Intelligence

Semester I,II, III, IV, V & VI
(w.e.f Batch 2018)

1st Semester – Scheme of Study

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	*Introduction to Computer Science	4	4	100	70	20	5	5
2	*Programming In C	4	4	100	70	20	5	5
3	*Discrete Mathematics	4	4	100	70	20	5	5
4	∞Business Communication	4	4	100	70	20	5	5
5	∞Hindi	2	2	50	35	10	2.5	2.5
6	» IT Awareness - I	2	2	50	35	10	2.5	2.5
	Practical							
7	* Computer Science - Lab	2	4	50	30	10	5	5
8	* Programming In C - Lab	2	4	50	30	10	5	5
	TOTAL	**24**	**28**	**600**	**410**	**120**	**35**	**35**

**** CIA – Continuous Internal Assessment – Based on Class Participation / Assignment**

* Core Subjects | ▲ Generic Subjects | »Skill Enhancement Subjects | ∞Ability Enhancement Subjects | Đ Discipline Specific Elective

2nd Semester – Scheme of Study

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	* Data Structure through C	4	4	100	70	20	5	5
2	* Object Oriented Programming with C++	4	4	100	70	20	5	5
3	* Operating System	4	4	100	70	20	5	5
4	* Numerical & Statistical Methods	4	4	100	70	20	5	5
5	∞ English	2	2	50	35	10	2.5	2.5
6	» IT Awareness - II	2	2	50	35	10	2.5	2.5
	Practical							
7	* Data Structure through C - Lab	2	4	50	30	10	5	5
8	* Object Oriented Programming with C++ - Lab	2	4	50	30	10	5	5
9	* Operating System - Lab	2	4	50	30	10	5	5
	TOTAL	**26**	**32**	**650**	**440**	**130**	**40**	**40**

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3rd Semester – Scheme of Study

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	*Programming with Java	4	4	100	70	20	5	5
2	*Design and Analysis of Algorithms	4	4	100	70	20	5	5
3	*Digital Electronics	4	4	100	70	20	5	5
4	*Database Management System	4	4	100	70	20	5	5
5	*Data Communication & Networking	4	4	100	70	20	5	5
6	»Python Programming	4	4	100	70	20	5	5
	Practical							
7	*Programming with Java -Lab	2	4	50	30	10	5	5
8	*Database Management System - Lab	2	4	50	30	10	5	5
9	»Python Programming -Lab	2	4	50	30	10	5	5
	TOTAL	**30**	**36**	**750**	**510**	**150**	**45**	**45**

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4th Semester – Scheme of Study

Specialization – Data Science

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	* Introduction to Data Science	4	4	100	70	20	5	5
2	*R Programming Language	4	4	100	70	20	5	5
3	*Python for Data Science	4	4	100	70	20	5	5
4	»Machine Learning with R	4	4	100	70	20	5	5
5	∞Big Data Analytics	4	4	100	70	20	5	5
	Practical							
6	* R Programming Language – Lab	2	4	50	30	10	5	5
7	* Python for Data Science – Lab	2	4	50	30	10	5	5
8	»Machine Learning with RLab	2	4	50	30	10	5	5
9	» Big Data Analytics – Lab	2	4	50	30	10	5	5
	TOTAL	**28**	**36**	**700**	**470**	**140**	**45**	**45**

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4th Semester – Scheme of Study

Specialization – Internet of Things

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	* Internet of Things	4	4	100	70	20	5	5
2	* Sensor Technologies	4	4	100	70	20	5	5
3	* Embedded System	4	4	100	70	20	5	5
4	» Web Programming	4	4	100	70	20	5	5
5	∞ Big Data Analytics	4	4	100	70	20	5	5
	SWAYAM/MOOC/Others	NC	**Value added course/Certification in IOT**					
	Practical							
6	* Sensor Technologies -Lab	2	4	50	30	10	5	5
7	* Embedded System - Lab	2	4	50	30	10	5	5
8	» Web Programming - Lab	2	4	50	30	10	5	5
9	∞ Big Data Analytics – Lab	2	4	50	30	10	5	5
	TOTAL	**28**	**36**	**700**	**470**	**140**	**45**	**45**

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4th Semester – Scheme of Study

Specialization – Artificial Intelligence

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	* Introduction to RPA Tools	4	4	100	70	20	5	5
2	* Introduction to Process Automation	4	4	100	70	20	5	5
3	* Six Sigma and Lean Methods	4	4	100	70	20	5	5
4	» R Programming Language	4	4	100	70	20	5	5
5	∞ Machine Learning	4	4	100	70	20	5	5
	SWAYAM/MOOC/Others	NC	**Value added course/Certification in IOT**					
	Practical							
6	* Introduction to RPA Tools Lab	2	4	50	30	10	5	5
7	* Introduction to Process Automation Lab	2	4	50	30	10	5	5
8	» R Programming Language Lab	2	4	50	30	10	5	5
9	∞ Machine Learning with R Lab	2	4	50	30	10	5	5
	TOTAL	**28**	**36**	**700**	**470**	**140**	**45**	**45**

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5th Semester – Scheme of Study

Specialization – Data Science

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	* Internet of Things	4	4	100	70	20	5	5
2	»NoSQL Databases	4	4	100	70	20	5	5
3	* Software Engineering	4	4	100	70	20	5	5
4	**Discipline Specific Elective I (any One)** Đ Enterprise Java Đ Next Generation Technologies	4	4	100	70	20	5	5
5	**Discipline Specific Elective II (any One)** Đ Probabilistic Graphical Models Đ Design and Analysis of Experiments	4	4	100	70	20	5	5
	SWAYAM/MOOC/Others	NC	**Value added course/Certification in Data Science**					
	Practical							
6	* Internet of Things - Lab	2	4	50	30	10	5	5
7	»NoSQL Databases – Lab	2	4	50	30	10	5	5
8	**Discipline Specific Elective I (any One)** Đ Enterprise Java – Lab Đ Next Generation Technologies - Lab	2	4	50	30	10	5	5
	TOTAL	**26**	**32**	**650**	**440**	**130**	**40**	**40**

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5th Semester – Scheme of Study

Specialization – Internet of Things

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	* Introduction to Cyber Security	4	4	100	70	20	5	5
2	∞Embedded C with Adruino	4	4	100	70	20	5	5
3	**Discipline Specific Elective I (any One)** Đ Enterprise Java Đ Next Generation Technologies	4	4	100	70	20	5	5
4	**Discipline Specific Elective II (any One)** Đ Machine Learning with R Đ Digital Signal Processing	4	4	100	70	20	5	5
5	**Generic Elective – I** ▲ Introduction to Data Science ▲ Cloud Computing	4	4	100	70	20	5	5
	Practical							
6	∞ Embedded C with Adruino - Lab	2	4	50	30	10	5	5
7	**Discipline Specific Elective I (any One)** Đ Enterprise Java - Lab Đ Next Generation Technologies - Lab	2	4	50	30	10	5	5
8	**Discipline Specific Elective II (any One)** Đ Machine Learning Lab Đ Digital Signal Processing Lab	2	4	50	30	10	5	5
	TOTAL	**26**	**32**	**650**	**440**	**130**	**40**	**40**

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5th Semester – Scheme of Study

Specialization – Artificial Intelligence

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	Cloud Deployment And Management	4	4	100	70	20	5	5
2	Natural Language Processing	4	4	100	70	20	5	5
3	Digital Image Processing	4	4	100	70	20	5	5
4	**Discipline Specific Elective I (any One)** Đ Enterprise Java Đ Next Generation Technologies	4	4	100	70	20	5	5
5	**Discipline Specific Elective II (any One)** Introduction to Data Science Pattern Recognition	4	4	100	70	20	5	5
	Practical							
6	∞ Cloud Deployment And Management Lab	2	4	50	30	10	5	5
7	Natural Language Processing Lab	2	4	50	30	10	5	5
8	**Discipline Specific Elective I (any One)** Đ Enterprise Java - Lab Đ Next Generation Technologies - Lab	2	4	50	30	10	5	5
	TOTAL	**26**	**32**	**650**	**440**	**130**	**40**	**40**

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6th Semester – Scheme of Study

Specialization – Data Science

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	»Time Series Analysis	4	4	100	70	20	5	5
2	**Discipline Specific Elective III (any One)** * Exploratory Data Analysis and Data Visualisation Techniques * Deep Learning	4	4	100	70	20	5	5
3	**Discipline Specific ElectiveIV(any One)** Đ Mobile Application Development Đ Artificial Neural Networks	4	4	100	70	20	5	5
	Practical							
4	»Project	4	4	100	50	40	5	5
5	Time series Analysis – Lab	2	4	50	30	10	5	5
6	**Discipline Specific Elective IV (any One)** Đ Mobile Application Development Lab Đ Artificial Neural Networks Lab	2	4	50	30	10	5	5
	TOTAL	**20**	**24**	**500**	**320**	**120**	**30**	**30**

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6th Semester – Scheme of Study

Specialization – Internet of Things

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	* Software Engineering	4	4	100	70	20	5	5
2	**Discipline Specific Elective III (any One)** Đ Mobile Application Development Đ Artificial Intelligence	4	4	100	70	20	5	5
3	**Discipline Specific Elective IV (any One)** Đ Business Intelligence Đ Artificial Neural Networks	4	4	100	70	20	5	5
	Practical							
4	» Project	4	4	100	50	40	5	5
5	**Discipline Specific Elective III (any One)** Đ Mobile Application Development Lab Đ Artificial Intelligence Lab	2	4	50	30	10	5	5
6	**Discipline Specific Elective IV (any One)** Đ Business Intelligence Lab Đ Artificial Neural Networks - Lab	2	4	50	30	10	5	5
	TOTAL	**20**	**24**	**500**	**320**	**120**	**30**	**30**

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6th Semester – Scheme of Study

Specialization – Artificial Intelligence

S.No	Name of the Subject	Credit	Contact Hours Per Week	Total Marks	End Term Theory/ Practical Exam	Mid Term Theory/ Practical Exam	CIA **	Attendance
1	* Software Engineering	4	4	100	70	20	5	5
2	**Discipline Specific Elective III (any One)** Đ Data Visualization Đ Business Intelligence	4	4	100	70	20	5	5
3	**Discipline Specific Elective IV (any One)** Đ Mobile Application Development Đ Artificial Neural Networks	4	4	100	70	20	5	5
	Practical							
4	» Project	4	4	100	50	40	5	5
5	**Discipline Specific Elective III (any One)** Đ Data Visualization Lab Đ Business Intelligence Lab	2	4	50	30	10	5	5
6	**Discipline Specific Elective IV (any One)** Đ Mobile Application Development Lab Đ Artificial Neural Networks - Lab	2	4	50	30	10	5	5
	TOTAL	**20**	**24**	**500**	**320**	**120**	**30**	**30**

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