

**MANAV RACHNA UNIVERSITY**  
**DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY**

**B.TECH COMPUTER SCIENCE ENGINEERING WITH SPECIALIZATION IN CYBER SECURITY & THREAT INTELLIGENCE (CSU04)**

3 Weeks Induction Programme (Mandatory)												
SEMESTER - 1												
SUBJECT CODES	SUBJECT NAME	PRE-REQUISITE	OVERLAPPING/EQUIVALENT COURSES	**OFFERING DEPARTMENT	*COURSE NATURE (Hard/Soft/Workshop/NTCC/Audit/Outcome)	COURSE TYPE (Core/Elective)	L	T	P	O	NO. OF CONTACT HOURS PER WEEK	NO. OF CREDITS
CHH144-T	CHEMISTRY-I						3	1	0	0	4	5
CHH144-P	CHEMISTRY-I LAB	NIL	NA	CH	HARD	CORE	0	0	2	0	2	
ECH103B-T	BASICS OF ELECTRICAL & ELECTRONICS						3	1	0	0	4	5
ECH103B-P	BASICS OF ELECTRICAL & ELECTRONICS LAB	NIL	NA	EC	HARD	CORE	0	0	2	0	2	
CSH101B-T	PROGRAMMING FOR PROBLEM SOLVING USING C						3	1	0	0	4	5
CSH101B-P	LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	
CSH109B-T	INTRODUCTION TO INFORMATION SECURITY						3	0	0	0	3	4
CSH109B-P	INTRODUCTION TO INFORMATION SECURITY LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	
MEW102B	ENGINEERING GRAPHICS & DRAWING						0	0	3	0	3	1.5
CDS101B	PROFESSIONAL COMMUNICATION-I						0	0	1	0	1	0.5
<b>TOTAL (L-T-P-O/CONTACT HOURS/CREDITS)</b>							<b>12</b>	<b>3</b>	<b>12</b>	<b>0</b>	<b>27</b>	<b>21</b>
SEMESTER - 2												
CODES	SUBJECT NAME	REQUISITE	G/EQUIVALE	DEPARTMEN	NATURE	TYPE	L	T	P	O	CONTACT	CREDITS
PHH101B -T	QUANTAM MECHANICS FOR ENGINEER						3	1	0	0	4	5
PHH101B -P	QUANTAM MECHANICS FOR ENGINEER LAB	NIL	NA	PH	HARD	CORE	0	0	2	0	2	
CSH110B	INTRODUCTION TO STANDARDS, FRAMEWORKS AND KEY TECHNOLOGY CONCEPTS						5	0	0	0	5	5
HLS104B/HLS103	PROFESSIONAL ENGLISH BASIC/ ADVANCE						2	0	2	0	4	3
CSW208B	PYTHON						0	0	3	0	3	1.5
CSW102B	USER INTERFACE-I (HTML5,CSS,JAVASCRIPT,JQUERY)						0	0	3	0	3	1.5
MAH101B-T	CALCULUS & LINEAR ALGEBRA						3	1	0	0	4	5
MAH101B-P	CALCULUS & LINEAR ALGEBRA LAB	NIL	NA	MA	HARD	CORE	0	0	2	0	2	
CHH137	ENVIRONMENTAL STUDIES						2	0	0	2	2	0
CDS102B	PROFESSIONAL COMMUNICATION-II						0	0	1	0	1	0.5
<b>TOTAL (L-T-P-O/CONTACT HOURS/CREDITS)</b>							<b>15</b>	<b>2</b>	<b>12</b>	<b>2</b>	<b>29</b>	<b>21.5</b>
CSO104B	Post 2nd Sem Summer Training (Mandatory) (Project Management)											2
SEMESTER - 3												
CODES	SUBJECT NAME	REQUISITE	G/EQUIVALE	DEPARTMEN	NATURE	TYPE	L	T	P	O	CONTACT	CREDITS
MAH202B-T	PROBABILITY & STATISTICS						3	1	0	0	4	5
MAH202B-P	PROBABILITY & STATISTICS LAB	NIL	NA	MA	HARD	CORE	0	0	2	0	2	
CSH103B-T	DATA STRUCTURES & ALGORITHMS						3	1	0	0	4	5
CSH103B-P	DATA STRUCTURES & ALGORITHMS LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	
CSH202B-T	DATABASE MANAGEMENT SYSTEM						3	1	0	0	4	5
CSH202B-P	DATABASE MANAGEMENT SYSTEM LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	
CSH213B-T	SECURE CODING IN C/C++						1	1	0	0	2	3.5
CSH213B-P	SECURE CODING IN C/C++ LAB	NIL	NA	CS	HARD	CORE	0	0	3	0	3	
/EDS290	SOCIOLOGY											2
MOOC	NPTEL COURSES FROM MOOC				SOFT	ELECTIVE	1	0	2	0	3	
FLS103	FRENCH-I)						1	1	0	0	2	0
MOOC	NPTEL COURSES FROM MOOC				SOFT	ELECTIVE						
CDO201	PROFESSIONAL COMPETANCY ENHANCEMENT-I						0	0	1	0	1	0.5
RDO501	INTRODUCTION TO RESEARCH						0	0	0	1	1	0.5
<b>TOTAL (L-T-P-O/CONTACT HOURS/CREDITS)</b>							<b>12</b>	<b>5</b>	<b>12</b>	<b>1</b>	<b>30</b>	<b>21.5</b>
SEMESTER - 4												
CODES	SUBJECT NAME	REQUISITE	G/EQUIVALE	DEPARTMEN	NATURE	TYPE	L	T	P	O	CONTACT	IO. OF CREDIT
CSH205B-T	COMPUTER NETWORKS						3	1	0	0	4	

CSH205B-P	COMPUTER NETWORKS LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	5
CSH206B-T	OPERATING SYSTEMS						3	1	0	0	4	
CSH206B-P	OPERATING SYSTEMS LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	5
CSH201B-T	OOPS USING JAVA						3	1	0	0	4	
CSH201B-P	OOPS USING JAVA LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	5
CSH214B-T	DIGITAL FORENSICS						2	0	0	0	2	
CSH214B-P	DIGITAL FORENSICS LAB	NIL	NA	CS	HARD	CORE	0	0	3	0	3	3.5
CSW203B	USER INTERFACE-II (MONGODB, TYPESCRIPT, ANGULAR JS)	USER	NA	CS	WORKSHOP	CORE	0	0	3	0	3	1.5
FLS107	FOREIGN LANGUAGE	NIL	NA	FL					0	0	1	0
MOOC	NPTEL COURSES FROM MOOC				AUDIT	ELECTIVE	1	0				
LWS324	INDIAN CONSTITUTION	NIL	NA	LW	AUDIT	CORE	1	0	0	0	1	0
EDS240	ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE	NIL	NA	ED	AUDIT	CORE	1	0	0	0	1	0
MCS368B	ENTREPRENEURSHIP	NIL	NA	MC			1	0	2	0	3	
MOOC	NPTEL COURSES FROM MOOC				SOFT	ELECTIVE						2
CDO202	PROFESSIONAL COMPETANCY ENHANCEMENT-II	NIL	NA	CDC	OUTCOME	CORE	0	0	1	0	1	0.5
RDO502	RESEARCH & INNOVATION-1	NIL	NA	RESEARCH	OUTCOME	CORE	0	0	0	1	1	0.5
<b>TOTAL (L-T-P-O/CONTACT HOURS/CREDITS)</b>							<b>15</b>	<b>3</b>	<b>15</b>	<b>1</b>	<b>34</b>	<b>23</b>
CSO215B	SUMMER TRAINING POST 4TH SEMESTER											2
<b>SEMESTER - 5</b>												
<b>CODES</b>	<b>SUBJECT NAME</b>	<b>REQUISITE</b>	<b>G/EQUIVALE</b>	<b>DEPARTMEN</b>	<b>NATURE</b>	<b>TYPE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>O</b>	<b>CONTACT</b>	<b>IO. OF CREDIT</b>
CSH329B-T	NETWORK SECURITY						2	0	0	0	2	
CSH329B-P	NETWORK SECURITY LAB	NIL	NA	CS	HARD	CORE	0	0	3	0	3	3.5
CSH311B-T	THEORY OF AUTOMATA & COMPILER DESIGN						3	1	0	0	4	
CSH311B-P	THEORY OF AUTOMATA & COMPILER DESIGN LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	5
ECH308B-T	DIGITAL ELECTRONICS & MICROCONTROLLER						3	1	0	0	4	
ECH308B-P	DIGITAL ELECTRONICS & MICROCONTROLLER Lab	NIL	NA	EC	HARD	CORE	0	0	2	0	2	5
CSW308B	ADVANCED JAVA	OOPS using JAV	NA	CS	WORKSHOP	CORE	0	0	3	0	3	1.5
CHS234/ECS306B/C	ENVIRONMENTAL ETHICS & SUSTAINABLE DEVELOPMENT/											
SS325B- T&P	E-WASTE MANAGEMENT/ GREEN COMPUTING	NIL	NA	CH/EC	SOFT	ELECTIVE	1	0	2	0	3	2
LWS323/LWS325	LAW RELATING TO INTELLECTUAL PROPERTY RIGHTS	NIL	NA	LW			2	0	0	0	2	2
MOOC	NPTEL COURSES FROM MOOC				SOFT	ELECTIVE						
CDO301	PROFESSIONAL COMPETANCY ENHANCEMENT-III	NIL	NA	CDC	OUTCOME	CORE	0	0	1	0	1	0.5
RDO601	RESEARCH & INNOVATION-II	NIL	NA	RESEARCH	OUTCOME	CORE	0	0	0	1	1	0.5
<b>TOTAL (L-T-P-O/CONTACT HOURS/CREDITS)</b>							<b>11</b>	<b>2</b>	<b>13</b>	<b>0</b>	<b>26</b>	<b>20</b>
<b>SEMESTER - 6</b>												
<b>CODES</b>	<b>SUBJECT NAME</b>	<b>REQUISITE</b>	<b>G/EQUIVALE</b>	<b>DEPARTMEN</b>	<b>NATURE</b>	<b>TYPE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>O</b>	<b>CONTACT</b>	<b>IO. OF CREDIT</b>
CSH330B-T	TESTING						1	1	0	0	2	
CSH330B-P	TESTING LAB	NIL	NA	CS	HARD	CORE	0	0	3	0	3	3.5
CSH207B-T	SOFTWARE ENGG.						3	1	0	0	4	
CSH207B-P	SOFTWARE ENGG. LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	5
CSH404B-T	CLOUD COMPUTING						3	1	0	0	4	
CSH404B-P	CLOUD COMPUTING LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	5
CSH303B-T	MOBILE COMPUTING WITH ANDROID	OOPS USING JAVA										
CSH303B-P	MOBILE COMPUTING WITH ANDROID LAB											
CSH313B-T	DATA WAREHOUSE & DATA MINING											
CSH313B-P	DATA WAREHOUSE & DATA MINING LAB	NIL		CS			3	0	2	0	5	4
CSH314B-T	MACHINE LEARNING											
CSH314B-P	MACHINE LEARNING LAB	NIL	NA		HARD	ELECTIVE						
CSH306B-T	SYSTEM NETWORK & ADMINISTRATION											
CSH306B-P	SYSTEM NETWORK & ADMINISTRATION LAB	NIL										
MOOC	NPTEL COURSES FROM MOOC											
CSW407B	USER EXPERIENCE	NIL	NA	CS	WORKSHOP	CORE	0	0	3	0	3	1.5
ECW312B/MEW315	ELECTRONIC DESIGN WORKSHOP/ 3-D SOFTWARE/											
B/CSW317B	AGILE TECHNOLOGIES	NIL	NA	EC/ME/CS			0	0	3	0	3	1.5
MOOC	NPTEL COURSES FROM MOOC				WORKSHOP	ELECTIVE						

ECW310B/MEW318B/CSW318B	SENSORS & IOT/ 3 D PRINTING/ R PROGRAMMING	NIL	NA	EC/ME/CS			0	0	3	0	3	1.5
MOOC	NPTEL COURSES FROM MOOC				WORKSHOP	ELECTIVE						
CDO302	PROFESSIONAL COMPETANCY ENHANCEMENT-IV	NIL	NA	CDC	OUTCOME	CORE	0	0	1	0	1	0.5
<b>TOTAL (L-T-P-O/CONTACT HOURS/CREDITS)</b>							<b>10</b>	<b>3</b>	<b>19</b>	<b>0</b>	<b>32</b>	<b>22.5</b>
<b>CSO320B</b>												<b>3</b>
<b>SUMMER TRAINING POST 6TH SEMESTER</b>												
<b>SEMESTER - 7</b>												
<b>CODES</b>	<b>SUBJECT NAME</b>	<b>REQUISITE</b>	<b>G/EQUIVALE</b>	<b>DEPARTMEN</b>	<b>NATURE</b>	<b>TYPE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>O</b>	<b>CONTACT</b>	<b>IO. OF CREDIT</b>
CSH420B-T	SECURE SOFTWARE DEVELOPMENT AND MALWARE ANALYSIS AND REVERSE						1	1	0	0	2	
CSH420B-P	SECURE SOFTWARE DEVELOPMENT AND MALWARE ANALYSIS AND REVERSE ENGINEERING (PART-1) LAB	NIL	NA	CS	HARD	CORE	0	0	3	0	3	3.5
CSH415B-T	INTERNET OF THINGS						3	1	0	0	4	
CSH415B-P	INTERNET OF THINGS LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	5
CSH205B-T	ARTIFICIAL INTELLIGENCE						3	1	0	0	4	
CSH205B-P	ARTIFICIAL INTELLIGENCE LAB	NIL	NA	CS	HARD	CORE	0	0	2	0	2	5
CSH312B-T	ADVANCED ANDROID DEVELOPMENT											
CSH312B-P	ADVANCED ANDROID DEVELOPMENT LAB											
CSH315B-T	N/W SECURITY & CRYPTOGRAPHY											
CSH315B-P	N/W SECURITY & CRYPTOGRAPHY LAB											
CSH405B-T	SOFTWARE TESTING						3	0	2	0	5	4
CSH405B-P	SOFTWARE TESTING LAB											
CSH402B-T	BIG DATA											
CSH402B-P	BIG DATA LAB	NIL										
MOOC	NPTEL COURSES FROM MOOC											
CSW406B	.NET	NIL	NA	CS	WORKSHOP	ELECTIVE	0	0	3	0	3	1.5
MOOC	NPTEL COURSES FROM MOOC											
EDH422	BIOLOGY	NIL	NA	ED	SOFT	CORE	2	0	0	0	2	2
ECH403B-T&P/ MEH403B-T&P/ CSH414B-T&P	WIRELESS SENSOR NETWORK/ OPERATION RESEARCH BY OPTIMISING TECHNIQUE/ INFORMATION RETRIEVAL	NIL	NA	EC/ME/CS	HARD	ELECTIVE	3	1	2	0	6	5
MOOC	NPTEL COURSES FROM MOOC											
<b>TOTAL (L-T-P-O/CONTACT HOURS/CREDITS)</b>							<b>15</b>	<b>4</b>	<b>14</b>	<b>0</b>	<b>33</b>	<b>26</b>
<b>SEMESTER - 8</b>												
<b>CODES</b>	<b>SUBJECT NAME</b>	<b>REQUISITE</b>	<b>G/EQUIVALE</b>	<b>DEPARTMEN</b>	<b>NATURE</b>	<b>TYPE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>O</b>	<b>CONTACT</b>	<b>IO. OF CREDIT</b>
MCS232/MCS231/P SE301-P/MCH370	INTRODUCTION TO TRADE BASICS OF ECONOMICS/ESSENTIAL OF PEACE & SUSTAINABILITY/ DIGITAL MARKETING/E-COMMERCE/ENTREPRENEURIAL	NIL	NA	MC	SOFT	ELECTIVE	1	0	2	0	3	2
CSH413B	PROJECT	NIL	NA	CS	NTCC	CORE	320 TO 360 HOURS					8
CSH421B-T	SECURE SOFTWARE DEVELOPMENT AND MALWARE ANALYSIS AND REVERSE						1	1	0	0	2	
CSH421B-P	SECURE SOFTWARE DEVELOPMENT AND MALWARE ANALYSIS AND REVERSE	NIL	NA	CS	HARD	CORE	0	0	3	0	3	3.5
CSH408B-T	MOBILE APP. ANALYTICS											
CSH408B-P	MOBILE APP. ANALYTICS LAB	NIL										
CSH419B-T	INFORMATION THEORY AND CODING											
CSH419B-P	INFORMATION THEORY AND CODING LAB	NIL	NA	CS	HARD	ELECTIVE	3	0	2	0	5	4
CSH307B-T	SOFTWARE PROJECT MANAGEMENT											
CSH307B-P	SOFTWARE PROJECT MANAGEMENT LAB											
CSH411B-T	CLOUD SECURITY											
CSH411B-P	CLOUD SECURITY LAB											
MOOC	NPTEL COURSES FROM MOOC											
<b>TOTAL (L-T-P-O/CONTACT HOURS/CREDITS)</b>							<b>5</b>	<b>1</b>	<b>7</b>	<b>0</b>	<b>13</b>	<b>17.5</b>

**180**

Minimum Credit required for award of B.Tech CSE degree is 180.

				Hard course (H): A course having L-T and P and/or O component ; L(Lecture), T(Tutorial), P(Practical) and O(Outcome)
				Soft Course (S): A course aimed at development of a person's emotional, social, ethical, professional and creative potentials. The
				Workshop course(W): A completely 'hands on' course conducted in laboratory, aimed at developing application/ implementation/

*COURSE NATURE		Audit Course (A): Are University compulsory courses for which no credit is assigned but are mandatory to earn the degree					
		Non Teaching Credit Course(N): The course involves no teaching and has P and O component. Shall include projects, seminars,					
		**OFFERING DEPARTMENT NAMES					
	EC						<p style="text-align: center;">A course shall be assigned credits as under:</p> <p style="text-align: center;">One credit for each lecture hour; One credit for each tutorial hour ; One credit for each Outcome hour; Half credits for each hour of workshop/ laboratory/practical/project session of 3 hours; Half credit for each hour of laboratory or practical or project session of 2 hours</p> <p style="text-align: center;"><b>NOTE: FOR ENGG PROGRAMS AS PER AICTE REGULATIONS - For all workshop/lab courses one credit shall be assigned to a 2 hours engagement.</b></p>
	PH						
	CS						
	CH						
	MA						
	ME						
	MC						
	ED						
	LW						
	MRCFL						
*** Electives are subject to change according to expertise available/ required.							

SEMESTER	NO. OF CREDITS
I	21
II	21.5
POST II SUMMER TRAINING	2
III	21.5
IV	23
POST IV SEM SUMMER TRAINING	2
V	20
VI	22.5
POST VI SEM SUMMER TRAINING	3
VII	26
VIII	17.5
TOTAL	180