## COURSE OUTCOMES FOR M.TECH-CSE R20 FOR THE YEAR 2020-2021

		•	1		
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	I Sem		L:3 T:0 P:0		
		Data Structures and			
		Algorithms(M20CS01)			
On success	ful completion of th	is course, students will be able to:			
1	Define knowledge l	pasic on data structures to store and retrieve an	ordered or unorde	ered data. Such	
	as, arrays, linked lis	sts, trees, heaps, and hash tables .			
2	Develop knowledge on applications of data structures having the ability to implement algorithms o perform operation as create, insert, delete, search, and sorting.				
3	Learn to analyze an	nd to compare efficiency of an algorithm.			
4	Understand the basi	ic concepts of latest techniques.			
5	Ability to have con	cepts on tree and graphs.			
6	Implement various	projects on these data structures and plan B-Ti	rees to implement	different	
	various operations		L.		
Course	Voor /Somostor	Subject Name (Subject Code)	No. of Hours	Credits:3	
Course	I cal /Sellestel	Software Process and Project Management	L:3 T:0 P:0		
Outcom	1 Sem	(M20CS02)			
e		(11202502)			
On success	ful completion of th	nis course, students are able to:			
1	Discuss and plan to	execute projects based on required standards.			
2	Understand the range of tools used on project management.				
3	Analyze the concepts related on project governance and methodologies.				
4	Apply critical analy	ysis on solving problems and planning process.			
5	Describe planning,	Risk and issues management			
6	Plan process, pragr	natic planning service delivery and quality assu	urance		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3	
Outcome	I Sem	Cloud computing (M20CS03)	L+3 T+0 P+0		
After the	completion of this of	course, the students should be able to			
1	Discuss main conce	epts, key strengths, and limitations for cloud co	omputing.		
2	Develop the archite PaaS, JaaS, public	ecture along with specific infrastructure on clou cloud, private cloud, hybrid cloud, etc.	id computing, incl	uding SaaS,	
3	Explain the issues	on cloud computing along with security, privac	y, and interoperab	oility	
4	Choose and use the	e appropriate technology, methods on these issu	ies.		
5	Identify problems,	and explain, analyze, and evaluate various clou	id computing solu	tions.	
6	Provide the approp	riate solutions on cloud computing based on th	e application.		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	I Sem	Python Programming(M20CS04)	L:3 T:0 P:0		
1	Defining the fund	lamentals of writing Python scripts			

2	Expressing the Core Python scripting elements such as variables and flow control structures.
3	Apply Python functions to facilitate code reuse.
4	Extending how to work with lists and sequence data.
5	Implement file operations such as read and write
6	Implementing and Adapting the code robust by handling errors and exceptions properly.

-							
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
Outcome	I Sem	Internet of Things (M20CS05)	L:3 T:0 P:0				
On successf	ful completion of th	is course, students will be able to:					
1	Describe the basic	terminology, latest technology along with its a	pplications.				
2	Discuss the protoc	ols based on the concepts such as machine to n	nachine				
3	Illustrate the IOT	devices using Python Scripting Language					
4	Develop an applica applications of IoT devices	Develop an application with Raspberry PI platform which can be widely used in many applications of IoT devices					
5	Implement it wide	ly that can be used in many applications of IoT	devices.				
6	Design a web appl	ication framework on REST ful web API.					
Course Outcome	Year /SemesterI	Subject Name (Subject Code) Mathematical Foundations of Computer	No. of Hours L:3 T:0 P:0	Credits:3			
	Sem	Science (M20CS06)					
On successf	ful completion of t	his course, students are able to:	·				
1	Evaluate the notions of propositions, predicate formulae, Rules of inference.						
2	Illustrate and describe various types of Relations and Functions.						
3	Apply knowledge of Multinomial.	Apply knowledge of Mathematics, Combinations & Permutations, Binomial Multinomial.					
4	theorems, Pigeon h	ole principles.					
5	Develop to solve th	ne recurrence relations by using various method	ls.				
6	Perceive the basic	concepts of graph theory and apply for real tim	e examples.	1			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3			
Outcome	I Sem	Artificial Intelligence (M20CS07)	L:3 T:0 P:0				
After the o	completion of this o	course, the students should be able to					
1	Remember various assumptions etc	s AI concepts like the AI technique, level of mo	odels, there underl	ying			
2	Understand the cor	cepts of AI search techniques					
3	Apply knowledge Representation techniques.						
4	Analyze different s	structures of representation					
5	Evaluate AI search techniques						

erstand the cor r / semester m ntifies various mpare and cor- lementation o lore the attack velop intrusion es of firewalls. derstand the v ptographic tec pr/Semester m mpletion of the tire knowledge yze the variou Representation erstand all the esearch synop	Subject Name (Subject Code)         Network Security and Cryptography (M20CS08)         s types of vulnerabilities, attacks, mechanismentrast symmetric and asymmetric encryption         f message authentication, hashing algorithms         as and controls associated with IP, transport I         a detection system, solutions for wireless network         arious wireless network vulnerabilities and in the securit         Subject Name (Subject Code)         Research Methodology & IPR (M20MC01         mis course, students will be able to:         e on Research Design and statistical methods         s methods in Data Collection, Data Organization.         basic concepts required to prepare	No. of Hours         L:3 T:0 P:0         as and security service         algorithms.         s and able to underst         evel, web and E-ma         works and designing         mplements different         y.         No. of Hours         j in research.         tion and different ap	Credits: 3 ces. and kerberos il security. of various types of Credits: 2	
ntifies various mpare and con- plementation of plore the attack velop intrusion es of firewalls. derstand the v ptographic tec nr/Semester m mpletion of the tire knowledge yze the variou Representation erstand all the essearch synop	Subject Name (Subject Code) Network Security and Cryptography (M20CS08) stypes of vulnerabilities, attacks, mechanism ntrast symmetric and asymmetric encryption f message authentication, hashing algorithms and controls associated with IP, transport 1 detection system, solutions for wireless network arious wireless network vulnerabilities and in chniques to improve wireless network securit Subject Name (Subject Code) Research Methodology & IPR (M20MC01 nis course, students will be able to: e on Research Design and statistical methods s methods in Data Collection, Data Organiza m. basic concepts required to prepare	No. of Hours         L:3 T:0 P:0         as and security service         algorithms.         s and able to underst         evel, web and E-ma         works and designing         mplements different         y.         No. of Hours         j.         in research.         tion and different ap	Credits: 3 ces. and kerberos il security. of various types of Credits: 2	
ntifies various mpare and con- plementation of plore the attack velop intrusion es of firewalls. derstand the v ptographic tec m mpletion of the tire knowledge yze the variou Representation erstand all the esearch synop	s types of vulnerabilities, attacks, mechanism ntrast symmetric and asymmetric encryption f message authentication, hashing algorithms as and controls associated with IP, transport I detection system, solutions for wireless network arious wireless network vulnerabilities and in chniques to improve wireless network securit <b>Subject Name (Subject Code)</b> Research Methodology & IPR (M20MC01 <b>his course, students will be able to:</b> e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	algorithms. algorithms. s and able to underst evel, web and E-ma works and designing mplements different y. No. of Hours L:2 T:0 P:0 in research. tion and different ap	and kerberos il security. of various types of <b>Credits: 2</b> oproaches of	
mpare and con elementation of elementation of elementation of elementation es of firewalls. derstand the v ptographic tec or/Semester em mpletion of the tire knowledge yze the variou Representation erstand all the esearch synop	ntrast symmetric and asymmetric encryption f message authentication, hashing algorithms as and controls associated with IP, transport I detection system, solutions for wireless network arious wireless network vulnerabilities and it chniques to improve wireless network securit <b>Subject Name (Subject Code)</b> Research Methodology & IPR (M20MC01 <b>his course, students will be able to:</b> e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	algorithms. s and able to underst level, web and E-ma works and designing mplements different y. No. of Hours L:2 T:0 P:0 in research. tion and different ap	and kerberos il security. of various types of <b>Credits: 2</b> pproaches of	
elementation of elementation of elore the attack relop intrusion es of firewalls. derstand the v ptographic tec pr/Semester em mpletion of the tire knowledge yze the variou Representation erstand all the esearch synop	f message authentication, hashing algorithms as and controls associated with IP, transport I detection system, solutions for wireless network arious wireless network vulnerabilities and it shniques to improve wireless network securit <b>Subject Name (Subject Code)</b> Research Methodology & IPR (M20MC01 <b>his course, students will be able to:</b> e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	s and able to underst level, web and E-ma works and designing mplements different y. No. of Hours L:2 T:0 P:0	and kerberos il security. of various types of Credits: 2 pproaches of	
olore the attack relop intrusion es of firewalls. derstand the v ptographic tec ar/Semester em mpletion of the tire knowledge yze the variou Representation erstand all the esearch synop	as and controls associated with IP, transport I detection system, solutions for wireless network arious wireless network vulnerabilities and in chniques to improve wireless network securit <b>Subject Name (Subject Code)</b> Research Methodology & IPR (M20MC01 <b>his course, students will be able to:</b> e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	evel, web and E-ma works and designing mplements different y. No. of Hours L:2 T:0 P:0	il security. of various types of <b>Credits: 2</b> oproaches of	
velop intrusion es of firewalls. derstand the v ptographic tec m/Semester em mpletion of the tire knowledge yze the variou Representation erstand all the esearch synop	arious wireless network vulnerabilities and in hniques to improve wireless network securit Subject Name (Subject Code) Research Methodology & IPR (M20MC01 nis course, students will be able to: e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	works and designing mplements different y. ) <b>No. of Hours</b> L:2 T:0 P:0 in research. tion and different ap	types of Credits: 2 pproaches of	
derstand the v ptographic tec m/Semester m mpletion of th tire knowledge yze the variou Representation erstand all the esearch synop	arious wireless network vulnerabilities and in chniques to improve wireless network securit Subject Name (Subject Code) Research Methodology & IPR (M20MC01 nis course, students will be able to: e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	mplements different y. No. of Hours L:2 T:0 P:0 in research. tion and different ap	types of Credits: 2 pproaches of	
mpletion of the second	Subject Name (Subject Code) Research Methodology & IPR (M20MC01 nis course, students will be able to: e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	No. of Hours L:2 T:0 P:0	Credits: 2	
mpletion of the nire knowledge yze the variou Representation erstand all the esearch synop	<b>his course, students will be able to:</b> e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	in research. ation and different ap	pproaches of	
ire knowledg yze the variou Representatio erstand all the esearch synop	e on Research Design and statistical methods s methods in Data Collection, Data Organiza n. basic concepts required to prepare	s in research. ation and different ap	pproaches of	
yze the variou Representation erstand all the esearch synop	s methods in Data Collection, Data Organiza n. basic concepts required to prepare	ation and different ap	oproaches of	
erstand all the esearch synop	basic concepts required to prepare			
esearch synop				
<ul><li>a. Research synopsis</li><li>b. Dissertation</li><li>c. Writing a good research proposa</li></ul>				
pret the Scope	of Patent Rights and Administration of Pate	nt System.		
nr /Semester em	Subject Name (Subject Code) English for Research Paper Writing (M20AC01)	No. of Hours L:2 T:0 P:0	Credits:0	
mpletion of t	his course, students are able to:	<u> </u>		
in complete k rch paper , its	nowledge on Definition of a research paper, lass Scope and Benefits.	Purpose of writing a	ny	
erstand the star	ndard English formats .for scripting the best	research paper.		
yze all the Qu arism	alitative and Quantitative Research Methodo	logies and the ethics	sof	
ain the detaile on paper wri	d process of writing and publishing any reseating.	arch paper and perfo	rm a case	
r / comostor	Subject Name (Subject Code) Data Structures and Algorithms Lab	No. of Hours L:0 T:0 P:4	Credits:2	
	m mpletion of th in complete kn rch paper , its erstand the star yze all the Qu arism ain the detaile on paper write r / semester	mEnglish for Research Paper Writing (M20AC01)mpletion of this course, students are able to:in complete knowledge on Definition of a research paper, I rch paper , its Scope and Benefits.in complete knowledge on Definition of a research paper, I rch paper , its Scope and Benefits.in complete knowledge on Definition of a research paper, I rch paper , its Scope and Benefits.in the standard English formats .for scripting the best yze all the Qualitative and Quantitative Research Methodo arismain the detailed process of writing and publishing any research on paper writing.r / semester mSubject Name (Subject Code) Data Structures and Algorithms Lab (M20CS09)	mEnglish for Research Paper Writing (M20AC01)mpletion of this course, students are able to:in complete knowledge on Definition of a research paper, Purpose of writing a rch paper , its Scope and Benefits.in complete knowledge on Definition of a research paper, Purpose of writing a rch paper , its Scope and Benefits.in complete knowledge on Definition of a research paper, Purpose of writing a restand the standard English formats .for scripting the best research paper.in the detailed process of writing and publishing any research paper and perfor on paper writing.in the detailed process of writing and publishing any research paper and perfor on paper writing.in the detailed process of writing and Algorithms Lab (M20CS09)No. of Hours L:0 T:0 P:4	

1	Analyze algorithms efficiency .				
2	Summarize and imp	plement various searching and sorting techniqu	ies.		
3	Demonstrate stack	, queue and linked list with various operations			
4	Implement different trees and graphs concepts.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:2	
Outcome	I Sem	Cloud computing Lab (M20CS10)	L:0 T:0 P:4		
1	Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.				
2	Explain the issues on cloud computing along with security, privacy, and interoperability				
3	Identify problems, and explain, analyze, and evaluate various cloud computing solutions.				
4	Provide the approp	priate solutions on cloud computing based on t	he application.		

Course Outcome	Year/Semester I Sem	Subject Name (Subject Code) Python Programming Lab (M20CS11)	No. of Hours L:0 T:0 P:4	Credits: 2		
On successf	ful completion of th	nis course, students will be able to:				
1	Expressing the Cor	re Python scripting elements such as variables a	and flow control st	ructures.		
2	Apply Python func	tions to facilitate code reuse				
3	Extending how to	work with lists and sequence data.				
4	Implement file ope and exceptions pro	rations such as read and write and Adapting the perly.	e code robust by h	andling errors		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:2		
Outcome	I Sem	Internet of Things Lab (M20CS12)	L:0 T:0 P:4			
On success	ful completion of t	his course, students are able to:				
1	Demonstrate the starting of Raspberry Pi and practice Linux commands in command terminal windows					
2	Develop and run al	Develop and run all basic python programs on Raspberry Pi				
3	Build real time app	lications on Light an LED using Python progra	amming			
4	Experiment with ir humidity, smoke.	nplementation of intruder system and various s	ensors like temper	ature,		
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	II Sem	Advanced Web Programming (M20CS13)	L:3 T:0 P:0			
After the o	completion of this o	course, the students should be able to				
1	Apply three-tier are	chitecture concepts and advanced database tech	niques in web app	olications.		
2	Use object-oriented techniques in Web programming.					
3	Develop rich intera	active environments for the Web.				
4	Create sites that utilize data validation techniques and secure code.					
5	Build sites that use	session management.				
6	Creating rich interactive web applications.					

Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	II Sem	Soft Computing Techniques (M20CS14)	L:3 T:0 P:0			
1	Understand the fuzzy logic concepts of fuzziness involved in fuzzy set theory					
2	Explain the concept	ts of fuzzy sets, knowledge representation usin	g fuzzy rules,			
	approximate reasor	ning, fuzzy inference systems, and fuzzy logic.				
3	Build the fundament	ntal theory, concepts of neural networks				
4	Identify different n limitations.	eural network architectures, algorithms, application	ations along their			
5	Classify different low with its application	earning rules, architectures to learn several neu s	ral network parad	igms along		
6	Deploy different ap	pplications of these models to solve engineering	5.			
Course	Year/Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3		
Outcome	II Sem	Network Programming (M20CS15)	L:3 T:0 P:0			
On successf	ul completion of th	is course, students will be able to:				
1	Determine Linux u	tilities .				
2	Identify file handli	ng techniques and signals.				
3	Explain what is IPC and network programming in Java.					
4	Learn how processes communicate with each other across a Computer Network.					
5	Develop Network programming using TCP/UDP sockets.					
6	Implement Real Time and current trends in client server Application.					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Course Outcome	Year /Semester II Sem	Subject Name (Subject Code) Machine Learning (M20CS16)	No. of Hours L:3 T:0 P:0	Credits:3		
Course Outcome On successf	Year /Semester II Sem ful completion of th	Subject Name (Subject Code) Machine Learning (M20CS16) his course, students are able to:	No. of Hours L:3 T:0 P:0	Credits:3		
Course Outcome On successf	Year /Semester II Sem ful completion of th Discuss different a	Subject Name (Subject Code) Machine Learning (M20CS16) nis course, students are able to: oplication on Machine Learning problems.	No. of Hours L:3 T:0 P:0	Credits:3		
Course Outcome On successf 1 2	Year /Semester II Sem ful completion of th Discuss different a Describe various al	Subject Name (Subject Code) Machine Learning (M20CS16) nis course, students are able to: pplication on Machine Learning problems. gorithms on Machine Learning mentioning its	No. of Hours L:3 T:0 P:0 strengths and wea	Credits:3		
Course Outcome On successf 1 2 3	Year /Semester II Sem ful completion of th Discuss different a Describe various al Illustrate the basic	Subject Name (Subject Code) Machine Learning (M20CS16) nis course, students are able to: oplication on Machine Learning problems. gorithms on Machine Learning mentioning its theory focused on Machine Learning.	No. of Hours L:3 T:0 P:0	Credits:3		
Course Outcome On successf 1 2 3 4	Year /Semester II Sem ful completion of th Discuss different aj Describe various al Illustrate the basic Improve the perfor	Subject Name (Subject Code) Machine Learning (M20CS16) nis course, students are able to: oplication on Machine Learning problems. gorithms on Machine Learning mentioning its theory focused on Machine Learning. mance of Machine Learning algorithms with di	No. of Hours L:3 T:0 P:0 strengths and wea	Credits:3 knesses		
Course Outcome On successf 1 2 3 4 5	Year /Semester II Sem ful completion of th Discuss different a Describe various al Illustrate the basic Improve the perfor Analyze current res	Subject Name (Subject Code) Machine Learning (M20CS16) nis course, students are able to: oplication on Machine Learning problems. gorithms on Machine Learning mentioning its theory focused on Machine Learning. mance of Machine Learning algorithms with disearch papers.	No. of Hours L:3 T:0 P:0 strengths and wea	Credits:3 knesses		
Course Outcome On successf 1 2 3 4 5 6	Year /Semester II Sem ful completion of th Discuss different ap Describe various al Illustrate the basic Improve the perfor Analyze current res Understand the late	Subject Name (Subject Code) Machine Learning (M20CS16) nis course, students are able to: oplication on Machine Learning problems. gorithms on Machine Learning mentioning its theory focused on Machine Learning. mance of Machine Learning algorithms with di search papers. est issues raised by current researchers.	No. of Hours L:3 T:0 P:0 strengths and wea	Credits:3 knesses		
Course Outcome On successf 1 2 3 4 5 6 Course	Year /Semester II Sem ful completion of th Discuss different an Describe various al Illustrate the basic Improve the perfor Analyze current res Understand the late Year / semester	Subject Name (Subject Code)         Machine Learning (M20CS16)         nis course, students are able to:         oplication on Machine Learning problems.         gorithms on Machine Learning mentioning its         theory focused on Machine Learning.         mance of Machine Learning algorithms with disearch papers.         est issues raised by current researchers.         Subject Name (Subject Code)	No. of Hours L:3 T:0 P:0 strengths and wea fferent parameters No. of Hours	Credits:3 knesses 3. Credits:3		
Course Outcome On successf 1 2 3 4 5 6 Course Outcome	Year /Semester II Sem Ful completion of the Discuss different ap Describe various al Illustrate the basic Improve the perfor Analyze current res Understand the late Year / semester I Sem	Subject Name (Subject Code)         Machine Learning (M20CS16)         nis course, students are able to:         oplication on Machine Learning problems.         gorithms on Machine Learning mentioning its         theory focused on Machine Learning.         mance of Machine Learning algorithms with disearch papers.         est issues raised by current researchers.         Subject Name (Subject Code)         Digital Forensics (M20CS17)	No. of Hours L:3 T:0 P:0 strengths and wea ifferent parameters No. of Hours L:3 T:0 P:0	Credits:3 knesses S. Credits:3		
Course Outcome On successf 1 2 3 4 5 6 Course Outcome After the o	Year /Semester II Sem ful completion of th Discuss different a Describe various al Illustrate the basic Improve the perfor Analyze current res Understand the late Year / semester I Sem completion of this of	Subject Name (Subject Code)         Machine Learning (M20CS16)         nis course, students are able to:         oplication on Machine Learning problems.         gorithms on Machine Learning mentioning its         theory focused on Machine Learning.         mance of Machine Learning algorithms with disearch papers.         est issues raised by current researchers.         Subject Name (Subject Code)         Digital Forensics (M20CS17)         course, the students should be able to	No. of Hours L:3 T:0 P:0 strengths and wea fferent parameters No. of Hours L:3 T:0 P:0	Credits:3 knesses S. Credits:3		
Course Outcome On successf 1 2 3 4 5 6 Course Outcome After the o 1	Year /Semester II Sem Ful completion of the Discuss different and Describe various al Illustrate the basic Improve the perfor Analyze current rese Understand the late Year / semester I Sem Completion of this of	Subject Name (Subject Code) Machine Learning (M20CS16) nis course, students are able to: oplication on Machine Learning problems. gorithms on Machine Learning mentioning its theory focused on Machine Learning. mance of Machine Learning algorithms with di search papers. est issues raised by current researchers. Subject Name (Subject Code) Digital Forensics (M20CS17) course, the students should be able to ensics related to investigative process.	No. of Hours L:3 T:0 P:0 strengths and wea ifferent parameters No. of Hours L:3 T:0 P:0	Credits:3 knesses S. Credits:3		
Course Outcome On successf 1 2 3 4 5 6 Course Outcome After the o 1 2	Year /Semester II Sem ful completion of th Discuss different a Describe various al Illustrate the basic Improve the perfor Analyze current res Understand the late Year / semester I Sem completion of this of Explain the legal is	Subject Name (Subject Code)         Machine Learning (M20CS16)         nis course, students are able to:         oplication on Machine Learning problems.         gorithms on Machine Learning mentioning its         theory focused on Machine Learning.         mance of Machine Learning algorithms with disearch papers.         est issues raised by current researchers.         Subject Name (Subject Code)         Digital Forensics (M20CS17)         course, the students should be able to         ensics related to investigative process.         sues to prepare, perform digital forensic analyse	No. of Hours L:3 T:0 P:0 strengths and wea fferent parameters No. of Hours L:3 T:0 P:0	Credits:3 knesses s. Credits:3 vestigator's		
Course Outcome On successf 1 2 3 4 5 6 Course Outcome After the o 1 2	Year /Semester II Sem Ful completion of the Discuss different ap Describe various al Illustrate the basic Improve the perfor Analyze current res Understand the late Year / semester I Sem Completion of this of Discuss digital fore Explain the legal is position	Subject Name (Subject Code)         Machine Learning (M20CS16)         nis course, students are able to:         oplication on Machine Learning problems.         gorithms on Machine Learning mentioning its         theory focused on Machine Learning.         mance of Machine Learning algorithms with disearch papers.         est issues raised by current researchers.         Subject Name (Subject Code)         Digital Forensics (M20CS17)         course, the students should be able to         ensics related to investigative process.         sues to prepare, perform digital forensic analys	No. of Hours L:3 T:0 P:0 strengths and wea ifferent parameters No. of Hours L:3 T:0 P:0	Credits:3 knesses s. Credits:3 vestigator's		
Course Outcome On successf 1 2 3 4 5 6 Course Outcome After the o 1 2 3	Year /Semester II Sem ful completion of the Discuss different and Describe various all Illustrate the basic Improve the perfort Analyze current rest Understand the late Year / semester I Sem completion of this of Discuss digital fore Explain the legal is position Demonstrate the ter	Subject Name (Subject Code)         Machine Learning (M20CS16)         nis course, students are able to:         oplication on Machine Learning problems.         gorithms on Machine Learning mentioning its         theory focused on Machine Learning.         mance of Machine Learning algorithms with disearch papers.         est issues raised by current researchers.         Subject Name (Subject Code)         Digital Forensics (M20CS17)         course, the students should be able to         ensics related to investigative process.         sues to prepare, perform digital forensic analys         chniques, usage of digital forensics tools.	No. of Hours L:3 T:0 P:0 strengths and wea ifferent parameters No. of Hours L:3 T:0 P:0	Credits:3 knesses s. Credits:3 vestigator's		
Course Outcome On successf 1 2 3 4 5 6 Course Outcome After the o 1 2 3 4	Year /Semester II Sem Ful completion of the Discuss different ap Describe various al Illustrate the basic Improve the perfor Analyze current res Understand the late Year / semester I Sem Completion of this of Discuss digital fore Explain the legal is position Demonstrate the ter Elaborate digital for	Subject Name (Subject Code)         Machine Learning (M20CS16)         nis course, students are able to:         opplication on Machine Learning problems.         gorithms on Machine Learning mentioning its         theory focused on Machine Learning.         mance of Machine Learning algorithms with disearch papers.         est issues raised by current researchers.         Subject Name (Subject Code)         Digital Forensics (M20CS17)         course, the students should be able to         ensics related to investigative process.         sues to prepare, perform digital forensic analys         chniques, usage of digital forensics tools.         rensics in detail.	No. of Hours L:3 T:0 P:0 strengths and wea ifferent parameters No. of Hours L:3 T:0 P:0	Credits:3 knesses s. Credits:3 vestigator's		

6	Develop techniques used on Data Analysis, cybercrime.					
Course Outcome	Year / semester II Sem	Subject Name (Subject Code) Block Chain Technology(M20CS18)	No. of Hours L:3 T:0 P:0	Credits: 3		
1	Introduce the fundation	amentals of blockchain, history, technology an	d decentralization.			
2	Revise cryptograp	hic concepts and its use in blockchain.				
3	Define bitcoin and	understand structure of blockchain				
4	Understand alterna	tives to proof of work				
5	Introduce smart co	ntracts, solidity and Web3 to implement block	chain			
6	Understand applica	ations of blockchain and its challenges				
Course Outcome	Year/Semester II Sem	Subject Name (Subject Code) Genetic Algorithms and Applications (M20CS18)	No. of Hours L:3 T:0 P:0	Credits: 3		
On success	ful completion of th	nis course, students will be able to:				
1	Explain the princip	les of Evolutionary Computation and Genetic	Algorithms.			
2	Apply the concepts of Evolutionary Computation Methods to find solutions for complex problems					
3	Describe the applications of Genetic Programming					
4	Analyze with different parameters on Evolutionary Algorithms					
5	Understand the different methods in Machine Learning and Genetic Algorithms					
6	Summarize the current scenario of research and application in Evolutionary Genetic Algorithms and Computing					
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits:3		
Outcome	II Sem	Data Science (M20CS20)	L:3 T:0 P:0			
On success	ful completion of tl	his course, students are able to:				
1	Describe a Data Sc	tience, skill sets available for a data scientist				
2	Discuss the terms S	Statistical Inference, its significance to explore	data analysis			
3	Understand Data S	Understand Data Science Process and its components interact.				
4	Adapt APIs tools to understand the Web data.					
5	Illustrate EDA and the Data Science as a case study.					
6	Plan a effective vis	Plan a effective visualization on given data.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits:0		
Outcome	I Sem	Stress Management (M20AC02)	L:2 T:0 P:0			
After the	completion of this (	course, the students should be able to	·			
1	Maintain a stress a	wareness log. Include identification of causes,	symptoms, and an	alysis of		
	effects					
2	effects Gather information	on current stress management techniques and	evaluate personal	relevance		

4	Choose an adaptable stress management plan for academic success incorporating selected				
	techniques.				
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I I Sem	(M20CS21)	L:0 T:0 P:4		
1	Design and develop latest technical kno	p static and dynamic web pages with good aesthew-how's.	hetic sense of desi	gning and	
2	Understand the We	b Application Terminologies, Internet Tools ar	nd other web servi	ces.	
3	Learn how to link a	and publish web sites.			
4	Learn Database Co	nnectivity to web applications			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I I Sem	Network Programming Lab (M20CS22)	L:0 T:0 P:4		
1	Understand the cor	acepts of Socket commands.			
2	Implement Connec	tion-Oriented Service using standard ports.			
3	Define Connectionless and Connection Oriented Service.				
4	Plan a case study o	n client and server and construct a Remote Cor	nmand Execution	using sockets.	
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I I Sem	Machine Learning Lab (M20CS23)	L:0 T:0 P:4		
1	Discuss different a	pplication on Machine Learning problems.			
2	Describe various al	gorithms on Machine Learning mentioning its	strengths and wea	knesses.	
3	Improve the perfor	mance of Machine Learning algorithms with di	fferent parameters	s.	
4	Understand the late	est issues raised by current researchers.			
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I I Sem	Digital Forensics Lab (M20CS24)	L:0 T:0 P:4		
1	Understand the me	thods available for retrieving the lost data.			
2	Classify the variou	s mobile forensic techniques and how to handle	e them.		
3	Identify the differe	nt Open-source intelligence techniques			
4					
Course	Year / semester	Subject Name (Subject Code)	No. of Hours	Credits: 2	
Outcome	I I Sem	Mini Project with seminar (M20CS25)	L:0 T:0 P:2		
1		· · · · · · · · · · · · · · · · · · ·			

2	
3	
4	

## **III-SEMESTER**

		NJ OTT	Credits: 3			
Year/Semester	Subject Name (Subject Code) Natural Language Processing Techniques	No. of Hours	creats. 5			
III Sem	(M20CS26)	L:3 T:0 P:0				
ul completion of th	is course, students will be able to:					
Understand approa	Jnderstand approaches to syntax and semantics in NLP.					
Understand approa	Understand approaches to discourse, generation, dialogue and summarization within NLP.					
Understand current	t methods for statistical approaches to machine	translation.				
Understand machin	ne learning techniques used in NLP, including	hidden Markov mo	odels			
Understand the Lau unsupervised meth	Understand the Language model and probabilistic context-free grammars, clustering and unsupervised methods, log-linear and discriminative models.					
Understand the Machine Translation, multilingual information, multi lingual automatic summerization						
Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
III Sem	Cyber Security (M20CS27)	L:3 T:0 P:0				
ful completion of th	his course, students are able to:					
Outline key terms a	and concepts in cyber law, intellectual property	y and cyber crimes	•			
Explore the vulner	abilities, threats and cybercrimes posed by crir	ninals				
Identify various security challenges phased by mobile devices.						
Identify various typ	pes of tools and methods used in cybercrime, d	levelops the secure	counter			
methods to maintain security protection.						
Analyze and evaluation	ate the cyber security needs of an organization					
Design operational	and strategic cyber security risk management	policies in order to	adequately			
protect an organiza	tion's critical information and assets.					
Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3			
III Sem	Deep Learning (M20CS28)	L:3 T:0 P:0				
	Year/Semester Sem Val completion of the Understand approa Understand approa Understand current Understand current Understand the Lat Understand the Lat unsupervised meth Understand the Mas summerization Year /Semester III Sem Cultine key terms a Explore the vulner Identify various see Identify various see Identify various typ methods to maintai Analyze and evalua Design operational protect an organiza Year /Semester III Sem	Year/Semester II SemSubject Name (Subject Code) Natural Language Processing Techniques (M20CS26)Ful completion of this course, students will be able to: Understand approaches to syntax and semantics in NLP.Understand approaches to discourse, generation, dialogue and sur Understand current methods for statistical approaches to machine Understand the Language model and probabilistic context-free gr unsupervised methods, log-linear and discriminative models. Understand the Machine Translation, multilingual information, m summerizationYear /Semester III SemSubject Name (Subject Code) Cyber Security (M20CS27)Outline key terms and concepts in cyber law, intellectual property Explore the vulnerabilities, threats and cybercrimes posed by crir Identify various security challenges phased by mobile devices. Identify various types of tools and methods used in cybercrime, d methods to maintain security protection. Analyze and evaluate the cyber security needs of an organization Design operational and strategic cyber security risk management protect an organization's critical information and assets.Year /Semester III SemSubject Name (Subject Code) Cyber Security risk management protect an organization's critical information and assets.	Year/Semester II SemSubject Name (Subject Code) Natural Language Processing TechniquesNo. of Hours L:3 T:0 P:0Understand approaches to syntax and semantics in NLP.Understand approaches to discourse, generation, dialogue and summarization within Understand approaches to discourse, generation, dialogue and summarization.Understand approaches to discourse, generation, dialogue and summarization within Understand current methods for statistical approaches to machine translation.Understand machine learning techniques used in NLP, including hidden Markov me Understand the Language model and probabilistic context-free grammars, clustering unsupervised methods, log-linear and discriminative models.No. of Hours L:3 T:0 P:0Understand the Machine Translation, multilingual information, multi lingual autom summerizationSubject Name (Subject Code) Cyber Security (M20CS27)No. of Hours L:3 T:0 P:0Ut completion of this course, students are able to:Outline key terms and concepts in cyber law, intellectual property and cyber crimes Explore the vulnerabilities, threats and cybercrimes posed by criminals Identify various security challenges phased by mobile devices.Identify various types of tools and methods used in cybercrime, develops the secure methods to maintain security protection. Analyze and evaluate the cyber security needs of an organization 			

After the o	completion of this o	course, the students should be able to			
1	Ability to understand the concepts of Neural Networks				
2	Ability to understa	nd the concepts of Deep Learning			
3	Ability to select the	e Learning Networks in modeling real world sy	stems		
4	Ability to use an ef	ficient algorithm for Deep Models			
5	Ability to apply op	timization strategies for large scale applications	8		
6	Ability to apply the	e Deep Learning models for Speech Recognitio	n, NLP and Other	Applications	
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	III Sem	Advanced Optimization (M20MA01)	L:3 T:0 P:0		
On successf	ul completion of th	is course, students will be able to:			
1	Describe problem	clearly, identify and analyzethe individual funct	tions.		
2	Analyze study on s	olving optimization problem.			
3	Translate verbal fo	rmula on optimization problem.			
4	Design algorithms,	reliably to find an approximate solution			
5	Compare the perfor	rmance of an algorithm.			
6	Discovery, study, u	inderstand and solve optimization techniques us	sing algorithms.		
Course	Year /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome	III Sem	Waste Management (M20CE27)	L:3 T:0 P:0		
outcome					
On successful completion of this course, students are able to:					
1	Compare the subject from the technical, legal and economical points.				
2	Learn solid waste management.				
3	Describe environment for sound management				
4	Understand a muni	cipal solid waste management system.			
5	Plan a solid waste	management system for decision makers.			
6	Design an incinerat	tion facility.			
Course	Vear /Semester	Subject Name (Subject Code)	No. of Hours	Credits: 3	
Outcome		Embedded System Design (M20VL07)	I .3 T.0 P.0		
Outcome	III Selli		L.3 1.01.0		
After the o	completion of this o	course, the students should be able to			
1	Describe embedded	d systems, design, technology to explain its met	trics or challenges	•	
2	Designcustomsingl	e-purposeprocessorsusingcombinationalaswell	assequentiallogic.		
3	Discuss about optin	mizing single – purpose processors. Discuss abo	out the basic archi	tecture and	
	operation of genera	al purpose processors.			
4	Define and disting	hish between a timer and a counter, various type	es of timers and	1.04	
	UniversalAsynchro	onousReceiver/Transmitter.Explaincontrollersfo	orLCD,Keypad an	d Stepper	
5	Discuss common n	nemory types ROM RAM advanced RAM Ev	nlain microproces	sor	
5	interfacing and art	pitration methods, various protocols like serial.	parallel.	5001	
6	Explain basics of in	nterrupts, architectures like Round Robin. Real	– Time Operating	System	
	architecture.	•	· · · · · · · · · · · · · · · · · · ·	· •	

Course Outcome	Year /Semester III Sem	Subject Name (Subject Code) Dissertation Phase-I (M20CS29)	No. of Hours L:0 T:0 P:20	Credits: 10
1				
2				
3				
4				
5				

## **IV-SEMESTER**

Course Outcome	Year/Semester I Sem	Subject Name (Subject Code)	No. of Hours L:0 T:0 P:32	Credits: 16			
0		Dissertation Phase-II (M20CS30)					
1							
2							
3							
4							
5							