



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA**  
**KAKINADA – 533 003, Andhra Pradesh, India**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE STRUCTURE M.Tech CSE for  
COMPUTER NETWORKS Programme**

*(Applicable for batches admitted from 2019-2020)*



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY**

**KAKINADA**

## I-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCN1101	<b>Program Core-1</b> Transport Control Protocol/Internet Protocol (TCP/IP)	PC	3	0	0	3
2	MTCN1102	<b>Program Core-2</b> Advanced Data Structures	PC	3	0	0	3
3	MTCN1103	<b>Program Elective-1</b> 1. Software Define Networks 2. Network Coding Theory 3. Adhoc & Sensor Networks	PE	3	0	0	3
4	MTCN1104	<b>Program Elective-2</b> 1. Distributed Systems 2. Grid and Cluster Computing 3. Wireless Networks	PE	3	0	0	3
5	MTCN1105	<b>Research Methodology and IPR</b>	CC	2	0	0	2
6	MTCN1106	<b>Laboratory-1</b> Transport Control Protocol/Internet Protocol (TCP/IP) Lab	LB	0	0	4	2
7	MTCN1107	<b>Laboratory-2</b> Advanced Data Structures Lab	LB	0	0	4	2
8	MTCN1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

## II- SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCN1201	<b>Program Core-3</b> Network Security	PC	3	0	0	3
2	MTCN1202	<b>Program Core-4</b> Wireless Sensor Networks	PC	3	0	0	3
3	MTCN1203	<b>Program Elective-3</b> 1. Web Security 2. Internet of Things 3. Intrusion Detection & Prevention Systems	PE	3	0	0	3
4	MTCN1204	<b>Program Elective-4</b> 1. Firewall & VPN Security 2. Machine Learning 3. Service Oriented Architecture	PE	3	0	0	3
5	MTCN1205	<b>Laboratory-3</b> Network Security Lab	LB	0	0	4	2
6	MTCN1206	<b>Laboratory-4</b> Advanced Network Programming Lab	LB	0	0	4	2
7	MTCN1207	<b>Mini Project with Seminar</b>	MP	0	0	0	2
8	MTCN1208	<b>Audit Course-2</b>	AC	2	0	0	0
<b>Total Credits</b>							18

- (1)

\*Student has to choose any one audit course listed below.

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III-SEMESTER**

S. No	Course Code	Courses	Category	L	T	P	C
1	MTCN2101	<b>Program Elective-5</b> 1. Trustworthy Computing 2. Advanced Storage Area Networks 3. Cloud Computing 4. MOOCs-1 (NPTEL/SWAYAM)-12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTCN2102	<b>Open Elective</b> 1. MOOCs-2 (NPTEL/SWAYAM)-Any 12 Week Course on Engineering /Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3	MTCN2103	<b>Dissertation-I/Industrial Project #</b>		0	0	20	10
<b>Total Credits</b>							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

**IV-SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCN2201	<b>Dissertation-II</b>		0	0	32	16
<b>Total Credits</b>							16

**Open Electives offered by the Department of CSE for other Departments Students**

01. Python Programming
02. Principles of Cyber Security
03. Internet of Things
04. Artificial Intelligence and Machine Learning

  
 Director (i/c)  
 Academic Planning  
 JNTUK Kakinada



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**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE STRUCTURE M.Tech CSE for**  
**COMPUTER NETWORKS & INFORMATION SECURITY Programme**  
*(Applicable for batches admitted from 2019-2020)*



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**

I - SEMESTER

S. No	Course Code	Courses	Category	L	T	P	C
1	MTCNIS1101	<b>Program Core-1</b> Transport Control Protocol/Internet Protocol (TCP/IP)	PC	3	0	0	3
2	MTCNIS1102	<b>Program Core-2</b> Advanced Data Structures	PC	3	0	0	3
3	MTCNIS1103	<b>Program Elective-1</b> 1. Advanced Computer Networks 2. Distributed Systems 3. Intrusion Detection & Prevention Systems	PE	3	0	0	3
4	MTCNIS1104	<b>Program Elective-2</b> 1. Data Storage Technologies and Networks 2. Wireless Sensor Networks 3. Network Programming	PE	3	0	0	3
5	MTCNIS1105	<b>Research Methodology and IPR</b>	CC	2	0	0	2
6	MTCNIS1106	<b>Laboratory-1</b> Transport Control Protocol/Internet Protocol (TCP/IP) Lab	LB	0	0	4	2
7	MTCNIS1107	<b>Laboratory-2</b> Advanced Data Structures Lab	LB	0	0	4	2
8	MTCNIS1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

II -SEMESTER

S. No	Course Code	Courses	Category	L	T	P	C
1	MTCNIS1201	<b>Program Core-3</b> Principles of Cyber Security	PC	3	0	0	3
2	MTCNIS1202	<b>Program Core-4</b> Cyber Crime Investigation & Digital Forensics	PC	3	0	0	3
3	MTCNIS1203	<b>Program Elective-3</b> 1. Wireless and Mobile Security 2. Android Security Design and Internals 3. Firewall and VPN Security 4. Information Theory & Coding	PE	3	0	0	3
4	MTCNIS1204	<b>Program Elective-4</b> 1. Vulnerability Assessment & Penetration Testing 2. Cloud & IoT Security 3. Applied Cryptography 4. Secure Coding	PE	3	0	0	3
5	MTCNIS1205	<b>Laboratory-3</b> Cyber Security Lab	LB	0	0	4	2
6	MTCNIS1206	<b>Laboratory-4</b> Cyber Crime Investigation & Digital Forensics Lab	LB	0	0	4	2
7	MTCNIS1207	<b>Mini Project with Seminar</b>	MP	0	0	0	2
8	MTCNIS1208	<b>Audit Course-2*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III -SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCNIS2101	<b>Program Elective-5</b> 1. Cloud Architectures and Security 2. Information Security Management and Standards 3. Cyber Laws and Security Policies 4. MOOCs-1 (NPTEL/SWAYAM)-12 Week Program related to the programme which is not listed in the course structure		3	0	0	3
2	MTCNIS2102	<b>Open Elective</b> 1. MOOCs-2 (NPTEL/SWAYAM)-Any 12 Week Course on Engineering /Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college		3	0	0	3
3	MTCNIS2103	<b>Dissertation-I/Industrial Project#</b>		0	0	20	10
<b>Total Credits</b>							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

**IV -SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCNIS2201	<b>Dissertation-II</b>		0	0	32	16
<b>Total Credits</b>							16

**Open Electives offered by the Department of CSE for other Departments Students**

1. Python Programming
2. Principles of Cyber Security
3. Internet of Things
4. Artificial Intelligence and Machine Learning

**Director (i/c)  
Academic Planning  
JNTUK Kakinada**



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**COURSE STRUCTURE M.Tech CSE for**  
**COMPUTER SCIENCE & TECHNOLOGY PROGRAMME**  
*(Applicable for batches admitted from 2019-2020)*



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**

### I SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCST1101	<b>Program Core-1</b> Mathematical Foundations of Computer Science	PC	3	0	0	3
2	MTCST1102	<b>Program Core-2</b> Advanced Data Structures	PC	3	0	0	3
3	MTCST1103	<b>Program Elective-1</b> 1. Artificial Intelligence 2. Cloud Computing 3. Digital Image Processing 4. Advanced Operating System 5. Optimization Techniques	PE	3	0	0	3
4	MTCST1104	<b>Program Elective-2</b> 1. Big Data Analytics 2. Applied Cryptography 3. Advanced Computer Networks 4. Embedded Computing 5. Parallel Computer Architecture	PE	3	0	0	3
5	MTCST1105	<b>Research Methodology and IPR</b>	CC			0	2
6	MTCST1106	<b>Laboratory-1</b> Advanced Data Structures Lab	LB	0	0	4	2
7	MTCST1107	<b>Laboratory-2</b> Computing Lab	LB	0	0	4	2
8	MTCST1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

### II SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCST1201	<b>Program Core-3</b> Advanced Algorithms	PC	3	0	0	3
2	MTCST1202	<b>Program Core-4</b> Machine Learning	PC	3	0	0	3
3	MTCST1203	<b>Program Elective-3</b> 1. Soft Computing 2. Advanced Network Principles and Protocols 3. Internet of Things 4. Open Source Programming 5. Pattern Recognition	PE	3	0	0	3
4	MTCST1204	<b>Program Elective-4</b> 1. Natural Language Processing 2. Full Stack Technologies 3. Parallel Algorithms 4. Object Oriented Software Engineering 5. Distributed Database	PE	3	0	0	3
5	MTCST1205	<b>Laboratory-3</b> Advance Algorithms Lab	LB	0	0	4	2
6	MTCST1206	<b>Laboratory-4</b> Machine Learning Lab	LB	0	0	4	2
7	MTCST1207	<b>Mini Project with Seminar</b>	MP	2	0	0	2
8	MTCST1208	<b>Audit Course-2 *</b>	AC	2	0	0	0
<b>Total Credits</b>							18



\*Student has to choose any one audit course listed below.

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III-SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCST2101	<b>Program Elective-5</b> 1. Deep Learning 2. Ethical Hacking 3. MOOCs-1 through NPTEL/SWAYAM- 12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTCST2102	<b>Open Elective</b> 1. MOOCs-2 through NPTEL/SWAYAM- any 12 week course on Engineering/ Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3	MTCST2103	<b>Dissertation-I/Industrial Project #</b>	PJ	0	0	20	10
<b>Total Credits</b>							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

**IV SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCST2201	<b>Dissertation-II</b>	PJ	0	0	32	16
<b>Total Credits</b>							16

Open Electives offered to other departments:

- |                            |                             |
|----------------------------|-----------------------------|
| 1. Python Programming      | 2. Web Technologies         |
| 3. Artificial Intelligence | 4. Internet of Things       |
| 5. Machine Learning        | 6. Advanced Data Structures |



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**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**

## I-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C	
1	MTCSE1101	<b>Program Core-1</b> Mathematical Foundations of Computer Science	PC	3	0	0	3	
2	MTCSE1102	<b>Program Core-2</b> Advanced Data Structures & Algorithms	PC	3	0	0	3	
3	MTCSE1103	<b>Program Elective-1</b> 1. Big Data Analytics 2. Digital Image Processing 3. Advanced Operating Systems	PE	3	0	0	3	
4	MTCSE1104	<b>Program Elective-2</b> 1. Advanced Computer Networks 2. Internet of Things 3. Object Oriented Software Engineering	PE	3	0	0	3	
5	MTCSE1105	<b>Research Methodology and IPR</b>	CC			0	2	
6	MTCSE1106	<b>Laboratory-1</b> Advanced Data Structures & Algorithms Lab	LB	0	0	4	2	
7	MTCSE1107	<b>Laboratory-2</b> Advanced Computing Lab	LB	0	0	4	2	
8	MTCSE1108	<b>Audit Course-1*</b>	AC	2	0	0	0	
<b>Total Credits</b>								18

**\*Student has to choose any one audit course listed below.**

## II SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C	
1	MTCSE1201	<b>Program Core-3</b> Machine learning	PC	3	0	0	3	
2	MTCSE1202	<b>Program Core-4</b> MEAN Stack Technologies	PC	3	0	0	3	
3	MTCSE1203	<b>Program Elective-3</b> 1. Advanced Databases and Mining 2. Ad Hoc & Sensor Networks 3. Soft Computing	PE	3	0	0	3	
4	MTCSE1204	<b>Program Elective-4</b> 1. Cloud Computing 2. Principles of computer security 3. High Performance Computing	PE	3	0	0	3	
5	MTCSE1205	<b>Laboratory-3</b> Machine Learning with python lab	LB	0	0	4	2	
6	MTCSE1206	<b>Laboratory-4</b> MEAN Stack Technologies Lab	LB	0	0	4	2	
7	MTCSE1207	<b>Mini Project with Seminar</b>	MP	2	0	0	2	
8	MTCSE1208	<b>Audit Course-2 *</b>	AC	2	0	0	0	
<b>Total Credits</b>								18

— — (1)

**\*Student has to choose any one audit course listed below.**

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III-SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCSE2101	<b>Program Elective-5</b> 1. Deep Learning 2. Social Network Analysis 3. MOOCs-1 (NPTEL/SWAYAM) 12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTCSE2102	<b>Open Elective</b> 1. MOOCs-2 (NPTEL/SWAYAM)-Any 12 Week Course on Engineering/ Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3	MTCSE2103	<b>Dissertation-I/ Industrial Project #</b>	PJ	0	0	20	10
<b>Total Credits</b>							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

<b>M. Tech. (CSE) IV SEMESTER</b>							
S.No	Course Code	Courses	Category	L	T	P	C
1	MTCSE2201	<b>Dissertation-II</b>	PJ	0	0	32	16
<b>Total Credits</b>							16

**Open Electives offered by the Department of CSE**

1. Python Programming
2. Principles of Cyber Security
3. Internet of Things
4. Machine Learning
5. Digital forensics
6. Next Generation Databases



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**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**

M. Tech. (CS) I SEMESTER							
S.No	Course Code	Courses	Category	L	T	P	C
1	MTCS1101	<b>Program Core-1</b> Mathematical Foundations of Computer Science	PC	3	0	0	3
2	MTCS1102	<b>Program Core-2</b> Advanced Data Structures	PC	3	0	0	3
3	MTCS1103	<b>Program Elective-1</b> 1. Advanced Operating Systems 2. Advanced Computer Architecture 3. Parallel Computing	PE	3	0	0	3
4	MTCS1104	<b>Program Elective-2</b> 1. Advanced Data Bases 2. Advanced Computer Networks 3. Object Oriented Software Engineering	PE	3	0	0	3
5	MTCS1105	<b>Research Methodology and IPR</b>	CC			0	2
6	MTCS1106	<b>Laboratory-1</b> Advanced Data Structures Lab	LB	0	0	4	2
7	MTCS1107	<b>Laboratory-2</b> Advanced Computing Lab-1	LB	0	0	4	2
8	MTCS1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

## II SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCS1201	<b>Program Core-3</b> Advance Algorithms	PC	3	0	0	3
2	MTCS1202	<b>Program Core-4</b> Data Science through Python Programming	PC	3	0	0	3
3	MTCS1203	<b>Program Elective-3</b> 1. Machine Learning 2. Ad hoc and Sensor Networks 3. Internet of Things	PE	3	0	0	3
4	MTCS1204	<b>Program Elective-4</b> 1. Cryptography and network Security 2. Cloud Computing 3. Web Technologies	PE	3	0	0	3
5	MTCS1205	<b>Laboratory-3</b> Advance Algorithms Lab	LB	0	0	4	2
6	MTCS1206	<b>Laboratory-4</b> Advanced Computing Lab-2	LB	0	0	4	2
7	MTCS1207	<b>Mini Project with Seminar</b>	MP	2	0	0	2
8	MTCS1208	<b>Audit Course-2*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

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**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCS2101	<b>Program Elective-5</b> 1. Mobile Applications and Development 2. Big Data Analytics 3. MOOCs-1 through NPTEL/ SWAYAM-12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTCS2102	<b>Open Elective</b> 1. MOOCs-2 Through NPTEL /SWAYAM - Any 12 week course on Engineering/ Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3	MTCS2103	<b>Dissertation-I/Industrial Project #</b>	PJ	0	0	20	10
<b>Total Credits</b>							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

**IV SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCS2201	<b>Dissertation-II</b>	PJ	0	0	32	16
<b>Total Credits</b>							16

**Open Electives offered by the Department of Computer Science and Engineering for other Departments students**

1. Python Programming
2. Data Science
3. Bioinformatics
4. Digital Forensics
5. Web Security
6. Machine Learning



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CYBER SECURITY PROGRAMME**

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**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**



I- SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCY1101	<b>Program Core-1</b> Principles of Cyber Security	PC	3	0	0	3
2	MTCY1102	<b>Program Core-2</b> Advanced Data Structures	PC	3	0	0	3
3	MTCY1103	<b>Program Elective-1</b> 1. Cryptanalysis 2. Cyber Crime Investigation & Digital Forensics 3. Operating System Security 4. Firewall and VPN Security	PE	3	0	0	3
4	MTCY1104	<b>Program Elective-2</b> 1. Database and Web Application Security 2. Secure Software Design and Development 3. Wireless Network Security 4. Cyberspace Operations and Design	PE	3	0	0	3
5	MTCY1105	<b>Research Methodology and IPR</b>	CC	2	0	0	2
6	MTCY1106	<b>Laboratory-1</b> Cyber Security Lab	LB	0	0	4	2
7	MTCY1107	<b>Laboratory-2</b> Advanced Data Structures Lab	LB	0	0	4	2
8	MTCY1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

II- SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCY1201	<b>Program Core-3</b> Vulnerability Assessment & Penetration Testing	PC	3	0	0	3
2	MTCY1202	<b>Program Core-4</b> Malware Analysis & Reverse Engineering	PC	3	0	0	3
3	MTCY1203	<b>Program Elective-3</b> 1. Cloud and IoT Security 2. Machine Learning 3. Data Privacy	PE	3	0	0	3
4	MTCY1204	<b>Program Elective-4</b> 1. Applied Cryptography 2. Principles of Secure Coding 3. Security Assessment and Risk Analysis	PE	3	0	0	3
5	MTCY1205	<b>Laboratory-3</b> Vulnerability Assessment & Penetration Testing Lab	LB	0	0	4	2
6	MTCY1206	<b>Laboratory-4</b> Malware Analysis & Reverse Engineering Lab	LB	0	0	4	2
7	MTCY1207	<b>Mini Project with Seminar</b>	MP	0	0	0	2
8	MTCY1208	<b>Audit Course-2</b> 1. Constitution of India 2. Pedagogy Studies 3. Stress Management by Yoga 4. Personality Development through Life Enlightenment Skills	AC	2	0	0	0
<b>Total Credits</b>							18

--(1)

\*Student has to choose any one audit course listed below.

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III-SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCY2101	<b>Program Elective-5</b> 1. Information System Audit 2. Cyber Security Governance 3. Cyber Laws and Security Policies 4. MOOCs-1 (NPTEL/SWAYAM)-12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTCY2102	<b>Open Elective</b> 1. MOOCs-2 (NPTEL/SWAYAM)-Any 12 Week Course on Engineering /Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3	MTCY2103	<b>Dissertation-I/Industrial Project#</b>	PJ	0	0	20	10
<b>Total Credits</b>							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

**M. Tech. (CSE) IV SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTCS2201	<b>Dissertation-II</b>	PJ	0	0	32	16
<b>Total Credits</b>							16

**Open Electives offered by the Department of CSE for other Departments Students**

1. Python Programming
2. Principles of Cyber Security
3. Internet of Things
4. Artificial Intelligence and Machine Learning



Director (i/c)  
Academic Planning  
JNTUK Kakinada



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA**  
**KAKINADA – 533 003, Andhra Pradesh, India**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE STRUCTURE M.Tech CSE for**  
**DATA SCIENCE PROGRAMME**  
*(Applicable for batches admitted from 2019-2020)*



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**

I SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTDS1101	<b>Program Core-1</b> Data Predictive Analytics	PC	3	0	0	3
2	MTDS1102	<b>Program Core-2</b> Data Science Applications with Python	PC	3	0	0	3
3	MTDS1103	<b>Program Elective-1</b> 1. Advanced Graph Theory 2. Data Warehousing 3. Artificial Intelligence	PE	3	0	0	3
4	MTDS1104	<b>Program Elective-2</b> 1. Internet of Things 2. Social Network and Semantic Web 3. Big Data Analytics	PE	3	0	0	3
5	MTDS1105	<b>Research Methodology and IPR</b>	CC			0	2
6	MTDS1106	<b>Laboratory-1</b> Data Science Applications with Python Lab	LB	0	0	4	2
7	MTDS1107	<b>Laboratory-2</b> Advanced Computing with Python-1 Lab	LB	0	0	4	2
8	MTDS1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

II SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTDS1201	<b>Program Core-3</b> Advance Algorithms	PC	3	0	0	3
2	MTDS1202	<b>Program Core-4</b> Machine Learning Techniques	PC	3	0	0	3
3	MTDS1203	<b>Program Elective-3</b> 1. Natural Language Processing 2. High Performance Computing 3. Cloud Computing	PE	3	0	0	3
4	MTDS1204	<b>Program Elective-4</b> 1. Principles of Deep Learning 2. Image and Video Analytics 3. Principles of Data Security	PE	3	0	0	3
5	MTDS1205	<b>Laboratory-3</b> Advance Algorithms Lab	LB	0	0	4	2
6	MTDS1206	<b>Laboratory-4</b> Advanced Computing with Python-2 Lab	LB	0	0	4	2
7	MTDS1207	<b>Mini Project with Seminar</b>	MP	2	0	0	2
8	MTDS1208	<b>Audit Course-2*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

--(1)

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTDS2101	<b>Program Elective-5</b> 1. Multivariate Analysis 2. Next Generation Databases 3. MOOCs-1 through NPTEL/SWAYAM 12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTDS2102	<b>Open Elective</b> 1. MOOCs-2 through NPTEL/SWAYAM - Any 12 week course on Engineering/ Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3	MTDS2103	<b>Dissertation-I/Industrial Project</b>	PJ	0	0	20	10
<b>Total Credits</b>							16

\*Students going for Industrial Project/Thesis will complete these courses through MOOCs

**IV-SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTDS2201	<b>Dissertation-II</b>	PJ	0	0	32	16
<b>Total Credits</b>							16

**Open Electives offered by the Department of Computer Science and Engineering for other Departments students**

1. Python Programming
2. Principles of Cyber Security
3. Internet of Things
4. Machine Learning
5. Deep Learning
6. Next Generation Databases



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**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE STRUCTURE M.Tech CSE for**  
**INFORMATION TECHNOLOGY PROGRAMME**

*(Applicable for batches admitted from 2019-2020)*



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**

I-SEMESTER

S. No	Course Code	Courses	Category	L	T	P	C
1	MTIT1101	<b>Program Core-1</b> Discrete Mathematical Structures	PC	3	0	0	3
2	MTIT1102	<b>Program Core-2</b> Advanced Data Structures	PC	3	0	0	3
3	MTIT1103	<b>Program Elective-1</b> 1. Artificial Intelligence 2. Service Oriented Architectures and Web Security 3. Internet of Things 4. Optimization Techniques 5. Parallel Computer Architecture	PE	3	0	0	3
4	MTIT1104	<b>Program Elective-2</b> 1. Big Data Analytics 2. Principles of Cryptography 3. Cluster and Grid Computing 4. Imaging and Multimedia Systems 5. Advanced Graph Theory	PE	3	0	0	3
5	MTIT1105	<b>Research Methodology and IPR</b>	CC			0	2
6	MTIT1106	<b>Laboratory-1</b> Advanced Data Structures Lab	LB	0	0	4	2
7	MTIT1107	<b>Laboratory-2</b> Computing Lab	LB	0	0	4	2
8	MTIT1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

II -SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTIT1201	<b>Program Core-3</b> Advanced Algorithms	PC	3	0	0	3
2	MTIT1202	<b>Program Core-4</b> Full Stack Technologies	PC	3	0	0	3
3	MTIT1203	<b>Program Elective-3</b> 1. Machine Learning 2. DevOps 3. Advanced Network Principles and Protocols 4. Distributed Computing 5. Social Network Analytics	PE	3	0	0	3
4	MTIT1204	<b>Program Elective-4</b> 1. Digital Image Processing 2. Block Chain Technologies 3. Data Science 4. Soft Computing 5. Natural Language Processing	PE	3	0	0	3
5	MTIT1205	<b>Laboratory-3</b> Advance Algorithms Lab	LB	0	0	4	2
6	MTIT1206	<b>Laboratory-4</b> Full Stack Technologies Lab	LB	0	0	4	2
7	MTIT1207	<b>Mini Project with Seminar</b>	MP	2	0	0	2
8	MTIT1208	<b>Audit Course-2 *</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTIT2101	<b>Program Elective-5</b> 1. Deep Learning 2. Embedded Computing 3. Ethical Hacking 4. Digital Marketing 5. MOOCs-1 through NPTEL/SWAYAM- 12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTITS2102	<b>Open Elective</b> 1. MOOCs-2 through NPTEL/ SWAYAM - any 12 week course on Engineering/ Management/ Mathematics offered by other than parent department 2. Course offered by other departments in the college	OE	3	0	0	3
3	MTIT2103	<b>Dissertation-I/Industrial Project#</b>	PJ	0	0	20	10
<b>Total Credits</b>							16

#Students going for Industrial Project/ Thesis will complete these courses through MOOCs

<b>M. Tech. (IT) IV SEMESTER</b>							
S.No	Course Code	Courses	Category	L	T	P	C
1	MTIT2201	<b>Dissertation-II</b>	PJ	0	0	32	16
<b>Total Credits</b>							16

Open Electives offered to other departments:

- |                            |                             |
|----------------------------|-----------------------------|
| 1. Python Programming      | 2. Web Technologies         |
| 3. Artificial Intelligence | 4. Internet of Things       |
| 5. Machine Learning        | 6. Advanced Data Structures |



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**KAKINADA – 533 003, Andhra Pradesh, India**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE STRUCTURE M.Tech CSE for**  
**NEURAL NETWORKS PROGRAMME**  
*(Applicable for batches admitted from 2019-2020)*



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**

I-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTNN1101	<b>Program Core-1</b> Artificial Neural Networks	PC	3	0	0	3
2	MTNN1102	<b>Program Core-2</b> Advanced Data Structures	PC	3	0	0	3
3	MTNN1103	<b>Program Elective-1</b> 1. Machine Learning 2. Intelligent Systems 3. Expert Systems	PE	3	0	0	3
4	MTNN1104	<b>Program Elective-2</b> 1. Data Warehouse and Data Mining 2. Recommender Systems 3. Pattern Recognition	PE	3	0	0	3
5	MTNN1105	<b>Research Methodology and IPR</b>	CC			0	2
6	MTNN1106	<b>Laboratory-1</b> Advanced Data Structures Lab	LB	0	0	4	2
7	MTNN1107	<b>Laboratory-2</b> Neural Networks Lab	LB	0	0	4	2
8	MTNN1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

II-SEMESTER

M. Tech. (NN) II SEMESTER							
S.No	Course Code	Courses	Category	L	T	P	C
1	MTNN1201	<b>Program Core-3</b> Soft Computing	PC	3	0	0	3
2	MTNN1202	<b>Program Core-4</b> Deep Learning	PC	3	0	0	3
3	MTNN1203	<b>Program Elective-3</b> 1. Computer Vision 2. Big Data Analytics 3. Remote Sensing	PE	3	0	0	3
4	MTNN1204	<b>Program Elective-4</b> 1. Cognitive Systems 2. Knowledge Discovery 3. Natural Language Processing	PE	3	0	0	3
5	MTNN1205	<b>Laboratory-3</b> Soft Computing Lab	LB	0	0	4	2
6	MTNN1206	<b>Laboratory-4</b> Deep Learning lab	LB	0	0	4	2
7	MTNN1207	<b>Mini Project with Seminar</b>	MP	2	0	0	2
8	MTNN1208	<b>Audit Course-2*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

**III SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTNN2101	<b>Program Elective-5</b> 1. Reinforcement Learning 2. Bio-Informatics 3. Speech Processing 4. MOOCS-I(NPTEL/SWAYAM-12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTNN2102	<b>Open Elective</b> 1. MOOCS-II(NPTEL/SWAYAM-Any 12WeeksProgram-Interdisciplinary Course but not from the Parent Department) 2. Courses offered by other departments in the college	OE	3	0	0	3
3	MTNN2103	<b>Dissertation-I/Industrial Project#</b>	PJ	0	0	20	10
<b>Total Credits</b>							16

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

**IV SEMESTER**

S.No	Course Code	Courses	Category	L	T	P	C
1	MTNN2201	<b>Dissertation-II</b>	PJ	0	0	32	16
<b>Total Credits</b>							16

Open Electives offered to Other Departments

- |                            |                     |
|----------------------------|---------------------|
| 1. Python Programming      | 3. Machine Learning |
| 2. Artificial Intelligence | 4. Deep Learning    |



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**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**COURSE STRUCTURE M.Tech CSE for**  
**SOFTWARE ENGINEERING PROGRAMME**

*(Applicable for batches admitted from 2019-2020)*



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**

## I-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTSE1101	<b>Program Core-1</b> Software Engineering	PC	3	0	0	3
2	MTSE1102	<b>Program Core-2</b> Advanced Data Structures	PC	3	0	0	3
3	MTSE1103	<b>Program Elective-1</b> 1. Software Project and Process Management 2. Machine Learning 3. E-Commerce	PE	3	0	0	3
4	MTSE1104	<b>Program Elective-2</b> 1. Software Quality Assurance and Testing 2. Cloud Computing 3. Internet of Things	PE	3	0	0	3
5	MTSE1105	<b>Research Methodology and IPR</b>	CC			0	2
6	MTSE1106	<b>Laboratory-1</b> Advanced Data Structures Lab	LB	0	0	4	2
7	MTSE1107	<b>Laboratory-2</b> SE LAB-I	LB	0	0	4	2
8	MTSE1108	<b>Audit Course-1*</b>	AC	2	0	0	0
<b>Total Credits</b>							18

\*Student has to choose any one audit course listed below.

## II-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTSE1201	<b>Program Core-3</b> Service Oriented Architecture	PC	3	0	0	3
2	MTSE1202	<b>Program Core-4</b> Mathematical Foundations of Computer Science	PC	3	0	0	3
3	MTSE1203	<b>Program Elective-3</b> 1. Software Testing Methodologies 2. Agile Software Development 3. ERP & Supply Chain Management	PE	3	0	0	3
4	MTSE1204	<b>Program Elective-4</b> 1. Secure Software Engineering 2. Big Data Analytics 3. Design patterns	PE	3	0	0	3
5	MTSE1205	<b>Laboratory-3</b> Software Testing Lab	LB	0	0	4	2
6	MTSE1206	<b>Laboratory-4</b> SE LAB-II	LB	0	0	4	2
7	MTSE1207	<b>Mini Project with Seminar</b>	MP	2	0	0	2
8	MTSE1208	<b>Audit Course-2 *</b>	AC	2	0	0	0
<b>Total Credits</b>							18

---(1)

III-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTSE2101	<b>Program Elective-5</b> 1. Object Oriented Software Engineering 2. Artificial Intelligence 3. User Interface Design 4. MOOCS-I(NPTEL/SWAYAM- 12 Week Program related to the programme which is not listed in the course structure	PE	3	0	0	3
2	MTSE2102	<b>Open Elective</b> 1. MOOCS-II (NPTEL/SWAYAM- Any 12 Weeks Program-Interdisciplinary Course but not from Parent Department) 2. Courses offered by other departments in the college	OE	3	0	0	3
3	MTSE2103	<b>Dissertation-I/ Industrial Project#</b>	PJ	0	0	20	10
<b>Total Credits</b>							16

\*Student has to choose any one audit course listed below.

**Audit Course 1 & 2:**

- |                                       |  |
|---------------------------------------|--|
| 1. English for Research Paper Writing | 5. Constitution of India                                     |
| 2. Disaster Management                | 6. Pedagogy Studies  |
| 3. Sanskrit for Technical Knowledge   | 7. Stress Management by Yoga                                 |
| 4. Value Education                    | 8. Personality Development through Life Enlightenment Skills |

#Students going for Industrial Project/Thesis will complete these courses through MOOCs

IV-SEMESTER

S.No	Course Code	Courses	Category	L	T	P	C
1	MTSE2201	<b>Dissertation-II</b>	PJ	0	0	32	16
<b>Total Credits</b>							16

Open Electives offered to Other Departments

- |                            |                     |
|----------------------------|---------------------|
| 1. Python Programming      | 3. Machine Learning |
| 2. Artificial Intelligence | 4. Deep Learning    |



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