



BAPATLA ENGINEERING COLLEGE:: BAPATLA (Autonomous)

SCHEME OF INSTRUCTION & EXAMINATION (Semester System) For *Cyber Security*

**First Year B.Tech (SEMESTER – I) structure as per APSCHE
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	
20CB101/MA01	BS	Linear algebra and differential equations	3	0	0	3	30	70	100	3
20CB102/PH03	BS	Semiconductor Physics	3	0	0	3	30	70	100	3
20CB103/EE01	ES	Basic Electronics & Electrical Engineering	3	0	0	3	30	70	100	3
20CB104/HS01	HS	Communicative English	3	0	0	3	30	70	100	3
20CBL101/PHL02	BS	Semiconductor Physics Lab	0	0	3	3	30	70	100	1.5
20CBL102/EEL01	ES	Basic Electronics & Electrical Engineering Lab	0	0	3	3	30	70	100	1.5
20CBL103/HSL01	HS	English Communication skills Lab	0	0	3	3	30	70	100	1.5
20CB105/MC01	MC	Environmental Studies	2	0	0	2	30	0	30	0
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			14	0	09	23	240	490	730	16.5

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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For

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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	
20CB201/MA02	BS	Numerical Methods & Advanced Calculus	3	0	0	3	30	70	100	3
20CB202/CY01	BS	Engineering Chemistry	3	0	0	3	30	70	100	3
20CB203/CS01	ES	Programming for Problem Solving	3	0	0	3	30	70	100	3
20CB204	ES	Digital Logic Design	3	0	0	3	30	70	100	3
20CB205	ES	Discrete Mathematics	3	0	0	3	30	70	100	3
20CBL201/MEL01	ES	Engineering Graphics	1	0	4	5	30	70	100	3
20CBL202/CYL01	BS	Chemistry Lab	0	0	3	3	30	70	100	1.5
20CBL203/CSL01	ES	Programming for Problem Solving Lab	0	0	3	3	30	70	100	1.5
20CBL204/MEL02	ES	Workshop Practice Lab	0	0	3	3	30	70	100	1.5
TOTAL			16	0	14	30	270	630	900	22.5

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SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

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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	
20CB301/MA03	BS	Probability & Statistics	3	0	0	3	30	70	100	3
20CB302	PC	Data Structures	3	0	0	3	30	70	100	3
20CB303	PC	Object Oriented Programming	3	0	0	3	30	70	100	3
20CB304	PC	Operating System	3	0	0	3	30	70	100	3
20CB305	PC	Computer Organization	3	0	0	3	30	70	100	3
20CBL301/SO01	SO	Python	2	0	3	5	30	70	100	3.5
20CBL302	PC	Data Structures Lab	0	0	3	3	30	70	100	1.5
20CBL303	PC	Object Oriented Programming Lab	0	0	3	3	30	70	100	1.5
20CB306/MC02	MC	Professional Ethics & Human Values	2	0	0	2	30	0	30	0
NCC/NSS			0	0	3	3				0
TOTAL			19	0	9	28	270	560	830	21.5

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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	
20CB401/MA04	ES	Mathematical Foundations of Security	3	0	0	3	30	70	100	3
20CB402	PC	Web Technologies	3	0	0	3	30	70	100	3
20CB403	PC	Database Management System	3	0	0	3	30	70	100	3
20CB404	PC	Design and Analysis of Algorithms	3	0	0	3	30	70	100	3
20CBL405/ HS02	HS	Technical English	3	0	0	3	30	70	100	3
20CBL401	SO	Kali Linux Virtual Lab Setup	2	0	3	5	30	70	100	3.5
20CBL402	PC	Web Technologies Lab	0	0	3	3	30	70	100	1.5
20CBL403	PC	RDBMS Lab	0	0	3	3	30	70	100	1.5
TOTAL			17	0	9	26	240	560	800	21.5
Honors/Minor Course			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	Software Engineering	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	Software Engineering 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	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			3	1	0	4	30	70	100	4
Grand Total			21	1	8	30	300	630	930	25.5

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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	Machine Learning	3	0	0	3	30	70	100	3
	PC	Cryptography	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	Machine Learning Lab	0	0	3	3	30	70	100	1.5
	PC	Cryptography 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	Advanced Skill Oriented - 1	1	0	2	3	30	70	100	2
TOTAL			18	0	11	29	300	630	930	21.5
Honors/Minor Course			3	1	0	4	30	70	100	4
Grand Total			20	1	9	30	270	630	900	25.5

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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	Advanced Skill Oriented - 2	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			3	1	0	4	30	70	100	4
Grand Total			20	1	9	30	270	630	900	27

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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	
	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. Introduction to Cyber Laws
2. Malware Analysis & Reverse Engineering
3. Security Assessment & Risk Analysis
4. Information Theory & Audit Monitoring
5. Cyber Crime Investigation and Digital Forensics
6. Protocols for Secure Electronic Commerce
7. Block chain Technologies
8. Wireless Networks
9. Distributed Systems.

List of Job Oriented Electives:-

1. Web & Data Security
2. Ethical Hacking & Social Engineering
3. Intrusion Detection and Prevention System
4. Secure Coding
5. Bio Metric Security
6. Digital Watermarking & Steganography
7. Mobile Application Security
8. Cloud Security
9. IoT security

List of Advanced Skill Oriented Elective:-

1. Network Simulation
2. Full Stack Development
3. DevOps
4. Robotic Process Automation



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List of Subjects offered under Honors in Cyber Security

Note: - Students have to acquire 20 credits for the award of Honors in Cyber Security.

- i. 16 credits (04 courses@ 4 credits each) shall be earned through the following list of courses.
- ii. 4 credits (02 courses@ 2 credits each) must be acquired through two MOOCs from the following list of courses with a minimum duration of 8/12weeks.
- iii. Before choosing those courses, students must complete prerequisites.

1. Advanced Data Structures.
2. Advanced Computer Architecture
3. Graph Theory
4. Numerical Optimization.
5. Advanced Database Systems
6. Real Time Operating Systems.
7. Parallel Algorithms.
8. Embedded Systems.
9. Secure Computation
10. Firewall & VPN Security
11. Network Security & Cyber Laws.
12. Cyberspace Operations and Design.
13. Applied Cryptography.
14. Security Governance, Risk and compliance.
15. Perception & Computer Vision.
16. Secure Software Design & Enterprise Computing