



# **CURRICULUM AND SYLLABUS**

### **REGULATION 2018**

B.Tech- Computer Science and Business Systems

Semester | to VI







# CURRICULUM AND SYLLABUS REGULATION 2018

Programme: B.Tech - Computer Science and Business Systems

#### Vision of the Department:

To produce competent industry relevant education, skilful research, technical and innovative computer science professionals acquaintance with managerial skills, human and social values.

#### **Mission of the Department:**

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M1: To impart technical knowledge through innovative teaching, research, and consultancy.

M2: To develop and to promote student ability thereby to compete globally through excellence in education.

M3: To facilitate the development of academic-industry Collaboration.

M4: To produce competent engineers with professional ethics, technical competence and a spirit of innovation and managerial skills.

#### **Programme Educational Objectives (PEOs):**

**PEO1:** To acquire technical knowledge and proficiency required for the carrier advancement and higher education in the contemporary areas of computer science, business systems and various issues in the society.

PEO2: To apply their competency in design and development of innovative solutions to adapt various emerging technological challenges for real world problems.

**PEO3:** To demonstrate leadership qualities with high ethical standards and collaborated with other industries for the socio-economical growth of the country.

# Mapping of Programme Educational Objectives with Mission of the Department:

PEOs / Department Mission Statements	M1	M2	-МЗ	M4
PEO1	3.	3	2	3
PEO2	3	2	2	2
PEO3	3	3	2	2

1: Slight (Low)

2: Moderate (Medium)

-3-Substantial (High)

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#### Programme Outcomes (POs):

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively of engineering community and with society at large, effective reports and design documentation, make tive preserving instructions.

neering activities with the emprehend and write and receive clear

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PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

#### **Programme Specific Outcomes (PSOs):**

**PSO1:** Ability to apply the analytical and business skills to provide sustainable solutions as an engineer/researcher for the real-time applications using Machine Learning, Internet of Things and Data analytics.

**PSO2:** Ability to practice ethical and human values with soft-skills qualities in computer science and business disciplines to emerge as an entrepreneur for the growth and development of the society.

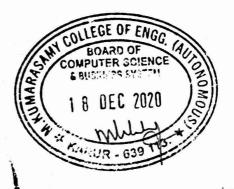
Mapping of Programme Educational Objectives with Programme Outcomes and Programme Specific Outcomes:

PEOs / POs & PSOs			PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
PEO1	2	2	2	3	2	2	3	3	1	2	3	2	3	2
PEO2	2	2	3	2	2	3	3	2	2	3	2	3	3	1
PEO3	3	3	2	3	3	1	1	3	3	2	3	1	1	3

1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)







# Programme Articulation

Seme	Course Code						,.		POs						PS	01
ster	Course Code	Course Name	POI	PO2	POS	P04	ros	106	P07	POS	P09	PO10	POII	PO12	PSO1	<b>P502</b>
1	18MAB103T	Discrete Mathematics	1	~					A19/20	22525					1	
1	18MAB104T	Calculus, Statistics and Probability	1	1		1								1	1	
1	18PYB102J	Physics for Computing Science	1	1	1		town				1	1			1	
1	18EEB102J	Principles of Electrical Engineering	1	1	1		The transport of									
1	18CBB101J	Problem Solving and C Programming	1	1	1	1	1	1	4	1	1	1	1	1	1	1
1	18CBH101J	Business Communicatio n & Value Science – I		,	~		1	1	1	1	1	1	1	1		,
1	18LEM101T	Constitution of India							1	1	1	1	1	. 1		
1		Induction Program														
11	18MAB105T	Linear Algebra	1	1	1	1	×	V.					1	1	1	
11	18MAB106J	Statistical Methods	1	1	1	1	1	1					1	1	1	
11	18ECB101J	Principles of Electronics	1	1	1	1	1	1				1			1	
п	18CBC101J	Data Structures & Algorithms	1	1	1	1	1	1	1	1	1	1	~	1	1	1
11	18MBS101T	Fundamentals of Economics	1	1					1				1	1		
п	18CBH102J	Business Communicatio n & Value Science – II		1	1	1	ADM PACE NO. 1	~	1	<b>*</b>	<b>~</b>	<b>*</b>	1	1		4
II	18LEM102T	Value Education	1	1	1		1	1	1	1	1	<b>~</b>		1	1	
11	18GNM101L	Physical & Mental Health using Yoga					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1		0	-			1	=	
111	18CBC201T	Formal Language and Automata Theory		1		1	1			-	1	1	1	1	~	
- 111	18CBC202T	Computer Organization & Architecture	Ź		1	1	1								1	1
111	18CBC203T	Object Oriented Programming		1	1	1								1	1	1
111	18CBC204J	Computational Statistics	1	1	1	1		سِر		4				1	1	1
ш	18CBC205J	Software Engineering	1	1		1	1/2	N.CC	BOA	E OF	ENGO	M	1	1	1	1
111	18MAB209T	Operations Research	1	1			100	2	USIN:	R SC	ENGO ENCE TEM	1		1	1	

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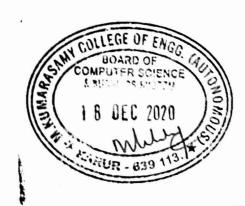
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Seme	Course Code							H	POI						PROS		
ster	Course Code	Course Name	POI	tox	ros	for	908	POS	907	PITE	POR	POSTA	POLY	POCI	Mot	<b>MB</b>	
m	18CBC206L	Object Oriented Programming Laboratory	4	v	<b>V</b>	/	1						,		,	1	
111	18MBM201L	Competencies in Social Skills	4								1	1					
III / IV	18CYM201T	Environmental Science		1		1		1	1	1							
tv	18CBC2077	Database Management Systems	~	1	~	-									1	1	
IV	18CBC208J	Operating Systems	~	4													
IV	18CBC209J	Software Design with UML	~	*	-	-	1	1	1	1	1	1	,	1	1	1	
IV	18CBH103J	Business Communication & Value Science - III										-		1			
tv -	18MBS201T	Fundamentals of Management	-	-					1				1	1		1	
IV	18MBS202T	Introduction to Innovation, IP Management & Entrepreneurs hip		,					•					,		-	
iv	18CBC210L	Database Management Systems Laboratory	,	-	1	~	~								-	<b>*</b>	
īv	18MBM202L	Critical and Creative Thinking Skills	1														
III /	18LEM103T	Indian Tradition and Heritage	1	1	1	1	1	1	~	1	1	-	-	-	and the second s	difference and the specific	

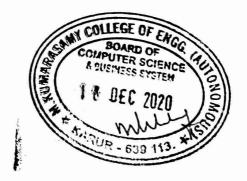






## Structure of Curriculum

S.No.	Category	Credits
1	Humanities and Social Sciences courses (H)	11
2	Basic Science courses including basics of Electrical / Electronics / Computer courses (B)	32
3	Engineering Science courses including Management/Innovation & Entreprenurship course (S)	28
44	Professional core courses (C)	61
5	Professional Elective courses relevant to chosen specialization/branch (E)	22
6	Open Electives - Electives offered to other Departments (O)	•
7	Project work, Minor project, seminar and internship in industry or elsewhere (P)	7
8	Mandatory Courses (M) [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Traditional Knowledge]	4
	Total Credits	165







# 1. Humanities and Social Sciences courses (H)

	C G 1		Но	C		
S.No.	Course Code	Course Name	L	T	P	
1	18CBH101J	Business Communication & Value Science – I	2	0	2	3
2	18CBH102J	Business Communication & Value Science – II	2	0	2	3
3	18CBH103J	Business Communication & Value Science – III	1	0	2	2
4	18CBH104J	Business Communication & Value Science – IV	2	0	2	3
1- N				Total (	Credits	11

L-Lecture

T-Tutorial

P-Practical

# 2. Basic Science courses including basics of Electrical / Electronics / Computer courses (B)

		Conses Name	Но	urs / W	eek	$\Box$ c
S.No.	Course Code	Course Name	L	T	P	
1	18MAB103T	Discrete Mathematics	3	1	0	4_
2	18MAB104T	Calculus, Statistics and Probability	3	0	0	3
3	18MAB105T	Linear Algebra	3	1	0	4
4	18MAB106J	Statistical Methods	3	0	2	4
5	18PYB102J	Physics for Computing Science	3	0	2	4
6	18EEB102J	Principles of Electrical Engineering	2	0	2	. 3
7	18ECB101J	Principles of Electronics	2	0	2	3
8	18CBB101J	Problem Solving and C Programming	3	0	2	4
9	18MAB209T	Operations Research	3	0	0	3
	10			Total C	Credits	32

L-Lecture

T-Tutorial P-Practical

# 3. Engineering Science courses including Management/Innovation & Entreprenurship course **(S)**

			Ho	eek	C	
S.No.	Course Code	Course Name	L	Т	P	
1	18MBS101T	Fundamentals of Economics	2	0	0	2
-1	18MBS201T	Fundamentals of Management	2	0	0	2
3	18MBS202T	Introduction to Innovation, IP Management & Entrepreneurship	3	0	0	3
1	18MBS301T	Financial & Cost Accounting	2	0	0	2
5	18MBS302T	Business Strategy	2	0	0	2_
6	18MBS303J	Design Thinking	2	0	2	3
7	18MBS304T	Financial Management	TEGE O	FENCE	0	

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			Ho	Hours / Week				
S.No.	Course Code	Course Name	L	T	P			
	101404047	Marketing Research & Marketing	2	0	0	2		
8	18MBS401T	Management	1 2	0	0	2		
9	18MBS402T	Human Resource Management			2	4		
10	18MBS403J	Services Science & Service Operational	3	0	2			
11	18MBS404J	Management IT Project Management	3	0	2	4		
	101/1034043	11 Project Management		Total C	Credits	28		

L-Lecture

**T-Tutorial** 

P-Practical

#### 4. Professional core courses (C)

			Hou	rs/We	С	
S.No.	Course Code	Course Name	L	T	P	
1	18CBC101J	Data Structures & Algorithms	3	0	2	4
2	18CBC201T	Formal Language and Automata Theory	3	1	0	4
$-\frac{2}{3}$	18CBC202T	Computer Organization & Architecture	3	0	0	3
4	18CBC203T	Object Oriented Programming	3	0	0	3
5	18CBC204J	Computational Statistics	3	0	2	4
6	18CBC205J	Software Engineering	3	0	2	4
$-\frac{3}{7}$	18CBC206L	Object Oriented Programming Laboratory	0	0	2	1
8	18CBC207T	Database Management Systems	3	0	0	3
9	18CBC208J	Operating Systems	3	0	2	4
10	18CBC209J	Software Design with UML	3	0	2	- 4
11	18CBC210L	Database Management Systems Laboratory	0	0	2	1
12	18CBC301T	Design and Analysis of Algorithms	3	0	0	3
13	18CBC302J	Compiler Design	3	0	2	4
14	18CBC303L	Design and Analysis of Algorithms Laboratory	0	0	2	1
15	18CBC304T	Computer Networks	3	0	0	3
16	18CBC305J	Information Security	3	0	2	4
17	18CBC306J	Artificial Intelligence	3	0	2	4
18	18CBC307L	Computer Networks Laboratory	0	0	2	1
19	18CBC401J	Usability Design of Software Applications	2	0	2	3
20	18CBC402J	IT Workshop Skylab / Matlab	2	0	2	3
		BOARD OF	18		Credits	

L-Lecture

T-Tutorial P-Practical

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# 5. Professional Elective Courses relevant to chosen specialization/branch (E) (Any 6 Courses)

		Q N	Ho	С		
S.No.	Course Code	Course Name	L	T	reek P 2 2 0 2 0 2 Credits	
1		Elective - 1	3	0	2 .	4
2		Elective – 2	3	0	2	4
3		Elective – 3	3	0	0	3
4		Elective – 4	3	0	2	4
5		Elective – 5	3	0	0	3
6		Elective - 6	3	0	2	4
				Total (	Credits	22

			Ho	irs / W	eek	C
S.No	Course Code	Course Name	L	T	P	
		Elective – 1			A MEDICAL	
1	18CBE001J	Coversational Systems	3	0	2 /	. 4
2	18CBE002J	Cloud, Microservices and Application	3	0	2	4
3	19CBE003J	Machine Learning	3	0	2	4
		Elective - 2			1.1	
4	18CBE004J	Robotics and Embedded Systems	3	0	2	4
5%	18CBE005J	Modern Web Applications	3	0	2	4
68	18CBE006J	Data Mining and Analytics	3	0	2	4
		Elective - 3				1.50
7	18CBE007T	Cognitive Science and Analytics	3	0	0	3
8	18CBE008T	Introduction to IoT	3	0	0	3
9	18CBE009T	Cryptology	3	0	0	3
		Elective - 4		(5)		
10	18CBE010J	Quantum Computation and Quantum Information	3	0,	2	4
11	18CBE011J	Advanced Social, Text and Media Analytics	3	0	2	4
12	18CBE012J	Mobile Computing	3	0	2	4
		Elective - 5	ı			
13	18CBE013T	Behavioral Economics	3	0	0	3
14	18CBE014T	Computational Finance and Modelling	3	0	0	3
15	18CBE015T	Psychology	3	0	0	3
	and the second	Elective - 6				
16	18CBE016J	Enterprise Systems	3	0	2	4
17	18CBE017J	Advance Finance	3	0	2	4
18	18CBE018J	Image Processing and Pattern Recognition	3	0	2	4

L-Lecture

T-Tutorial

P-Practical

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## 6. Open Electives - Electives offered to other Departments (O)

			Hou	rs / We	æk	С
S.No.	Course Code	Course Name	L	T	P	•
1	18CBO001T	Usability Design of Software Applications	3	0	0	3
2	18CBO002T	IT Workshop Skylab / Matlab	3	0	0	3
3	18CBO003T	Software Design with UML	3	0	0	3
4	18CBO004T	Modern Web Applications	3	0	0	3
5	18CBO005T	Data Mining and Analytics	3	0	0	3
			1	Total Ci	redits	15

L-Lecture

**T-Tutorial** 

P-Practical

# 7. Project work, minor project, seminar and internship in industry or elsewhere (P)

S.No.	Course Code		Hou	irs / We	æk	c
3.140.	Course Code	Course Name	L	T	P	٠
1 🔆	18CBP301L	Mini Project	0	0	2	1
2	18CBP401L	Project Evaluation I	0	0	4	2
3	18CBP402L	Project Evaluation II	0	0	8	4
				Fotal C	edits	7

L-Lecture

T-Tutorial

P-Practical







# 8. Mandatory Courses (M)

			Но	urs / W	eek	c
S.No.	Course Code	Course Name	L	Т	P	
1	18LEM101T	Constitution of India	1	0	0	Nil
2	18LEM102T	Value Education	1	0	0	Nil
3	18GNM101L	Physical & Mental Health using Yoga	0	0	2	Nil
4		Induction Program	2	0	0	Nil
5	18MBM201L	Competencies in Social Skills	0	0	2	1
6	18MBM202L	Critical and Creative Thinking Skills	0	0	2	1
7	18CYM201T	Environmental Science	1	0	0	Nil
8	18LEM103T	Indian Tradition and Heritage	1	0	0	Nil
9	18MBM301L	Analytical and Logical Thinking Skills	0	0	2	1
10	18MBM302L	Employability Skills and Practices	0	0	2	1
11	18LEM301T	Indian Art Forms	1	0	0	Nil
12	18LEM302T	Self Development and Entrepreneurship	1	0	0	Nil
		Total Credits			7	4

L-Lecture T-Tutorial P-Practical



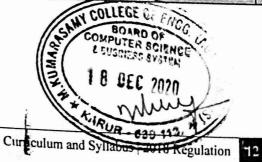




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			Semester I	Tran	/ 11	Zaali I	
S.No	Category	Course Code	Course Name	Hou	rs / W		C.
	Canegory	Course Coue		L	1	P	
1	В	18MAB103T	Discrete Mathematics	3	1	0	4
2	В	18MAB104T	Calculus, Statistics and Probability	3	0	0	3
3	В	18PYB102J	Physics for Computing Science	3	0	2	4
4	В	18EEB102J	Principles of Electrical Engineering	2	0	2	3
5	В	18CBB101J	Problem Solving and C Programming	3	0	2	4
6	,,	1000	Business Communication & Value	2		1	_
0	Н	18CBH101J	Science – I	2	0	2	3
			Mandatory Courses				
7	M	18LEM101T	Constitution of India	1	0	0	Nil
8	M		Induction Program	2	0	0	Nil
	1950 p. 100 k. 4.			To	tal C	redits	21

			Semester II	1			
S.No.	Category	Course Code	Course Name	Hou	rs / W	eek	6
国 經濟			Gourge Hame	L	T	P	C
1	В	18MAB105T	Linear Algebra	3	1	0	4
2	В	18MAB106J	Statistical Methods	3	0	2	4
3	В	18ECB101J	Principles of Electronics	2	0	2	$\frac{3}{3}$
4	C	18CBC101J	Data Structures & Algorithms	$\frac{2}{3}$	0	2	
5	S	18MBS101T	Fundamentals of Economics	$\frac{3}{2}$		-	4
6	Н	18CBH102J	Business Communication & Value Science – II	2	0	2	_23
			Mandatory Courses		MARKET N		
7	M	18LEM102T	Value Education	1	0	Το	Nil
8	М	18GNM101L	Physical & Mental Health using Yoga	0	0	2	Nil
		bana.		To	tal C	redits	20







			Semester III				
C NI-				Hou	rs / W	eek	c
S.No.	No. Category C	Course Code	Course Code Course Name				
1	С	18CBC201T	Formal Language and Automata Theory	3	1	0	4
2	С	18CBC202T	Computer Organization & Architecture	3	0	0	3
3	С	18CBC203T	Object Oriented Programming	3	0	0	3
4	С	18CBC204J	Computational Statistics	3	0	2.	4
5	С	18CBC205J	Software Engineering	3	0	2	4
6	В	18MAB209T	Operations Research	3	0	0	3
			Laboratory Course				
7	С	18CBC206L	Object Oriented Programming Laboratory	0	0	2	1
		K	Mandatory Courses				
8	M	18MBM201L-	Competencies in Social Skills	0	0	2	I
9	М	18CYM201T / 18LEM103T	Environmental Science / Indian Tradition and Heritage	1	0	0	Ni
				To	tal C	redits	22

			Semester IV	7.55 7.55			
				Hou	rs / W	eek	C
S.No.	Category	Course Code	Course Name	L.	T	P	
1	С	18CBC207T	Database Management Systems	3	0	0	3
2	C	18CBC208J	Operating Systems	3	0	2	4_
3	C	18CBC209J	Software Design with UML	3	0	. 2	4
4	Н	18CBH103J	Business Communication & Value Science – III	.1	0	2	2
5	S	18MBS201T	Fundamentals of Management	2	0	0	2
6	S	18MBS202T	Introduction to Innovation, IP Management & Entrepreneurship	3	0	0	3
			Laboratory Course				
7	С	18CBC210L	Database Management Systems Laboratory	0	0	2	1
			Mandatory Courses				
8	M	18MBM202L	Critical and Creative Thinking Skills	0	0	2	1
9	М	18LEM103T / 18CYM201T	Indian Tradition and Heritage / Environmental Science	1	0	0	Nil
				To	otal C	redits	20

Total Credits 20

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		7.77	Semester V	Hou	rs/V	/eek	Ċ
S.No.	Category	Course Code	Course Name	L	T	<b>P</b> 0	3
		1000001017	Design and Analysis of Algorithms	3	0	2	4
1	& C	18CBC301T	Design and Analysis et a 5	3		0	2
2	C	18CBC302J	Compiler Design	2	0		
3	S	18MBS301T	Financial & Cost Accounting	2	0	0	2
4	S	18MBS302T	Business Strategy	2	0	2	3
5	S	18MBS303J	Design Thinking	3	0	2	4
6	Е		Elective I - Professional Topes			7	
			Laboratory Course	T			
7	& C	18CBC303L	Design and Analysis of Algorithms	0	0	2	1
	3 0	100000000	Laboratory	0	0	2	1
8	P	18CBP301L	Mini Project	100 Fort 9 5 K 7			
			Mandatory Courses			1	1
9	М	18MBM301L	Analytical and Logical Thinking Skills	0	0	2	1
10	М	18LEM301T /	Indian Art Forms / Self Development	1	0	0	Nil
10	IAI	18LEM302T	and Entrepreneurship		AND STATE	day with	271
				To	tal Cr	edits	21

			Semester VI				
				Hou	rs / W	eek	C
S.No.	Category	Course Code	Course Name	L	T	P	U
1	С	18CBC304T	Computer Networks	3	0	0	3
2	С	18CBC305J	Information Security	3	0	2	4
3	С	18CBC306J	Artificial Intelligence	3	0	2	4
4	S	18MBS304T	Financial Management	2	0	0	2
5	Н	18CBH104J /	Business Communication & Value Science – IV	2	0	2	3
6	E		Elective II - fragerical / open	3	0	2	4
			Laboratory Course				
7	С.	18CBC307L	Computer Networks Laboratory	T 9	0	2	1
			Mandatory Courses				
8	M	18MBM302L	Employability Skills and Practices	0	0	2	1
9	М	18LEM301T / 18LEM302T	Indian Art Forms / Self Development and Entrepreneurship	1	0	0	Nil
				To	tal Ci	edits	22



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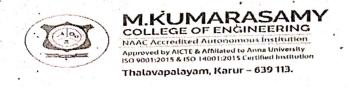
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Ca	tegory	Co	urse Co	de			Cours	e Nam	e e			L		C
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Prerequ	nisite c	ourse									124 167			
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2 .	Becor	ne fan	niliar w	ith the	differ	rent_alg	orithm	design	techni	ques for	r effectiv	ve prob	-	
3								various	kinds	of probl	ems in a	n efficie	nt way.	-
4	-		the limi					_			1		-	
_ 5	Solve	variet	y of pro	blems	using	differen	t approx	kimatio	n algor	ithms.		Control Market 12	all a second of the second	a victore.
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1: Slight (Low)

. 2: Moderate (Medium)

3: Substantial (High)

Curriculum and Syllabus 2018 Regulation





UNIT 1	INTRODUCTION	9
Characteristic	es of Algorithm. Analysis of Algorithm: Performance Measurements of Algorithm, Offs, Asymptotic analysis of Complexity Bounds – Best, Average and Worst-Case	behavior
100 to 1	Recursive Algorithms through Recurrence Relations: Substitution Method, Recur- Masters' Theorem.	Sion Tree
UNIT 2	FUNDAMENTALS OF ALGORITHMIC STRATEGIES	9
Brute-Force, methodologie Salesman Pro	Heuristics, Greedy, Dynamic Programming, Branch and Bound and Bas; Illustrations of these techniques for Problem Solving, Bin Packing, Knapsack, blem.	Travellin
UNIT 3	GRAPH AND TREE ALGORITHMS	9
Traversal algo Transitive clo	orithms: Depth First Search (DFS) and Breadth First Search (BFS); Shortest path algor sure, Minimum Spanning Tree, Topological sorting, Network Flow Algorithm.	rithms;
UNIT 4	TRACTABLE, INTRACTABLE PROBLEMS	9
Standard NP-	y of Algorithms, Computability classes – P, NP, NP-complete and NP-hard. Cook's complete problems and Reduction techniques.	, thousand
UNIT 5	ADVANCED TOPICS	9
	pics: Approximation algorithms, Randomized algorithms, Class of problems beyon duction to Quantum Algorithms.	MANAGEMENT OF THE PARTY OF THE
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2: Moderate (Medium)

3: Substantial (High)

B.Tech - Computer Science and Business Systems

Curriculum and Syllabus 2018 Regulation

10:





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Introdu automa	iction - Phase ita, regular ex	es of compilation and overview. Lexical Analysis (scanner): Regular language pressions, relating regular expressions and finite automata, scanner generator (le	ges, finite x, flex).
UNI	T 2	SYNTAX ANALYSIS	9
top-do	wn parsing, o	arser): Context-free languages and grammars, push-down automata, LL (1) gram operator grammars, LR (O), SLR (1), LR (1), LALR (1) grammars and bottom-uarsing, LALR (1) parser generator (yacc, bison).	nmars and
UNI	T3	SEMANTIC ANALYSIS	9
		Attribute grammars, syntax directed definition, evaluation and flow of attribute: Basic structure, symbol attributes and management.	ibute in a
· UNI	T4 .	RUN-TIME ENVIRONMENT AND CODE GENERATION	9 .
Scope.	Intermediate	ent-Procedure activation, parameter passing, value return, memory allocation, e Code Generation: Translation of different language features, different Register allocation and target code generation.	types of
UNI	T 5	CODE OPTIMIZATION	9
Global	optimizatio	(optimization)- control-flow, data-flow dependence etc.; Local optimization, on, loop optimization, peep-hole optimization etc Architecture dependence	lent code
improv	ement instru	ection scheduling (for pipeline), loop optimization (for cache memory).	1
improv	ement instru	rction scheduling (for pipeline), loop optimization (for cache memory).  Total Periods	45
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1 7 2	Implementat Implementat prints its valu Implementati	LIST OF EXPERIMENTS  ion of lexical analyzer using C and LEX TOOL  ion of a calculator that takes an expression (with digits, + and *), computes and ue, using YACC.	
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1 2 3 4 5 5	Implementat Implementat prints its valu Implementati Implementati Implementati	LIST OF EXPERIMENTS  ion of lexical analyzer using C and LEX TOOL ion of a calculator that takes an expression (with digits, + and *), computes and ue, using YACC. ion of Predictive parsing. ion of Shift Reduce Parsing Algorithm. ion of LR parsing.	
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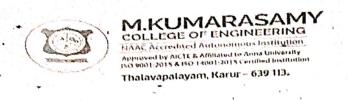




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3	Describe the main elements of Financial Accounting information – assets, liabilities, revenue and expenses													
4	4 Fabricate Awareness about cost accounting, different types costing and cost management													
5	Create an awareness about the importance and the usefulness of the accounting concepts and their managerial implications													
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CO	1 Re	membe plication	ering the	import	tance a	nd usef	ulness c	of the ac	countin	g conce	ots and t	heir ma	mageria	
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CO	3 Ap	plying tement	the finar	icial sta	atemen	t conce	pts and	its unde	erlying	principle	s & lear	n to in	terpret fi	nancia
CO 4	bet	ween th	ie cash a	ind fun	d flow	stateme	ent			techniqu				erence
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2: Moderate (Medium)

3: Substantial (High)





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UNIT 1 -	ACCOUNTING CONCEPTS	6
Introduction	Techniques and Conventions, Financial Statements-Understanding & Interpreting	Financia
Statements.		- market Stanford
The second secon	ACCOUNTING PROCESS	6
The second second second section is	ng, and Record Maintenance-Fundamental Principal and Double entry-Journal, Ledgance Sheet, Final Accounts –Cash Book and subsidiary Book-Rectification of Errors	ger, Trai
TINTER	FINANCIAL STATEMENTS	6
Form and Co Standards	ntents of Financial Statements, Analyzing and interpreting Financial Statements, According to the contents of Financial Statements of Financial Statements, According to the contents of Financial Statements of F	ounting
UNIT	CASH FLOW AND FUND FLOW TECHNIQUES	6
Introduction-	How to prepare, Difference between them (cash flow and fund flow techniques)	
TIMPE	COSTING SYSTEMS	6
Element of C	Tost-Cost behavior, Cost allocation, OH allocation- Unit costing, Process Costing, Job Costing, Marginal Costing, Cost Volume Profit Analysis-Budgets, ABC Analysis.	Costing
Company on the Control of the Contro	Total Periods	30 .
Text Book (s		
Robei	t N Anthony, David Hawkins, Kenneth Marchant, "Accounting: Texts and	
-1 Cases	McGraw-Hill", 13 <sup>th</sup> edition, 2017.	
- 2 John	Wiley & sons," Accounting Principles", published, 2007.	
Reference (s)		Sec. Sec.
1 Textl	pook of Financial Cost and Management Accounting by Periasami P,2010	
	Accounting For Dummies – By Kenneth W. Boyd, 2013	
3 Fund	amentals Of Cost Accounting – By William Lanen, Shannon Anderson Et.A1,2012	1. 2
·4 Cost	Accounting Made Simple – By Mike Piper,2008	







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.	Expo	se stu	dents to	variou	arious perspectives and concepts in the field of Business Strategy									
_2	The	course	would	enable	ple the students to understand the principles of strategy formulation, introl in organizations									
. 3	3 Help students develop				skills for applying these concepts to the solution of business problems									
4	4 Help students master t				analyti	cal tool	s of stra	ategic n	nanage	ment		*	- + = K	
5 '	5 Enhanced ability to ide				entify strategic issues and design appropriate courses of action.									
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CO 2	Und	erstand	l the Int	ernal e	al environment firm's intellectual assets.									
CO 3	Арр	ly the I	External	enviro	onment	concep	t of stra	ategy gi	roups.					
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2: Moderate (Medium)

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UNI	n'i	INTRODUCTION TO STRATEGIC MANAGEMENT	6
Strateg	lance of	Strategie management- Vision and Objectives- School of thought in strategic Macent, Process and practice- Fit concept and configuration Perspective in Strategic Mana	anagement- gement.
ZVNI	rr2	INTERNAL ENVIRONMENT OF FIRM- RECOGNIZING A FIRM'S INTELLECTUAL ASSETS	6
Core co Process	ompeter ses and	nce as the root of Competitive advantage – Source of Sustained Competitive advantage Capabilities-based approach to strategy.	ge-Business
UNI	r3.	EXTERNAL ENVIRONMENT OF FIRM-COMPETITIVE STRATEGY	6
Five fo	orces of Generic	Industry Attractiveness that Shape Strategy-The Concept of Strategic Groups, and I Strategies and the Value Chain.	ndustry life
UNT	T4	- CORPORATE STRATEGY AND GROWTH STRATEGIES	6
		or I my white of the Property and I have lated Diversition tien. Duringer Dantfelie, Anchoris.	
Integra	ition an	or Diversification-Related and Unrelated Diversification-Business Portfolio Analysis- d Diversification-Strategic Alliances, Joint Ventures and Mergers and Acquisitions.  STRATEGY IMPLEMENTATION: STRUCTURE AND SYSTEMS	Expansion,
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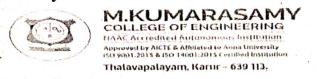


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Prerec	luisite -	course						F11() 10 - Y							
Course	rpose,	of learn	ing this												
. 1 Recognize the importance of Design Thinking.															
. 2	Appropriate the second of the second					elling in presenting ideas and prototypes.									
3 Develop value proposition statements as part of their presentations.															
4		Recognize how Agile and DT complement each other to deliver customer satisfaction													
- 5	Cor										, busines			nce	
			) (COs) urse, lea		will be	able to:									
CO 1	Unc	Understand the empathize phase of Design Thinking.													
CÖ 2	Unc	Understand the Knowledge on system thinking and its digital process.													
-CO3			steps in							process	•	-			
CO 4	Ap	ply the	prototy	pe crea	ited thr	ough a	Design	Thinki	ng próc	ess for o	nline bu	siness.			
CO <sub>5</sub>	An	alyze tl	ie appli	cations	of des	ign thin	king in	politic	s, socie	ty, busin	ess, heal	lth, Scie	nce and	Llaw	
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2: Moderate (Medium)

3: Substantial (High)







UN	VIT 1	INTRODUCTION	6					
Recog - Des	gnize the ign think	importance of Design Thinking - Design thinking and business – Design Thinking a ing process.	ind produc					
which be short an expense.	NIT 2	CREATE PEĀRSONAS	6					
Recog	gnize the	on personas creation - Create personas in design phase - Importance of problem statements.	latements					
-UN	maning	PROTOTYPE PHASES	6					
Expla	rtance of	prototype phase in design thinking - How to create prototype - Examples on prodevelopment of prototype.						
UN	IT 4	TESTING PHASE	6					
Introc Recog	duction to gnize how	o testing phase - Recognize the best practices of the testing phase — Define Function work.	mal work					
The same of the sa	NIT 5	TECHNOLOGY CREATIVITY	on sufficient pains					
Techi	nology C	e politics of civic engagement Managing Gridlocked Debates — Implementing a reativity in the Culinary Arts - Empathy as a means to innovate in a pharmaceutical ening and diagramming at a university.	a Strategio I company					
	*	Total Periods	30					
LIST	Advantage of the second	ERIMENTS .	15					
1	steps i	imental activity on the products they like and dislike based on their experience - Ion the Design thinking process - Explanation of Stanford Model D -Steps in empathize thinking - Explanation on target activity	dentify the ze phase o					
2	Target -Steps	activity related to empathy - Steps in immersion activity - Explanation on Moccasin in immersion activity - Flow charts and handouts -	walk					
3	Mocca	nsin walk activity on stepping in to the shoes of another person						
4	Immer Recog	rsion activity by groups - Define the problem statements - Define the key problem sta nize the steps in the ideate phase of Design thinking - Idea on Six thinking hats	itements -					
5	Creati help to	ng person a based on the immersion activity using A4 pages - Recognize how decopress ideas - Learn doodle - Importance of Storytelling- Importance of presenting	oding can ideas					
6		eview activity						
7	proble	inking hats game - Combining immersion and persona creation to create prototype - D m statement and ideating to create prototypes - Define service value proposition a value proposition statement	efining *					
8 .	Millio	n dollar idea game - Visualization of the personnel - Understand Lean AEIOU - Kno m space - Know what is solution space	w what is					
. 9	Activi	ty on doodling						
10	Deline	telling activity - Agile thinking definition - Define customer perception and expectation Product and customer satisfaction - How design thinking and agile thinking complements to customer satisfaction	ons - nent					
11	Kevie	ty on prototyping - Learn the elements of systems thinking, Actual level and desire w, gap and corrective action - Working of systems thinking & mindset of a system centiate system thinking and design thinking	ed level - thinker -					
12		he prototype						
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Curriculum and Sylvabus | 2018 Regula



# M.KUMARASAMY COLLEGE OF ENGINEERING NAAC Accredited Automotive Institution Approved by AICTE & Affiliated to Anna University ISO 9001:3015 & ISO 14001-2018 Certified Institution Thalavapalayam, Karur – 639 113.



T3	Apply design thinking to create a prototype to improve any existing product or service - Problem definition - Groups need to complete all phases of Stanford design thinking model.							
Textl	poolcs(s)							
1	Michael Lewrick, Patrick Link, Larry Leifer, "The Design Thinking Toolbox", April 2020.							
. 2	Falk-uebernickel ,Li jiang Walter Brenner,Britta Pukall,Therese Naef,Bern hard Schindlholzer "Design Thinking :The Handbook",publication August 2020							
WEB	RESOURCES -							
1	Eyal - "Hooked by" - URL https://www.youtube.com/watch?v=iw1x0zos8Jo							
2	Rod Judkins (2015) – "The Art of Creative Thinking" - Hachette Book Publishing							
3	Senor and Saul singer (2011) – "Start-up Nation" - Twelve; Reprint edition							
4	Simon Sinek - "Start with why" - URL https://www.youtube.com/watch?v=u4ZoJKF_VuA							
5	laude Diderich (2020) – "Design Thinking for Strategy Innovation Towards Competitive Advantage" – Springer International Publishing							
6	Kumar, DivyaZindani and J.PauloDavim (2020) – "Design Thinking to Digital Thinking" – Springer International Publishing							
7	Michael Lewrick, Patrick Link and Larry Liefer (2018) – "The Design Thinking Playbook: Mindful Digital Transformation of Teams, Products, Services, Businesses and Ecosystems" – Wiley							
8	Pressman (2018) – "Design Thinking: A.Guide to Creative Problem Solving for Everyone"–Routledge							
9	Walter Brenner and Falk Uebernickel (2016) – "Design thinking for Innovation: Research and Practice" – Springer International Publishing							
10	The Field Guide to Human Centered Design" – IDEO.org – First Edition, 2015							
11	Roger L Martin (2009) – "The Design of Business: Why Design Thinking is the Next Competitive Advantage" – Harward Business School Press Web References							







	Regulation 2018						Semo	ster V		ative se	manufacturism param	Total Hours Hours / Week		
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2	Implement various Dynamic Programming techniques								NA DIMENSION NAME OF					
3	Unde	erstand	the optin	ıizati	on algo	orithms		,						
. 4	Lear	n and i	mplemen	t Gra	ph algo	orithms								
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2: Moderate (Medium)

· 3: Substantial (High)

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Curriculum and Syllabus 12018 Regulation





I	IST O	F EXPERIMENTS . 15
-	1	Program to implement N-queens problem using backtrack method.
-	2	Program for finding shortest path for multistage graph using dynamic programming.
+	3	Implementation of Optimal merges patterns.
	4	Program to implement job sequencing with deadlines using greedy method
Spirit Grind Michigan	5	Program to implement knapsack problem using greedy method
A STATE OF THE PROPERTY OF THE	6	Find a subset of a given set $S = \{s1, s2, \dots, sn\}$ of n positive integers whose sum is equal to a given positive integer d. For example, if $S = \{1, 2, 5, 6, 8\}$ and $d = 9$ there are two solutions $\{1, 2, 6\}$ and $\{1, 8\}$ . A suitable message is to be displayed if the given problem instance doesn't have a solution.
	7	Implement All-Pairs Shortest Paths Problem using Floyd's algorithm.
	8	Implement any scheme to find the optimal solution for the Traveling Sales Person problem and then solve the same problem instance using any approximation algorithm and determine the error in the approximation.
	9	Compute the transitive closure of a given directed graph using Warshall's algorithm.
	10	Print all the nodes reachable from a given starting node in a digraph using BFS method.



# Thalavapalayam, Karur - 639 113.



30 **Total Hours** Semester V Regulation 2018 Hours / Week C Course Name Course Code

2		The state of the s	300, 100	2 (2000) 2 - (US)	
· p	18CBP301L	· MINI PROJECT	0	0	2
COLORS SERVICE CONTROL OF THE COLORS	A. Carlotte and the American Marketing				

#### Prerequisite course

NIL

#### Course Objective (s):

The purpose of learning this course is to:

- Develop their own innovative prototype of ideas.
- Train the students in preparing mini project reports and examination.

#### Course Outcome (s) (COs):

At the end of this course, learners will be able to:

	Identify and formulate a technical p	problem to reach substantiated conclusion using basic
CO 1	technical knowledge.	•
		' 1 1 - 1 laine the basic engineering knowl

- Design/Develop prototype /model for societal needs applying the basic engineering knowledge. CO<sub>2</sub>
- Evaluate the performance of the developed solution using appropriate techniques and tools. CO3
- Apply management principles to function as a team. CO4
- Communicate the technical information effectively. 'CO 5

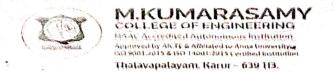
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1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)







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- Category	Course Code	Course Name	I Hou	ors / W T	/eek P
Ņ	18MBM301L	ANALYTICAL AND LOGICAL - THINKING SKILLS	0	0	2
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Course Objec The purpose o	tive (s); Plearning this cours	e is to:			
1 Shar	oen problem solving	skills and to improve thinking capability of th	e students	annun sinsi san panakwana	
2 Drive	the students to use	language with great commitment and cooperat	ion		
-3 Expe	rtise the creative thi	nking and presentation skills to meet the compa			
	me (s) (COs);	111 A C C C C C C C C C C C C C C C C C			
		will be able to:			
		d logical problems in a fruitful manner		***************************************	
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Communication of tiquette   UNIT 2   Aptitude: Par   Communication	tnership - Statement	oals - Interpersonal Relationships - JOHARI V			6
Communication of tiquette   UNIT 2   Aptitude: Par   Communication	tnership - Statement	Module - 2  and Assumptions.			6 know
Communication of the communica	tnership - Statement on: Transition to C	Module - 2  and Assumptions.  corporate World - Career opportunities in Vari	ouş Sector	s and	6
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Curriculum and Syllabus | 2218 Regulation 22





UNIT	- INDIAN ARTS 3
Introduc propagai	on to art (aesthetics, taste)- fine arts - applied arts - Terminology - Subject matter - Art as la Purposes/uses of art.
UNII	THEATRE & DRAMA 3
History of different	Theatre and Drama- Traditional Theatre forms- Modern Theatre and its characteristics- Puppetr forms and elements of drama.
UNIT	MUSICS AND DANCES OF INDIA 3
	Music and Dance- Classical music and Carnatic Music- Regional Music – Musical ats-Regional Classical Dances.
UNII	ARCHITECTURE, SCULPTURE, PAINTING 3
History typęs of	of architecture, sculpture, painting -Indo-Islamic Architecture- Temple Architecture- different Sculptures and its characteristics-Painting and its different styles.
UNI	5 - LITERARY ARTS 3
Ancien Literati	Indian Literature- Early Dravidian Literature- Medieval Literature- Modern Indian e-Contemporary Literature.
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Text B	ok(s)
-	artha Mitter ,"Indian Art",2001
2	ratima Sheh, "Dictionary of Indian Art and Artists",2007
Refere	ce (s)
1	Ohar, Parul Pandya, ed., "Indian Art History Changing Perspectives", New Delhi: D.K. Print world and National Museum Institute (Introduction), 2011,
2	Guha-Thakurta, Tapati, "The making of a new modern Indian art: Aesthetics and nationalism n Bengal", 1850-1920, Cambridge University Press, 1992
3	Huntington, Susan, "The Art of Ancient India: Hindu, Buddhist, Jain, Weatherhill", 1985 Mitter, Partha, "Indian Art, Oxford History of Art series", Oxford University Press, 2001
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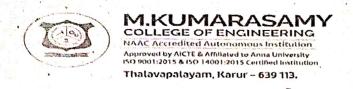


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2: Moderate (Medium)

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Curriculum and Syllaburs: 2018 Regulation





UNIT	INTRODUCTION TO SELF-EMPLOYMENT AND ENTREPRENEURSHIP DEVELOPMENT	3
entrépren personal c	on of self-employment — Characteristics- Creativity. Entrepreneurship development-Q cur and Characteristics of Diploma holder as a self-employer like developing netwo ontacts, importance of productivity, quality, cost consciousness and customers' satisfaction enterprise-Sole partnership -Partnership firm- Joint stock company- Co-operative society.	rking and
UNIT	ENTREPRENEURIAL SUPPORT AGENCIES	3
agencies-	Micro, small and medium industries-Registration process of an enterprise with Governm Name, type and role of state and national-level support agencies. Current state & National hal Schemes for establishment of new.	
UNIT:	PROJECT SET UP PLANNING	3
selection	relection: importance- Product development stages. Process Selection: Factors affecting Technology lifecycle. Process Conversion-Capacity Planning: Basic method to assess / e Selection of location and layouts: Factors affecting selection of location - Objectives and ut.	stimate
UNIT	PROJECT PROPOSAL PLANNING	3
report pre	paration for mechanical feature based product: Meaning of project planning and report: Fe tails required for preparing project plan. Project cost estimation.	Project easibility
UNIT	5 ENTERPRISE AND RISK MANAGEMENT	3
Concept making unalysis.	of risk in the context of enterprise/ project-Uncertainty and certainty of project elements- nder risk-Methods of risk management-Strength, Weakness, Opportunity and Threat	Decision (SWOT)
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	ninaries of layered network structures. Data communication Components: Representation of	
	ow, Various Connection Topology, Protocols and Standards, OSI model, Transmission Media.	
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UN	LAN AND BANDWIDTH UTILIZATION	9
LÁN	: Wired LAN, Wireless LAN, Virtual LAN. Techniques for Bandwidth utilization: Multi	iplexing.
	nency division, Time division and Wave division, Concepts on spread spectrum.	
UN	IT III DATA LINK LAYER	9
Data	Link Layer and Medium Access Sub Layer: Fundamentals of Error Detection and Error C	orrection
	coding-Hamming Distance, CRC; Flow Control and Error control protocols - Stop and V	,
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UNITI

# INTRODUCTION TO ARTIFICIAL INTELLIGENCE & PROBLEM SOLVING

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Problems of Al, Al technique, Tie -Tae - Toe problem. Intelligent Agents, Agents & environment, nature of environment, structure of agents, goal based agents, utility based agents, learning agents. Defining the problem as state space search- production system-problem characteristics-issues in the design of search programs.

UNIT II

#### SEARCH TECHNIQUES

9

Problem solving agents, searching for solutions; uniform search strategies: breadth first search-depth first search-depth limited search-bidirectional search-comparing uniform search strategies. Heuristic search strategies Greedy best-first search- A\* search, AO\* search, memory bounded heuristic search: local search algorithms & optimization problems: Hill climbing search, simulated annealing search, local beam search.

UNIT HI

#### CONSTRAINT SATISFACTION PROBLEMS

9

Local search for constraint satisfaction problems. Adversarial search, Games, optimal decisions & strategies in games, the minimax search procedure, alpha-beta pruning, additional refinements, iterative deepening.

UNIT IV

#### KNOWLEDGE & REASONING

9

Knowledge representation issues, representation & mapping, approaches to knowledge representation. Using predicate logic, representing simple fact in logic, representing instant & ISA relationship, computable functions & predicates, resolution, natural deduction. Representing knowledge using rules, Procedural verses declarative knowledge, logic programming, forward verses backward reasoning, matching, control knowledge

UNIT V

### PROBABILISTIC REASONING & EXPERT SYSTEMS

9

Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafer theory, Planning Overview, components of a planning system, Goal stack planning, Hierarchical planning, other planning techniques. Representing and using domain knowledge, expert system shells, and knowledge Acquisition.

### LIST OF EXPERIMENTS

15

- 1. Implement Water-Jug problem
- 2. Implement Monkey Banana Problem
- 3. Implement Hill Climbing algorithm.
- 4. Implementation of Constraint Satisfaction Problems.
- 5. Implementation of Greedy heuristic search algorithm
- 6: Implementation of Simulated Annealing Heuristic Search
- 7. Implementation of KNN for an application.
- 8. Implementation of SVM for an application.
- 9. Implementation of Decision Tree for an application
- 10. Implementation of simple chatbot for an application.

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B. Tech - Computer Science and Business Systems

Curriculum and Syllabers 2018 Regulation

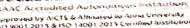




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	UNIT I INTRODUCTION	1 ilabilian Com	gita violetie
Overv	rview of Security Parameters: Confidentiality-integrity a threat; Security policy and procedure; Assumptions	and availability; Secu	rity violation
Imple	ementation and Operational Issues; Security Life Cycle.	and Trust, Securit	, Abbarance
article or county more	AND THE RESIDENCE OF THE PARTY	CONTRACTOR CONTRACTOR	9
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	ess Control Models: Discretionary, mandatory, roll-based		s, unified
weeks to the second	els, access control algebra, temporal and Spatio-temporal mo	odels.	9
	NIT III SECURITY POLICIES	en tradition and the second	Service Charles 1 Comment See 12 A. W. W. Service
Secur	rity Policies: Confidentiality policies, integrity policies, hy	brid policies,non-inter	rference and
ARREST OF THE PERSON NAMED IN	y composition, International standards.	· State of Landers - State Office of a Chief Chief Chief Chief	and a later of a con-
. UN	NIT_IV SYSTEM-DESIGN		9
System	ems Design: Design principles, representing identity, contr	rol of access and info	rmation
flow,	, Confinement problem. Assurance: Building systems with	assurance, formal n	nethods,
evalua	uating systems.		
	UNIT V LOGIC BASED SYSTEM	<b>《大学工艺》中,其他的大学</b>	9
Logic-	e-based System: Malicious logic, vulnerability analysis	s, auditing, intrusion	detection.
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	ications:-Network security, operating system security, a		
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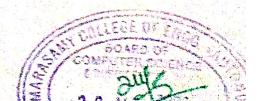


# M.KUMARASAMY COLLEGE OF ENGINEERING NAC Accredited Automotive instantion Approved by AICTS & Atministration University Iso 9001,2015 & Iso 14001,2015 Circuffed Busileuron Thalovapalayam, Kafur - 639 113.





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Text	Book(s)
1.	Stuart Russell, "Artificial Intelligence - A Modern Approach", 3 Edition, 2010
· 2	John D Kelleher, Brian Mac Namee, "Fundamentals of Machine Learning for Predictive Data Analytics: Algorithms, Worked Examples, and Case Studies", 2015
Refe	rence (s)
1	Giarranto, "Expert Systems", VIKAS,2001
2	Patterson, "Introduction to artificial intelligence and Expert system", PHI,1997
3	Russell pearson, "Artificial intelligence",1998
4	Russell & peter norvig, "Artificial intelligence : A modern approach",2005







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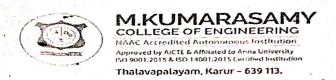
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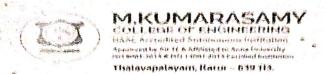
Curriculum and Syllabus | 2018 Regulation





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J-UNIT I	Introduction	6
Money: Sin Factor.	on to Financial Management - Goals of the firm - Financial Environments. Time mple and Compound Interest Rates, Amortization, Computing more than once a year,	
UNITH	Valuation of Securities and Risk & Return	6
Valuation of	of Securities: Bond Valuation Preferred Stock-Valuation, Common Stock Valuation,	Concept
	nd YTM. Risk and Return: Defining Risk and Return, Using Probability Distrib	
	sk, Attitudes Toward Risk, Risk and Return in a Portfolio Context, Diversification, Th	e Capital
	ng Model (CAPM)	Darks diseases a second
UNIT III		6
	Leverage, Financial Leverage, Total Leverage, Indifference Analysis in leverage study.	
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UNIT IV		6
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	posals, Estimating Project, After Tax Incremental Operating Cash Flows, Capital B	
Techniques.	, Project Evaluation and Selection - Alternative Methods. Working Capital Mana	gement:
Overview,	Working Capital Issues, Financing-Current Assets (Short Term and Long Term	1- Mix),
Combining	Liability Structures and Current Asset Decisions, Estimation of Working Capital.	
UNIT V	Cash and Accounts Receivable Management	6
Cash Mana	agement: Motives for Holding cash, Speeding Up Cash Receipts, Slowing Down Cash	Payouts,
*	Commerce, Outsourcing, Cash Balances to maintain, Factoring. Accounts Recounts	
	ent: Credit & Collection Policies, Analyzing the Credit Applicant, Credit References, S	electing
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f ,	Total Periods	30
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	McGraw Hill, "Financial Management: Theory & Practice", 15th Edition, 2015	
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Reference (		<b>维约·纳尔克</b> 克克
1 Sriv	astava, Misra, "Financial Management". OUP, Apr 26, 2012	-
')	Horne and Wachowicz, "Fundamentals of Financial Management", Prentice Hall/ Pearson	on
Luu	cation.1998	
3 Euge	ene F. Brigham, "Fundamentals of Financial Management",2016	
4 Taxi	mann, "Fundamentals of Financial Management: Concise Edition", 9th edition,2017	ė – 2







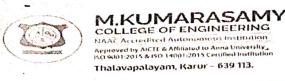
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2	Understand the import	nnce of emotional intelligence in personal and profes	sional	lives		ere in the second
3		of corporate social responsibility (CSR)				Alexander
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S	The second secon	to manage stress & Public Speaking.		Older on Various Print - State Co.		Arts and arts
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CO 3	and the second s	es needed to function and grow in a corporate enviro	nment		-late and the control of the control	Maria de la compansión de
CO 4	Identify the best practi	ces to manage stress				of the second
CO 5	Identify the best practi	ces of public speaking				
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13	UNIT 1 COMMUNICATIVE WRITING	9
W	riting: Principles of Communicative Writing - Formal and Business letters - Writing Proposals -	- Use of
CI	narts and graphs in Communicative Writing – Intelligence: Understand what emotional intelligence	gence -
lin	aportance of Public Speaking - To apply public speaking in real life scenarios. Activity: identif	y topics
rel	ated to the key words - Introduce the concept of Diversity in corporate environments through an	activity
-A	sk students to write a business Proposals in group - Ask students to note down the names of	at least
two	o movies in their Satori slam book, in which the characters display Emotional Intelligence.	
	UNIT IT CORPORATE SOCIAL RESPONSIBILITY (CSR)	9
Co	rporate Social Responsibility (CSR): Recognize the importance of corporate social responsibili	ty – Hear
CS	R stories - Tell a CSR story - Attributes required for work and life - Recognize the attributes	needed to
fun	ection and grow in a corporate environment - Activity: Activity - Groups will research in class	s, prepare
and	I present CSR activity of Tata Steel, Microsoft, Google, TCS, Starbucks, Titan, Tata Chem	icals and
TO	MS Shoes.	
	NIT III EMOTIONAL INTELLIGENCE	9
Cor	ncepts: Concepts of Emotional Intelligence - Its importance in human life and professional	al life –
	erence between emotional quotients and intelligent quotients - Corporate Etiquette activity - A	
Abu	ıbhaav activities – 10 ways to build emotional intelligence by Daniel Golonem – Mock Interview	w.
Ű	NIT IV CONFLICT MANAGEMENT	9
Con	cepts conflicts - Corporate and work place conflicts - Reason and impact of conflicts - guid	elines for
	flicts Teams - Role of team players - Stress - Stress Management - Importance of Feedback	
	nagement – Activity – Creating Posters with Stress Management Tips – Open House Discus	
	·	
	llenges of Time Management – Tracking Time Activity.	9
	NIT V DESIGN THINKING AND PUBLIC SPEAKING	The search and and and
	cepts: Design Thinking – Importance of Startups – Proof of Concepts for Startups – Best Prace	
	of Public Speaking Activity: Pitch in Startup Idea – Listening Videos of Public Speaking – I	
	larifies among World famous speeches – Listening Swami Vivekananda's Speech – Martin	Lumer
Ling	s's My Dream Speech – Dr. Abdul Kalam's Speech.	
	Total Periods	45
ST	OF EXPERIMENTS	15
1.	Introduce the concept of Diversity in corporate environments through an activity	
2.	Ask students to write a business Proposals in group	4 .
3	Ask students to note down the names of at least two movies in their Satori slam book, in wh	. 1 .1
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4	Groups will research in class, prepare and present CSR activity of Tata Steel, Microsoft, Go	A Sar C
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5	Groups will research in class, prepare and present CSR activity of Tata Steel, Microsoft, Go TCS, Starbucks, Titan, Tata Chemicals and TOMS Shoes.  Creating Posters with Stress Management Tips	A Sar C
5	Groups will research in class, prepare and present CSR activity of Tata Steel, Microsoft, Go TCS, Starbucks, Titan, Tata Chemicals and TOMS Shoes.  Creating Posters with Stress Management Tips  Open House Discussions on Challenges of Time Management	N East
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5 6. 7 8	Groups will research in class, prepare and present CSR activity of Tata Steel, Microsoft, Go TCS, Starbucks, Titan, Tata Chemicals and TOMS Shoes.  Creating Posters with Stress Management Tips  Open House Discussions on Challenges of Time Management  Tracking Time Activity.  Watching Videos of Public Speaking  Finding Similarities among World famous speeches	A Sar C
4 5 6. 7 8 9 0	Groups will research in class, prepare and present CSR activity of Tata Steel, Microsoft, Go TCS, Starbucks, Titan, Tata Chemicals and TOMS Shoes.  Creating Posters with Stress Management Tips  Open House Discussions on Challenges of Time Management  Tracking Time Activity.  Watching Videos of Public Speaking	A Sar C





Ref	carace (s)
1	Emotional Intelligence: Why it Can Matter More Than IQ by Daniel Goleman, 1995
2	Learning Emonoral Intelligence To Work by Ryback David 1998
3	Persuasion by Dale Carnegie 2018
4	TED Talks: The official TED guide to public speaking: Tips and tricks for giving unforgettable speeches and presentations. 2016
Neb	References:
1	https://www.tata.com/about-us/tata-group-our-heritage
7	hap e reconomictimes indiatimes com/tata-success-story-is-based-on-humanity-philanthropy-and- ethics articleshow/41766592.cms
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1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)







	LIST OF EXPERIMENTS 15
1.1	Study of system administration and network administration
2	Implementation of Sliding window protocol and stop and wait protocol
3	Write a code simulating PING and TRACEROUTE commands
4	Applications using TCP Sockets like      File transfer     Remote command execution     Chat
Non-Adjournment	o Concurrent services
3	Create a socket for HTTP for webpage upload and download
6	Implementation of Sub netting Applications a. DNS b. SNMP
7	Study of PUTTY (NETWORK FILE TRANSFER APPLICATION
8.	Perform a case study about ETTERCAP (NETWORK SECURITY TOOL).





Upgrade their communication quality in near future



Regulation 2018		Semester VI	To	tal Ho	urs	30
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Cate	gory   Course Code	_ Course Name	L	T	P	
M	18MBM302L	- EMPLOYABILITY SKILLS AND PRACTICES	0	0	2	1
Prerequis	site courses		WEDLE	Victor Victor		
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Course O	bjective (s):					
The purpo	ose of learning this course	e is to:				2 14 2
1 1	Learn the application of r	nathematical or statistical models to different rea	ıl-world	contex	ts	
2	Focus on writing & speak	king skills through vigorous practices.				
3 1	Enhance soft skills and a	nalytical ability of students				
-4 I	Defeat the fear while con	nmunicating in group and to master the effective	commu	nicatio	n	
Course O	utcome (s) (Cos):			表演	S. There's	He G
At the end	of this course, learners	will be able to:				
COL	Solve both analytical and	logical problems in a productive manner				
CO 2	Launch their ability of co	omprising and delivering the information				







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Apt	titude: Time and Distance (Speed, Streams) - Problems on Trains - Arrangements and Blood Remanication: Job Application - Cover letter, Bio-data, Resume & CV building.	elations
U	NIT II Module - 2	6
Con	titude: Time and Work - Pipes & Cisterns - Situation Reaction Test & Data Interpretations.  nmunication: Writing practices on circulars, notices, memos, Agenda preparation and Minting.	nutes o
D:	NIT III Module – 3	6
Apti	itude: Ages - Averages - Probability - Profit and Loss. Communication: Email Etiquette	-Essay
Ui	NIT IV Module -4	Ó
Apti Con	itude: Mensuration - SI & CI - Cause and Effect Analysis - Statement, Assumptions & Conclus numerication: Group Discussion and guidelines.	ions.
U	NII V Module - 5	6
	itude: Permutation and Combinations - Partnership - Alligations or Mixtures.	
Con	nmunication: Interview skills - General instructions, Review of interview questions, Mock Interview	rviews.
Con	nmunication: Interview skills - General instructions, Review of interview questions, Mock Interview  Total Periods	rviews.
Con	munication: Interview skills - General instructions, Review of interview questions, Mock Interview	-
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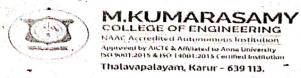
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2	Understand the different techniques of natural language processing										reconstant and an artist of the	nulsar pro-russ and restricted	paint and all and			
3	Explore the working knowledge of a chat bot and the prerequisite knowledge													anna Maria (A		
4	Study the fundamental role of machine learning in building conversational systems												TO THE PARTY OF TH	problem seed		
5		P. 3111111111111111111111111111111111111	THE R. BOOK CASE NAMED	ıs appli	cations	ofeon	versatio	onal sys	tems a	nd its fut	ure deve	lopmen	ls			
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1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)





Thatavapalayam, Karur - 639 113.	
UNIT I FUNDAMENTALS OF CONVERSATIONAL SYSTEMS	ė ė
Introduction: Overview, Case studies, Explanation about different modes of engagement for a	human
being, History and impact of Al. Underlying technologies: Natural Language Processing, A	rtificial
Intelligence and Machine Learning, NLG, Speech-To-Text; Text-To-Speech, Computer Vis	ion etc.
Introduction to Top players in Market - Google, MS, Amazon & Market trends. Messaging Players	latforms
(Facebook, WhatsApp) and Smart speakers - Alexa, Google Home and other new channels. Eth	ical and
Legal Considerations in Al Overview.	2
UNIT II NATURAL LANGUAGE PROCESSING	9,
Introduction: Brief history, Basic Concepts, Phases of NLP, Application of chatbots etc. General	chatbot
architecture, Basic concepts in chatbots: Intents, Entities, Utterances, Variables and Slots, Fu	lfilment
Lexical Knowledge Networks (WordNet, Verbnet, PropBank, etc). Lexical Analysis, Part-of-	-Speech
Tagging, Parsing/Syntactic analysis, Semantic Analysis, Word Sense Disambiguation. Info	rmation
Extraction, Sentiment Analysis, NLP using Python - libraries like NLTK, spaCy, Stanford Affective NLG.	d NLP,
SECOND CONTRACT OF THE PROPERTY OF THE PROPERT	
UNIT III BUILDING A CHATBOT/CONVERSATIONAL AI SYSTEMS	9 4 4
Fundamentals of Conversational Systems (NLU, DM and NLG), Chatbot framework & Archi	tecture,
Conversational Flow & Design, Intent Classification (ML and DL based techniques), D	ialogue
Management Strategies, Natural Language Generation UX design, APIs and SDKs, Us	age of
Conversational Design Tools, Introduction to popular chatbot frameworks – Google Dialog	g flow,
Microsoft Bot Framework, Amazon Lex, RASA Channels: Facebook Messenger, Google Home,	Alexa,
WhatsApp, Custom Apps. Overview of CE Testing techniques, A/B Testing, Introduction to	Testing
Frameworks Botium / Mocha, Chai. Security & Compliance – Data Management, Storage, GDPR, UNIT IV ROLE OF ML/ALIN CONVERSATIONAL TECHNOLOGIES	PCI
	9 11
Understanding on how Conversational Systems uses ML technologies in ASR, NLP, Advanced management, Language Translation, Emotion/Sentiment Analysis, Information extraction, e	Dialog
effectively converse.	etc. to
CONVERGATIVONAYANAYANAYAN	-
CONVERSATIONAL SYSTEMS	9
Contact Centers: Introduction to Contact centers – Impact & Terminologies, Case studies & Trends	s. How
does a Virtual Agent/Assistant fit in here? Overview on Conversational Applytics, Conversational	
Authorities: The need of It, Introduction to Conversational Metrics Future Where	1 10
Summary, Robots and Sensory Applications overview XR Technologies in Conversational Se	stems
XR-Commerce, What to expect next? – Future technologies and market innovations overview.	otomo,
Total periods	45
LAB LIST OF EXPERIMENTS	
Develop the code for the following:	15
1. To identify morphological features of a word by analyzing it.	
2. To generate word forms from root and suffix information.	
3. To perform morphological analysis of a word by the use of Add-Delete table.	
4. To do sentiment analysis for the given dataset and to classify sentences based on their categor	ies.

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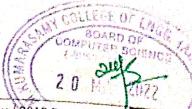
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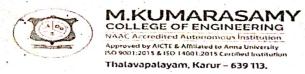


Thalavapalayam, Karur - 639 113.

- 6. To find Parts Of Speech tags of words in a sentence.
- 7. To detect the entities from the dataset and tag them based on their categories.
- 8. To build a chatbot for an application that proves its importance from a social perspective

and the same of	Book (s)
1	McTear, Michael. "Conversational AI: dialogue systems, conversational agents, and chatbots."  Synthesis Lectures on Human Language Technologies 13, no. 3 (2020): 1-251.
. 2	Hands-On Chatbots and Conversational UI Development: Build chatbots and voice user interfaces with Chatfuel, Dialogflow, Microsoft Bot Framework, Twilio, and Alexa Skills Paperback – I January 2017 by Srini Janarthanam
Refe	rence (s)
Ĺ	Pearl, Cathy. Designing voice user interfaces: Principles of conversational experiences. "O'Reilly Media, Inc.", 2016.
2	https://www.tcs.com/content/dam/tcs/pdf/discover-tcs/research- book/ Conversational% 20Systems% 20in% 20Enterprises% 20dps.pdf
3 .	https://www.morganclaypoolpublishers.com/catalog_Orig/samples/9781636390321_sample.pdf
4 .	https://www.mdpi.com/2073-8994/13/7/1187/pdf







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CO 4	Dep	loy the	e cloud n	nicro s	ervice	s using	native c	loud to	ols					
CO 5	Eval	uate a	nd Imple	ement	python	and Do	evelop s	stools a	nd appl	ications		The State State of the State of		***
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1: Slight (Low)

2: Moderate (Medium)

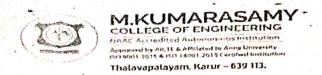
3: Substantial (High)

B.Tech - Computer Science and Business Systems

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UNITI	CLOUD FUNDAMENTALS	9
Cloud Service respect utilize their usage.	ce Components, Cloud service/Deployment Models. Cloud Components Guiding Printention / Security/ Pricing and the applications of Cloud. Public Cloud Platforms ove	ciple with
, UNIT II	APPLICATION ARCHITECTURE	9
Native appli Fundamental	architectures-Monolithic & Distributed ,Micro service fundamental and design approach cations, 12 Factors App, Application integration Process / APIFICATION Process.	
UNITIN	MICRO SERVICE.	9
***	te / API management, Spring boot Fundamental and design of micro service, A portal. Applications of Micro service and APIFICATION.	PI Tools
UNIT IV	DEVELOPMENT FUNDAMENTALS	9
Tools and Ar	oplications Containerization Process and application.	
UNITV	PYTHON	9
Introduction development	- Programming Concepts - Beyond the Basics - Use cases .Cloud A /Deployment/ Execution steps, Cloud Security and Monitoring Tools.	pplication
	Total Periods	45
LAB	LIST OF EXPERIMENTS	15
Students can deployment to	select the project work/ thesis in any one of the Cloud application development / use cases.	on fig.
Text Book (s		
proce	ng, Kai, Jack-Dongarra, and Geoffrey C. Fox. Distributed and cloud computing: from essing to the internet of things. Morgan kaufmann, 2013.	
2 Reese cloud	e, George. Cloud application architectures: building applications and infrastructure in l. "O'Reilly Media, Inc.", 2009.	the
Reference (s		
1 Raj K	umar Buyya ,Christian Vecchio la , S. ThamaraiSelvi," MasteringinCloud",MHI,201	3
John	W. Ritting house and James F. Ran some, "Cloud Computing: Implementation, Mana ecurity", CRC Press, 2010	gement,
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B.Tech - Computer Science and Business Systems

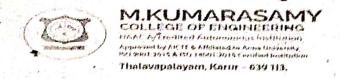
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1: Slight (Low) 2: Moderate (Medium)

3: Substantial (High)

- B.Tech - Computer Science and Business Systems

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UNIT I INTRODUCTION AND CLASSIFICATION	9
Introduction to Machine Learning (ML); Relationship between ML and human learning; Aick sumajor models of how machines learn; Example applications of ML classification; Supervised Learning and testing classification; Feature engineering; Training and testing classifier models Cross – validated evaluation (precision, recall, F1- measure, accuracy, area under curve); Statistical decision including discriminant functions and decision surfaces;	rvey of earning; dation;
UNIT II CLASSIFICATION ALGORITHM	97
Naive Bayes classification; Bayesian networks; Decision Tree and Random Forests; k- Nearest classification; Support Vector Machines; Artificial neural networks including back proparapplications of classifications; Ensembles of classifiers including bagging and boosting.	igation ;
UNIT III PROBABLITISTIC GRAPHICAL MODELS	9
Hidden Markov Models (HMM) with forward-backward and Viterbi algorithms; Sequence class using HMM Conditional random fields; Applications of sequence classification such as part-otagging.	
UNIT IV - REGRESSION	9
Regression: Multi-variable regression; Model evaluation; Least squares regression; Regulari LASSO: Applications of regression. Association rule mining algorithms Including apriori. Expe Maximization (EM) algorithm forum supervised learning  UNIT V  CLUSTERING	ctation-
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Clustering :average linkage ;Ward's algorithm; Minimum spanning tree clustering; K nearest Neig clustering; BIRCH;CURE; DBSCAN .Anomaly and outlier detection methods.	hbors
- Total Periods	45
LAB LIST OF EXPERIMENTS	15
1. Introduction to WEKA and R	
2. Classification of some public domain datasets in UCI ML repository	
3. Implement Decision Tree learning & Logistic Regression.	,
4. Implement association rule mining using apriori	•
<ul><li>4. Implement association rule mining using apriori</li><li>5. Implement Expectation Maximization (EM) algorithm</li></ul>	•
<ol> <li>Implement association rule mining using apriori</li> <li>Implement Expectation Maximization (EM) algorithm</li> <li>Implement K-means Clustering to Find Natural Patterns in Data.</li> </ol>	
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## M.KUMARASAMY COLLEGE OF ENGINEERING NAC Accredited Autonomous Institution Approved by AICTE & Artifated to Anna University 859 9601 (2013 A 180 1 4001 (2013 Certified Institution



Thalavapalayam, Karut - 639 113.

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1: Slight (Low)

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2: Moderate (Medium)

3: Substantial (High)

B.Tech - Computer Science and Business Systems

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# M.KUMARASAMY COLLEGE OF ENGINEERING HAR Assembled Bulencings inclination. Approach to first a relation as a finite learny but work top it for a sent on the pullbut learning. That was palley am. Renyr = 649 113.



UNIT	INTRODUCTION	9
Introduction =revolution, w "Robots,"	to Modern Day Robotics and their industrial applications: Introduction to the industrial applications: Introduction to the industrial applications in technologies, evolution of Robotics and advancements in Robotics, T	ypes of
UNIT 2	TECHNOLOGIES 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	9
day robotics. computer vis	essential for Cognitive Robotics; Computer systems and Technologies relevant to Introduction to computer vision and application of Vision Systems in Robotics; Conton and the how vision systems are becoming essential part of Robotics. Examply vision systems.	ples of
UNIT 3	ARTIFICIAL INTELLIGENCE AND DATA SCIENCE PLATFORM	9
Robots behave context of Cor	ntext of Cognitive Robotics and Role of AI in Robotics; Artificial Intelligence males like human beings, Applications of AI in Robotics. Data Science and Big Data gnitive Robotics: Role of Data Science and Big Data in maximizing the availability of Leveraging Data Science in predicting the potential failure of the Robots.	a in the Robots
UNIT 4	CLOUD COMPUTING AND OPERATING SYSTEM PLATFORM	9,
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Thalavapalayam, Karur - 639 113.



**Total Hours** Regulation 2018 60 Semester VI Hours / Week Category Course Code Course Name C P T 18CBE005J Elective 3 0 2 FULL STACK WEB DEVELOPMENT 4 Prerequisite course

Ni

#### Course Objective (s):

The purpose of learning this course is to:

- Enable students to develop modern web application by leveraging latest technologies.
- Build strong foundation in students making them job ready as per industry requirements.
- Enable them to learn new technologies by applying foundation paradigms
- Build strong expertise to develop end to end application web frontend and backend development
- 5 Perform database manipulation using MySQL and authenticate data.

### Course Outcome (s) (COs):

At the end of this course, learners will be able to:

- \_CO 1 Construct a basic website using HTML and Cascading Style Sheets.
- CO 2 Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
- CO 3 Create simple web pages in PHP and to represent data in XML format.
- CO 4 Design and implement server side programs using PHP.
- CO 5 | Perform database manipulation using MySQL and authenticate data.

#### CO-PO Mapping

	-		-			•		POs					THE THE PERSON	PS	SOs
- Commercial	COs	POI	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
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2: Moderate (Medium)

3: Substantial (High)

B.Tech - Computer Science and Business Systems

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UNI	T1	INTRODUCTION	9
o HT? Progra	ML, XN mming	ebsite, its need and purpose, Types of websites: Static and dynamic website, Introdu ML, JSON, Web Browsers, -Web Servers, Uniform Resource Locator, Tools and Languages. Web Standards, Tiered Architecture: Client Server Model, Three Tier M ed Architectures, REST services.	11 60
UNI	1 2	HYPERTEXT MARKUP LANGUAGE (HTML)	9
Langua Embed	ages use	ed for website development, HTML5: basic tags, formatting tags, Adding image altimedia in Web pages, Inserting tables, Internal and External Linking, Frames, Form	s, Lists, 1s.
UNI	7	CASCADING STYLE SHEETS (CSS)	9
Basics style sl	of Case	cading Style sheets, Advantages of CSS, External Style sheet, Internal style sheet, SS Syntax, color, background, Font, images.	Inline
ÚNI	-	JAVA SCRIPT	9
Docun	nent Ob	va Script, extension of JavaScript, Syntax of Java Script: data types, operators, varia bject Model_(DOM) with JavaScript, Selection Statement using if and Switch, for/in, while, do while, break and continue.	bles, tag, Iterative
UNI	IT 5	FRONT END FRAMEWORK AND BACK END TECHNOLOGIES	9
Direct	ives &	<ul> <li>Basics, Grids, Themes; Angular JS - Expressions, Modules, Data Binding,</li> <li>Events, Controllers, Filters, Services, Validation. Back End Technologies: Introdices, Resources, Messages (Request, Response), Addressing, Methods - (GET, POS)</li> </ul>	uction to
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DELE		Total Periods	45
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1	Fami	liarize	the fur	ıdamer	ital con	cepts o	f data n	nining :	and data	a represe	entation.			
- 2	Familiarize the fundamental concepts of data mining and data repre Learn the data pre-processing task and attribute oriented analysis.										-	the state of the s	The last times and the last	Characteristic Constitution
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4	Appl	y the	linear a	nd non-	linear	models	of data	analys	is.			the state of the s		entropy of a
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1: Slight (Low)

2: Moderate (Medium)

3: Substantial (High)

B.Tech - Computer Science and Business Systems

Curriculum and Syllabus | 2018 Regulation

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- UNIT 1	INTRODUCTION TO DATA MINING.	9
Introduction : Statistics, Sta Applications.	to Data Mining: What is data mining? Related technologies - Machine Learning, DBM ges of the Data Mining Process, Data Mining Techniques, Knowledge Representation	S, OLAP, Methods,
UNIT 2	DATAPREPROCESSING	9.74
concept hiera Representing	ressing: Data cleaning, Data transformation, Data reduction, Discretization and gurchies. Data mining knowledge representation: Task relevant data, Background knowledge, Visualization techniques. Attribute-oriented eralization, Attribute relevance, Class comparison, Statistical measures.	nowledge,
UNIT 3	ASSOCIATION AND CLASSIFICATION ALGORITHMS	9
Generating its Inferring rudi	rules: Motivation and terminology, Example: mining weather data, Basic idea: iem sets and rules efficiently, Correlation analysis. Classification: Basic learning/min mentary rules: IR, algorithm, Decision trees, covering rules. Prediction: The predictagesian) classification, Bayesian networks, Instance-based methods (nearest neighbories)	ing tasks, ction task,
-UNIT 4	REGRESSION-ANALYSIS	9 -
Interpreting R such as Poiss Linearization procedures fo	degression Models, Implementing Predictive Models. Generalized Linear model: link son, binomial, inverse binomial, inverse Gaussian, Gamma. Non Linear Regression transforms, their uses & limitations, examination of non-linearity, initial estimates r NLS, grid search, Newton-Raphson, steepest descent, Marquardt's methods. Introduction models, additive regression models. Introduction to nonparametric in	functions on (NLS): , iterative duction to
UNIT 5	TIME SERIES ANALYSIS	9
analysis, Test smoothing, fo Autoregressive ARMA model estimation for	Analysis: Auto-Covariance, Auto- correlation and their properties. Exploratory till for trend and seasonality, Exponential and moving average smoothing, Holt recasting based on smoothing. Linear time series models: Autoregressive, Moving e Moving Average and Autoregressive Integrated Moving Average models; Estimated as Yule- Walker estimation for AR Processes, Maximum likelihood and least ARMA Processes, Forecasting using ARIMA models. Prescriptive Analytics: Mat Networks modeling-Multi-objective optimization-Stochastic modeling, Decision sion trees.	<ul> <li>Winter</li> <li>Average,</li> <li>nation of</li> <li>st squares</li> <li>hematical</li> </ul>
	- Total periods	45
LAB	LIST OF EXPERIMENTS	15
I. Installi	ng Weka and exploring a dataset.	
2. Loadin	g a dataset and visualizing the Data	
Charles and the Contract of th	A Committee of the Comm	

Preprocessing a dataset from a real domain(Medical/Retail/Banking)

4. Building a classifier- Run Decision Tree, Naïve Bayesian Classifier, NN classifier and SYM



Jason Brownlee "Machine Learning Mastery with Weka",2020.

http://garfield.library.upenn.edu/classics1989/A1989AV48500001.pdf



Mining Association Rules- Run Apriori Algorithm. Building a statistical model using a sample dataset - preprocessing, hypothesis building, model fitting, 6. model validation and interpretation of results. Implementation of linear regression technique for statistical model building. Ŧ. Implementation of Non-linear regression technique for statistical model building. 8. Text Book (s) Jiawei Han and Micheline Kamber, "Data Mining: Concepts and Techniques", Morgan Kaufmann 1-Publishers, 3rd ed, 2010. LiorRokach and Oded Maimon, "Data Mining and Knowledge Discovery Handbook", Springer, 2nd edition, 2010 Box, G.E.P and Jenkins G.M. Time Series Analysis, Forecasting and Control, Holden-Day, 1970 Reference (s) -Draper, N. R. and Smith, H. (1998). Applied Regression Analysis (John Wiley) Third Edition. Hosmer, D. W. and Lemeshow, S. (1989). Applied Logistic Regression (Wiley). Hosmer, D. W. and Lemeshow, S., "Applied Logistic Regression", Third Edition, Wiley, 2003. Daniel T.Larose, "Data Mining Methods and Models", Wiley-Inter Science, 2006.

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