



BAPATLA ENGINEERING COLLEGE:: BAPATLA (Autonomous)

SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

Data Sciences

First Year B.Tech (SEMESTER – I) structure as per APSHEC

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CS101/MA01	BS	Linear algebra and differential equations	3	0	0	3	30	70	100	3
20CS102/CY01	BS	Engineering Chemistry	3	0	0	3	30	70	100	3
20CS103/EL01	HS	Communicative English	3	0	0	3	30	70	100	3
20CS203/EE01	ES	Basic Electronics & Electrical Engineering	3	0	0	3	30	70	100	3
20CS104/MEL1	ES	Engineering Graphics	1	0	4	5	30	70	100	3
20CS1L1/CYL1	BS	Chemistry Lab	0	0	3	3	30	70	100	1.5
20CS1L2/ELL1	HS	English Communication skills Lab	0	0	3	3	30	70	100	1.5
20CS2L2/EEL1	ES	Basic Electronics & Electrical Engineering Lab	0	0	3	3	30	70	100	1.5
INDUCTION PROGRAM	First Three Weeks (Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Familiarization to Dept./Branch & Innovations)									
TOTAL			13	0	13	26	240	560	800	19.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

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MC: Mandatory course

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

2 Hours Practical (Lab)/week - 1 credit



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First Year B.Tech (SEMESTER – II)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CS201/MA02	BS	Numerical methods & Advanced Calculus	3	0	0	3	30	70	100	3
20CS202/PH03	BS	Semiconductor Physics	3	0	0	3	30	70	100	3
20CS204/CS01	ES	Programming for Problem Solving	3	0	0	3	30	70	100	3
20CS205/CS02	ES	Digital Logic Design	3	0	0	3	30	70	100	3
20CS206/CS03	ES	Discrete Mathematics	3	0	0	3	30	70	100	3
20MC01/CE01	MC	Environmental Studies	2	0	0	2	30	0	30	0
20CS2L1/PHL1	BS	Semiconductor Physics Lab	0	0	3	3	30	70	100	1.5
20CS2L3/CSL1	ES	Programming for Problem Solving Lab	0	0	3	3	30	70	100	1.5
20CS1L3/MEL2	ES	Workshop Practice Lab	0	0	3	3	30	70	100	1.5
NCC/NSS			0	0	3	3				0
TOTAL			17	0	12	29	270	560	830	19.5

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MC: Mandatory course



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SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

Data Sciences

Second Year B.Tech (SEMESTER – III)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
	BS	Probability & Statistics	3	0	0	3	30	70	100	3
	PC	Data Structures	3	0	0	3	30	70	100	3
	PC	Object Oriented Programming	3	0	0	3	30	70	100	3
	PC	Operating System	3	0	0	3	30	70	100	3
	PC	Computer Organization	3	0	0	3	30	70	100	3
	MC	Professional Ethics & Human Values	2	0	0	2	30	0	30	0
	PC	Data Structures Lab	0	0	3	3	30	70	100	1.5
	PC	Object Oriented Programming Lab	0	0	3	3	30	70	100	1.5
	SO	Python	2	0	3	5	30	70	100	3.5
TOTAL			19	0	9	28	270	560	830	21.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

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For

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Second Year B.Tech (SEMESTER – IV)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
	ES	Statistical Foundations of Data Sciences	3	0	0	3	30	70	100	3
	PC	Web Technologies	3	0	0	3	30	70	100	3
	PC	C# Programming	3	0	0	3	30	70	100	3
	PC	Design and Analysis of Algorithms	3	0	0	3	30	70	100	3
	HS	Technical English	3	0	0	3	30	70	100	3
	PC	Web Technologies Lab	0	0	3	3	30	70	100	1.5
	PC	C# Programming Lab	0	0	3	3	30	70	100	1.5
	SO	R Programming	2	0	3	5	30	70	100	3.5
TOTAL			17	0	9	26	240	560	800	21.5
Honors/Minor Course (Pool 1)			3	1	0	4	30	70	100	4
Grand Total			20	1	9	30	270	630	900	25.5

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Third Year B.Tech (SEMESTER – V)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
	PC	Automata Theory & Formal Languages	3	0	0	3	30	70	100	3
	PC	Computer Networks	3	0	0	3	30	70	100	3
	PC	Database Management System	3	0	0	3	30	70	100	3
	JO	Job Oriented Elective - 1	3	0	0	3	30	70	100	3
	PE	Professional Elective - 1	3	0	0	3	30	70	100	3
	MC	Essence of Indian Traditional Knowledge	2	0	0	2	30	0	30	0
	PC	RDBMS Lab	0	0	3	3	30	70	100	1.5
	JO	Job Oriented Elective Lab -1	0	0	3	3	30	70	100	1.5
	SO	Soft Skills Lab	1	0	2	3	30	70	100	2
	INT	Summer Internship	0	0	0	0	0	0	0	1.5
TOTAL			18	0	8	26	270	560	830	21.5
Honors/Minor Course (Pool 2)			3	1	0	4	30	70	100	4
Grand Total			21	1	8	30	300	630	930	25.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

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BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

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Third Year B.Tech (SEMESTER – VI)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
	PC	Compiler Design	3	0	0	3	30	70	100	3
	PC	Software Engineering	3	0	0	3	30	70	100	3
	PC	Machine Learning	3	0	0	3	30	70	100	3
	PE	Professional Elective -2	3	0	0	3	30	70	100	3
	JO	Job Oriented Elective - 2	3	0	0	3	30	70	100	3
	MC	Constitution of India	2	0	0	2	30	0	30	0
	PC	Software Engineering Lab	0	0	3	3	30	70	100	1.5
	PC	Machine Learning Lab	0	0	3	3	30	70	100	1.5
	JO	Job Oriented Elective Lab - 2	0	0	3	3	30	70	100	1.5
	SO	Quantitative Aptitude	1	0	2	3	30	70	100	2
TOTAL			18	0	11	29	300	630	930	21.5
Honors/Minor Course (Pool 3)			3	1	0	4	30	70	100	4
Grand Total			20	1	9	30	270	630	900	25.5

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SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

Data Sciences

Fourth Year B.Tech (SEMESTER – VII)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
	PE	Professional Elective - 3	3	0	0	3	30	70	100	3
	PE	Professional Elective - 4	3	0	0	3	30	70	100	3
	JO	Job Oriented Elective - 3	3	0	0	3	30	70	100	3
	JO	Job Oriented Elective - 4	3	0	0	3	30	70	100	3
	HS	Industrial Management & Entrepreneurship Development	3	0	0	3	30	70	100	3
	JO	Job Oriented Elective – 3 Lab	0	0	3	3	30	70	100	1.5
	JO	Job Oriented Elective – 4 Lab	0	0	3	3	30	70	100	1.5
	SO	Logical Reasoning	1	0	2	3	30	70	100	2
	INT	Industrial/ Research Internship	0	0	0	0	0	0	0	3
TOTAL			16	0	8	24	240	560	800	23
Honors/Minor Course (Pool 4)			3	1	0	4	30	70	100	4
Grand Total			20	1	9	30	270	630	900	27

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Data Sciences

Fourth Year B.Tech (SEMESTER – VIII)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
	PROJ	Project Work	0	0	0	0	50	100	150	12
Honors/Minor Courses (MOOCs - 1)			0	0	0	0	0	0	0	2
Honors/Minor Courses (MOOCs - 2)			0	0	0	0	0	0	0	2
Grand Total			0	0	0	0	50	100	150	16

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List of Professional Electives:-

1. Data Warehousing & Data Mining.
2. Artificial Intelligence.
3. Matrix Computation & Optimization.
4. Social Network Analysis.
5. Probabilistic Graphical Models.
6. Pattern Recognition & Computer Vision.
7. Natural Language Processing.
8. Block chain Technologies.
9. Distributed Computing.

List of Job Oriented Electives:-

1. Data Handling and Visualization
2. Feature Engineering.
3. Web Analytics
4. Big Data Analytics
5. Biomedical Image Processing
6. Artificial Neural networks & Deep Learning
7. Mobile Application Development
8. Cloud Programming
9. Internet of Things



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List of Honors Courses:-	
Pool-1:- <ol style="list-style-type: none">1. Advanced Data Structures.2. File Structures.3. Graph Theory4. Numerical Optimization.	Pool -2 :- <ol style="list-style-type: none">1. Advanced Computer Architecture.2. Real Time Operating Systems.3. Parallel Algorithms.4. Embedded Systems.
Pool-3 :- <ol style="list-style-type: none">1. Stochastic Models.2. Combinatorial Optimization.3. Intelligent Systems and Interfaces.4. Computer Vision.	Pool -4 :- <ol style="list-style-type: none">1. Advanced Statistical Algorithms2. Social Media Data Mining.3. Detection and Estimation Theory.4. Computations Systems Biology.