

**ANNAMACHARYA INSTITUTE OF TECHNOLOGY AND SCIENCES, TIRUPATI  
(AUTONOMOUS)**

**B.Tech**

**(COMPUTER SCIENCE AND ENGINEERING - INTERNET OF THINGS AND CYBER SECURITY  
INCLUDING BLOCKCHAIN TECHNOLOGY)**

**(Effective for the batches admitted in 2020-2021)**

<b>INDUCTION PROGRAM (3 weeks duration)</b>	
❖	Physical activity
❖	Creative Arts
❖	Universal Human Values
❖	Literary
❖	Proficiency Modules
❖	Lectures by Eminent People
❖	Visits to local Areas
❖	Familiarization to Dept./Branch & Innovations

**Semester I (First year)**

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P				
1	BS	20ABS9901	Algebra & Calculus	3	0	0	3	30	70	100
2	BS	20ABS9904	Chemistry	3	0	0	3	30	70	100
3	ES	20AES0501	Problem Solving and Programming	3	0	0	3	30	70	100
4	ES	20AES0301	Engineering Graphics	1	0	4	3	30	70	100
5	ES	20AES0505	Information Technology and Numerical Methods	3	0	0	3	30	70	100
6	ES LAB	20AES0506	Computer Science and Engineering Workshop	0	0	3	1.5	30	70	100
7	BS LAB	20ABS9909	Chemistry Lab	0	0	3	1.5	30	70	100
8	ES LAB	20AES0503	Problem Solving and Programming Lab	0	0	3	1.5	30	70	100
<b>Total credits</b>							<b>19.5</b>	<b>240</b>	<b>560</b>	<b>800</b>

**Semester II (First year)**

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P				
1	BS	20ABS9902	Applied Physics	3	0	0	3	30	70	100
2	BS	20ABS9911	Probability and Statistics	3	0	0	3	30	70	100
3	HS	20AHS9901	Communicative English	3	0	0	3	30	70	100
4	ES	20AES0502	Data Structures	3	0	0	3	30	70	100
5	ES	20AES0507	Web Design	1	0	4	3	30	70	100
6	HS LAB	20AHS9902	Communicative English Lab	0	0	3	1.5	30	70	100
7	BS LAB	20ABS9907	Applied Physics Lab	0	0	3	1.5	30	70	100
8	ES LAB	20AES0504	Data Structures Lab	0	0	3	1.5	30	70	100
	MC	20AMC9903	Environmental Studies	2	0	0	0	30	0	30
<b>Total credits</b>							<b>19.5</b>	<b>270</b>	<b>560</b>	<b>830</b>

**Semester III (Second year)**

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P				
1	BS	20ABS9914	Discrete Mathematical Structures	3	0	0	3	30	70	100
2	PC	20APC3601	Digital Electronics and Microprocessors	3	0	0	3	30	70	100
3	PC	20APC3602	Database Management Systems	3	0	0	3	30	70	100
4	PC	20APC3604	Basics of Python Programming	3	0	0	3	30	70	100
5	ES	20AES0205	Basics of Electrical and Electronics Engineering	3	0	0	3	30	70	100
6	PC Lab	20APC3603	Database Management Systems Laboratory	0	0	3	1.5	30	70	100
7	PC Lab	20APC3605	Basics of Python Programming Lab	0	0	3	1.5	30	70	100
8	ES Lab	20AES0206	Basics of Electrical and Electronics Engineering Lab	0	0	3	1.5	30	70	100
9	SC	20ASC3601	Client Side Scripting	1	0	2	2	100	0	100
10	MC	20AMC9902	Constitution of India	2	0	0	0	30	0	30
			<b>Total credits</b>				<b>21.5</b>	<b>370</b>	<b>560</b>	<b>930</b>

**Semester IV (Second year)**

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P				
1	PC	20APC3606	Computer Organization	3	0	0	3	30	70	100
2	PC	20APC3607	Computer Networks	3	0	0	3	30	70	100
3	PC	20APC3609	Object Oriented Programming through Java	3	0	0	3	30	70	100
4	PC	20APC3611	Operating Systems	3	0	0	3	30	70	100
5	HS	20AHSMB01	Managerial Economics and Financial Analysis	3	0	0	3	30	70	100
6	HS	20AHS9905	Universal Human Values	3	1	0	3	30	70	100
7	PC Lab	20APC3608	Computer Networks Lab	0	0	3	1.5	30	70	100
8	PC Lab	20APC3610	Object Oriented Programming through Java Lab	0	0	3	1.5	30	70	100
9	PC Lab	20APC3612	Operating Systems Lab	0	0	3	1.5	30	70	100
10	SC	20ASC3602	Server Side Scripting	1	0	2	2	100	0	100
<b>Total credits</b>							<b>24.5</b>	<b>370</b>	<b>630</b>	<b>1000</b>
<p><b>Community Service Project (Mandatory) for 6 weeks duration during summer vacation.</b>                      (To visit the selected community to conduct survey (Socio-economic &amp; domain survey) and conduct sensitization/awareness program/activities at the end of IV- semester before commencement of V-semester and complete immersion programme also during V-Semester and submit report in V - semester. Assessment will be done at the end of V-Semester)</p>										
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Semester V (Third year)**

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P				
1	PC	20APC3613	Cryptography and Network Security	3	0	0	3	30	70	100
2	PC	20APC3615	Embedded Systems and Internet of Things	3	0	0	3	30	70	100
3	PC	20APC3617	Fundamentals of Blockchain Technology	3	0	0	3	30	70	100
4	OE-1	20AOE9926	Mathematical Modeling and Simulation	3	0	0	3	30	70	100
		20AOE0303	Optimization Techniques							
		20APC0213	Control Systems							
5	PE-1	20APE3601	Software Engineering	3	0	0	3	30	70	100
		20APE3602	Distributed Database							
		20APE3603	Automata Theory and Compiler Design							
6	PC Lab	20APC3614	Cryptography and Network Security Lab	0	0	3	1.5	30	70	100
7	PC Lab	20APC3616	Embedded Systems and Internet of Things Lab	0	0	3	1.5	30	70	100
8	SC	20ASA0502	Soft Skills	1	0	2	2	100	0	100
9	MC	20AMC9901	Biology for Engineers	2	0	0	0	30	0	30
10	CSP	20CSP3601	Evaluation of Community Service Project	0	0	0	1.5	100	0	100
<b>Total credits</b>							<b>21.5</b>	<b>440</b>	<b>490</b>	<b>930</b>
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>				4	0	0	4	0	0	0

**Semester VI (Third year)**

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P				
1	PC	20APC3618	Cyber Security	3	1	0	3	30	70	100
2	PC	20APC3620	Advanced IoT Programming	3	0	0	3	30	70	100
3	PC	20APC3622	Building Private Block chain	3	0	0	3	30	70	100
4	PE2	20APE3604 20APE3605 20APE3606	Mobile Application Development Real time Operating System Design and Analysis of Algorithms	3	0	0	3	30	70	100
5	OE-2/ JOE (MOOCS-1)		Introduction to robotics Design, Technology and Innovation Introduction to Smart Grid Introduction to Wireless and Cellular Communications Stochastic control and communication Real-Time Digital Signal Processing VLSI Interconnects Developing Soft Skills and Personality Body language: Key to professional Success Psychology of Everyday Educational Leadership Entrepreneurship And IP Strategy Globalization And Culture Consumer Psychology Public Speaking Project Management Training Of Trainers Decision-Making Under Uncertainty Game Theory Organizational Behavior Customer Relationship Management Decision Support System For Managers Stress Management	-	-	-	3	-	-	100
6	PC Lab	20APC3619	Cyber Security Lab	0	0	3	1.5	30	70	100
7	PC Lab	20APC3621	Advanced IoT Programming Lab	0	0	3	1.5	30	70	100
8	PC Lab	20APC3623	Building Private Block chain Lab	0	0	3	1.5	30	70	100

9	SC	20ASA0501	Basics of Cloud Computing	1	0	2	2	100	0	100
10	MC	20AMC9904	Professional Ethics and Human Values	2	0	0	0	30	0	30
<b>Total credits</b>							<b>21.5</b>	<b>370</b>	<b>560</b>	<b>930</b>
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>				<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Industrial/Research Internship (Mandatory) 2 Months during summer vacation</b>										

ARTS TPT - CIC

**Semester VII  
(Fourth year)**

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P				
1	PE-3	20APE3607 20APE3608 20APE3609	Smart Sensor Technology for IoT Cognitive IoT Big Data Analytics for IoT	3	0	0	3	30	70	100
2	PE-4	20APE3610 20APE3611 20APE3612	Cyber Security Risk Management and Mitigation Cloud Security Offensive, Defensive Cyber Security Techniques	3	0	0	3	30	70	100
3	PE-5 (MOOCS – 2)	20APE3613 20APE3614 20APE3615	Artificial Intelligence Machine Learning Deep Learning	-	-	-	3	-	-	100
4	OE-3 – JOE	20AOE3604 20AOE3605 20AOE3606	Blockchain Technologies and Use Cases Crypto currencies Fundamentals Bit Coin Technology	2	0	2	3	30	70	100
5	OE-4 JOE	20AOE3607 20AOE3608 20AOE3609	Programming for the Internet of Things Project Cyber security and its 10 domains Blockchain Applications and Limitation	2	0	2	3	30	70	100
6	HE		Management Science Deterministic Stochastic and Statistical Method Entrepreneurship Development	3	0	0	3	30	70	100
7	SC	20ASC3601	Industrial and Medical IOT	1	0	2	2	100	0	100
8	PR	20APR3602	Evaluation of Industry Internship(III-II Summer Internship)	0	0	0	3	100	0	100
Total credits							<b>23</b>	<b>350</b>	<b>350</b>	<b>800</b>
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4	0	0	4	0	0	0

**Semester VIII  
(Fourth Year)**

Sl.	Category	Course Code	Course Title	Hours per week			Credits	CIE	SEE	TOTAL
				L	T	P				
1	PR	20APR0503	Project Project work, seminar and internship in industry	0	0	0	12	60	140	200
<b>Total credits</b>							<b>12</b>	<b>60</b>	<b>140</b>	<b>200</b>

**HONOURS IN COMPUTER SCIENCE AND ENGINEERING - CIC**

S.NO	SUB.CODE	COURSE NAME	CREDITS
1	20AHN3601	HUMAN COMPUTERS INTERACTION	3
2	20AHN3602	SOCIAL NETWORKS	3
3	20AHN3603	NO SQL DATABASES	3
4	20AHN3604	ADVANCED IOT APPLICATIONS	3
5	20AHN3605	INDUSTRY 4.0 AND INDUSTRIALIZATION	3
6	20AHN3606	COMPETITIVE PROGRAMMING-1/International Collegiate Programming Contest(ICPC) Laboratory-1	2.5
7	20AHN3607	COMPETITIVE PROGRAMMING-2/International Collegiate Programming Contest(ICPC) Laboratory-2	2.5
<b>TOTAL</b>			<b>20</b>

**MINOR DEGREE IN CIC FOR ECE, EEE, CE & ME**

S.NO	SUB.CODE	COURSE NAME	CREDITS
1	20AMN3601	OPERATING SYSTEMS	3
2	20AMN3602	COMPUTER ORGANIZATION	3
3	20AMN0503	COMPUTER NETWORKS	3
4	20AMN3604	CYBER SECURITY	3
5	20AMN3605	INTERNET OF THINGS	3
6	20AMN3606	MINOR DISCIPLINE PROJECT	5
<b>TOTAL</b>			<b>20</b>