



JAIN
DEEMED-TO-BE UNIVERSITY

SCHOOL OF
COMPUTER
SCIENCE AND IT

SCHOOL OF COMMERCE

Teaching-Learning-Evaluation Plan

Course Information	
Course Code	21JUGE1404
Course Title	EMERGING TECHNOLOGIES IN THE FIELD COMPUTER SCIENCE
Credits	03
Pre-Requisite	Any one
L-T-P-E	3-0-0-0
Learning Hours:	45
Contact Hours (Synchronous)	45
Non-Contact (Asynchronous)	20
CA: ESE	50:50
Pass Marks – CA: ESE	00:40
ESE Question Paper Marks	50
Course Coordinator	
Course Facilitator	Dr Mahesh V, Mr N Saravanan, Dr Logeswari, Dr. Sambath kumar, Dr Kala K U

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1. University Vision and Mission

Vision of the University

Our vision is to foster Human Development through excellence in quality education, research and entrepreneurial development.

Mission of the University

MISSION

To provide quality education, creating human assets and intellectual capital.

To enhance research and development in different disciplines.

To develop a new generation of entrepreneurs who will be instrumental in fuelling economic growth.

To create able leaders, managers and technocrats.

To foster an ethical environment in which both spirit and skill will thrive based on human values, to enrich the quality of life.

2. Vision of School of Commerce

To shape potential leaders in the field of commerce fostering Innovation, technology, entrepreneurship, ethics, research and create lasting global impact towards holistic development.

Mission of School of Commerce

Mission 1: To nurture and deliver high-quality education, empowering individuals to excel in commerce and cultivating thoughtful leaders.

Mission 2: To promote quality education and research across diverse disciplines, driving innovation and expanding the frontiers of knowledge to create meaningful contributions to society.

Mission 3: To strengthen and equip the next generation with skills, knowledge, and ethical values necessary to become successful entrepreneurs, leaders, managers, and technocrats.

Graduate Attributes

Mapping of Graduate attributes	Course mapping (Map the course with High-Low)
Disciplinary Knowledge	High
Self-directed Learning	High

Communication Skills	Low
Ethical Awareness	High
Problem Solving	High
Lifelong Learning	High
Leadership Qualities	Low
Scientific Reasoning	High
Digital Literacy	High
Research-Related Skills	Low
Disciplinary Knowledge	High

3. Program Educational Objectives

1. Graduates will make positive contributions in the field of commerce in areas like accounting, auditing, banking, taxation and finance.
2. Graduates will successfully engage in academic, entrepreneurial, and industry ventures with employable skills.
3. Graduates will practice high standards of moral, ethical, and societal values as expected from a working professional.
4. Graduates will continue with the advancement of knowledge through LifeLong learning in commerce, management, and other diverse fields.
5. Graduates will be recognized for their research-based problem-solving skills, dynamic outlook on business opportunities, and leadership qualities.

4. Program Outcomes

- PO1 Apply knowledge and skills in the field of Commerce that are relevant to employment and entrepreneurship.
- PO2 Employ Domain Specific and Transdisciplinary knowledge, skills, and proficiency in innovative solutions for complex situations within professional and entrepreneurial ventures.
- PO3 Employ analytical reasoning and critical thinking skills to be able to make data-driven business decisions.

- PO4 Demonstrate communication skills with respect to commerce and business activities, such as to correspond with stakeholders and comprehend with effective report writing skills.
- PO5 Illustrate emerging technologies and IT tools for business operations and the use of information for decision-making
- PO6 Demonstrate leadership, collaborative teamwork, and decision-making capabilities to solve complex business problems and drive organizational success.
- PO7 Apply ethical principles, uphold moral and human values, commit to professional ethics, responsibilities, and follow norms of commerce and business.
- PO8 Demonstrate contemporary knowledge of business and commerce, integrate sustainability practices, conduct research, adapt to changing trends and demands of the workplace through lifelong learning.
- PO9 Demonstrate self-directed learning, showcasing the ability to autonomously identify, acquire, and apply knowledge within the context of the business environment.

5. Program Specific Outcomes

- PSO1: Technical Proficiency and Problem-Solving
Demonstrate expertise in solving complex problems using modern computing tools.
- PSO2: Lifelong Learning and Adaptability
Engage in lifelong learning to adapt to technological advancements.
- PSO3: Ethical and Responsible Leadership
Exhibit ethical behavior and contribute to sustainable development.
- PSO4: Effective Communication and Teamwork
Demonstrate strong communication skills and teamwork.
- PSO5: Research and Innovation
Pursue research and entrepreneurial ventures in computing technologies.

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6. Mapping POs to Course (High /Low)

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	1	-	2	2	3	-	-	2	2
CO2	1	2	2	2	3	-	-	-	2
CO3	1	2	3	3	3	-	-	2	2
CO4	2	3	2	2	3	-	-	1	2
CO5	2	3	1	3	3	3	2	-	2

7. Course Objectives and Course Outcomes

Course Objective:

COB1	To provide the most fundamental knowledge to the students about emerging technologies in computer science
COB2	Explore the current scope, potential, limitations, and implications of EMERGING TECHNOLOGIES
COB3	To demonstrate use cases of emerging technologies in current and futuristic scenarios.

Course Outcome

CO Code	Course Outcome	BTL
CO1	Fundamental understanding of the history of artificial intelligence (AI) and its foundation to apply the basic principle of AI.	L2
CO2	Demonstrate the usage of different machine learning models in real time applications.	L3
CO3	Recognize and explore the basics of IoT.	L2
CO4	Exploring data mining and to carry out the analysis using predictive model to support business decision making.	L4
CO5	Interpret various concepts of cyber security and cyber laws.	L3

Module-wise Session Plan

CO-PO Mapping Levels and Calculation of Articulation

CO Code	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PS0 1	PS0 2	PS0 3	PS04
CO1	1	-	2	2	3	-	-	2	2	2	3	2	1
CO2	1	2	2	2	3	-	-	-	2	-	2	-	1
CO3	1	2	3	3	3	-	-	2	2	2	2	2	1
CO4	2	3	2	2	3	-	-	1	2	-	2	-	2
CO5	2	3	1	3	3	3	2	-	2	3	2	-	2
Articulation	1.4	2.5	2.5	2.4	3	3	2	1.6	2	2.3	2.2	2	1.4

8. Attainment Targets

Percentage of students	Percentage of Marks	Attainment Level
≥75% of students	Score 60% or more marks	3
60-74% of students	Score 60% or more marks	2
≤ 59% of students	Score 60% or more marks	1

***Please change % of marks according to your discretion**

9. Syllabus

Module 1 (9 Hours)	Artificial Intelligence and Robotics: A brief review of AI, History of AI, working concepts of AI, Introduction to Robotics: History of Robotics, building a basic robot using cardboard.
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Module 2 (9 Hours)	Machine Learning: Introduction to ML, Types of ML Models, supervised, unsupervised and reinforcement learning, use-cases of ML.
Module 3 (9 Hours)	Internet Of Things: Brief review of IoT, History of IoT, Current Scenario, Use-cases of IoT, basic examples of IoT.
Module 4 (9 Hours)	Big Data Analytics: Defining Data, types of data, Structured and semi structured data, Different source of data generation, understanding RDBMS and why it is failing to store big data, Uses-cases of Bigdata.
Module 5 (9 Hours)	Cyber Security: Fundamentals of Security, terminologies, CIA Triad, computer security policies, types of cyber-crime, cyber security initiatives in India, Cyber laws.

Reference Books\link:

Textbook and References	
1	Introduction to AI Robotics, Robin R Murphy, MIT Press, 2000 Publication.
2	Introduction to Machine Learning, Ethem Alpaydin, MIT Press, 2nd Edition, 2010 Publication.
3	Text Book Adrian McEwen et al., (2014) Ch.1.2
4	Analytics in a Bigdata World - The Essential Guide To Data Science And Its Applications, Bart Baesens, Wiley Publication, 2014 Copyright. ISBN : 9781118892718
5	Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole and Sunit Belapure, Wiley India, 2011

10. Session Plan

Contact Hours (Synchronous)

Detailed Session Plan						
Module	Session	Topic	Readings and References	Pedagogy / Activity Planned	CO	Mode of Delivery
1	1	Introduction to Artificial Intelligence and Robotics	Text Book Robin R. Murphy et al. (2019) Ch. 1-2;	Lecture + Demo	CO1	In-class
	2	A brief review of AI	Text Book Robin R. Murphy et al. (2019) Ch. 1-2;	Lecture + Demo	CO1	In-class
	3	History of AI	Text Book Robin R. Murphy et al. (2019) Ch. 1-2;	Lecture + Demo	CO1	In-class
	4	Working concepts of AI	Text Book Robin R. Murphy et al. (2019) Ch. 1-2;	Lecture + Demo	CO1	In-class
	5	Introduction to Robotics	Text Book Robin R. Murphy et al. (2019) Ch. 3-4;	Lecture + Demo	CO1	In-class
	6	History of Robotics	Text Book Robin R. Murphy et al. (2019) Ch. 1-2;	Lecture + Demo	CO1	In-class
	7	Building a basic robot using cardboard.	Text Book Robin R. Murphy et al. (2019) Ch. 1-2;	Lecture + Demo	CO1	In-class
2	8	Introduction to ML	Text Book Ethem Alpaydm et al.(2010) Ch.1.1	Lecture + Demo	CO2	In-class
	9	Types of ML Models	Text Book	Lecture + Demo	CO2	In-class

			Ethem Alpaydm et al.(2010) Ch.1.1			
	10	Supervised Learning	Text Book Ethem Alpaydm et al.(2010) Ch.1.2	Lecture + Demo	CO2	In-class
	11	Unsupervised	Text Book Ethem Alpaydm et al.(2010) Ch.1.2	Lecture + Demo	CO2	In-class
	12	Reinforcement	Text Book Ethem Alpaydm et al.(2010) Ch.1.2	Lecture + Demo	CO2	In-class
	13	use-cases of ML	Text Book Ethem Alpaydm et al.(2010) Ch.1.2	Lecture + Demo	CO2	In-class
	14	Revision Module 1 & 2	Text Book Ethem Alpaydm et al.(2010) Ch.1.2	Lecture + Demo	CO2	In-class
3	15	Introduction to of Internet Things	Text Book Adrian McEwen et al.,(2014)Ch.1.1	Lecture + Demo	CO3	In-class
	16	Brief review of IoT	Text Book Adrian McEwen et al.,(2014)Ch.1.1	Lecture + Demo	CO3	In-class
	17	History of IoT	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class

	18	Current Scenario	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class
	19	Use-cases of IoT	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class
	20	Use-cases of IoT	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class
	21	Use-cases of IoT	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class
	22	Use-cases of IoT	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class
	23	Revision Module 3	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class
	24	Activity 1 Presentation	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class
	25	Activity Presentation 1	Text Book Adrian McEwen et al.,(2014)Ch.1.2	Lecture + Demo	CO3	In-class
4	26	Introduction to Big Data Analytics	Text Book Bart Baesens et al., (May 2014) Ch.1.1	Lecture + Demo	CO4	In-class
	27	Defining Data	<i>Text Book Bart Baesens et al., (May 2014) Ch.1.1</i>	Lecture + Demo	CO4	In-class

	28	types of data	Text Book Bart Baesens et al., (May 2014) Ch.1.1	Lecture + Demo	CO4	In-class
	29	Structured and semi structured data	Text Book Bart Baesens et al., (May 2014) Ch.1.1	Lecture + Demo	CO4	In-class
	30	Different source of data generation	Text Book Bart Baesens et al., (May 2014) Ch.1.1	Lecture + Demo	CO4	In-class
	31	understanding RDBMS	Text Book Bart Baesens et al., (May 2014) Ch.1.1	Lecture + Demo	CO4	In-class
	32	understanding RDBMS and why it is failing to store big data	<i>Text Book Bart Baesens et al., (May 2014) Ch.1.1</i>	Lecture + Demo	CO4	In-class
	33	Uses-cases of Big data	Text Book Bart Baesens et al., (May 2014) Ch.1.1	Lecture + Demo	CO4	In-class
	34	Real time Example Discussion of Big data and Use cases	Text Book Bart Baesens et al., (May 2014) Ch.1.2	Lecture + Demo	CO4	In-class
	35	Revision Module 3	Text Book Bart Baesens et al., (May 2014) Ch.1.1, 1.2	Lecture + Demo	CO4	In-class
	36	Activity 2 discussion	Text Book Bart Baesens et al., (May 2014) Ch.1.1,1.2	Lecture + Demo	CO4	In-class
5	37	Introduction to Cyber Security	Text Book	Lecture + Demo	CO5	In-class

			Nina Godbole et al., (2011) Ch.1.1			
38	Fundamentals of Security	Text Book Nina Godbole et al., (2011) Ch.1.1	Lecture + Demo	CO5	In-class	
39	Terminologies of Cyber Security	Text Book Nina Godbole et al., (2011) Ch.1.1	Lecture + Demo	CO5	In-class	
40	CIA Triad	Text Book Nina Godbole et al., (2011) Ch.1.2	Lecture + Demo	CO5	In-class	
41	computer security policies	Text Book Nina Godbole et al., (2011) Ch.1.2	Lecture + Demo	CO5	In-class	
42	types of cyber crime	Text Book Nina Godbole et al., (2011) Ch.1.2	Lecture + Demo	CO5	In-class	
43	cyber security initiatives in India, Cyber laws.	Text Book Nina Godbole et al., (2011) Ch.1.2	Lecture + Demo	CO5	In-class	
44	Activity 2 Presentation	Text Book Nina Godbole et al., (2011) Ch.1.2	Lecture + Demo	CO1, CO2, CO3, CO4, CO5	In-class	
45	Revision of all modules	Text Book Nina Godbole et al., (2011) Ch.1.2	Lecture + Demo		In-class	

Non-Contact Hours (Asynchronous)

Detailed Session Plan Module-wise Session Plan							
Module Number	Session	Topic	Readings and References	Pedagogy / Activity Planned	CO	Component	Mode of Delivery
1	5-6	AI concepts	Coursera or LinkedIn certifications	certification	C01, C02		
2	10-11	Content Creation using AI Tools (on assigned topics)	Online Content	Hands-on	C01, C02		
3	22-23	Website Creation using AI Tools	Online Content	Hands-on	C02, C03,		
4	30-32	Group Presentation on Cyber Security Topics	Online Content	Case study	C04, C05		
5							

11. Assessment Plan

Assessment Scheme - Continuous Assessment (CA) : University Exam (SEE) = 50: 50										
Sr.no	Assessment Type(Group Assignment /Individual Assignment)	Brief Description(about assignment)	Continuous assessment	Formative /Summative	Weightage	CO1	CO2	CO3	CO4	CO5
1	Individual Assignment	Coursera / LinkedIn Learning	CA1	Formative	10%	YES	YES			

		Course Completion								
2	Individual Assignment	Content Creation using AI Tools (on assigned topics)	CA2	Formative	10%	YES	YES			
3	Individual Assignment	Website Creation using AI Tools	CA3	Formative	10%		YES	YES		
4	Group Assignment	Group Presentation on Cyber Security Topics	CA4	Formative	10%				YES	YES
5	Individual Assignment	CA	Unit Test	Summative	10%	YES	YES	YES	YES	YES
		Total CA			50%	YES	YES	YES	YES	YES
6	End-Semester Exam	End Semester Examination (UE)	ESE	Summative	50%	YES	YES	YES	YES	YES

Detailed Session Plan

Check to see if your Session Plan Meets the committed L-T-P-E

	Contact/Synchronous (hrs)	Non – contact Asynchronous (hrs)	Total (hrs)	L-T-P-E =Total Hrs/15 weeks	Credits =L/1; T/1; P/2;E/3
Lecture	45		45		
Tutorial					
Practical	NA	NA	NA	NA	
Experiential		20	20		
Total	45	20	65		

Check to see if your Session Plan Meets the broad-level Module-wise plan	
Module 1	9
Module 2	9
Module 3	9
Module 4	9
Module 5	9
Total	45

Other Checks(IMPORTANT)	
Coursera / LinkedIn / Swayam included in the session planning	

Assessment Rubrics: (Attach Rubrics for Each Continuous Assessment).

Rubrics for online certification

SI.No	CRITERIA	MARKS	MARKS OBTAINED
1	On-time Submission	10	
2	Learning Outcomes	15	
3	Report with course details and assessment	15	
4	Viva	10	
	Total	50	
	Convert	10	

	Performance Level			
Parameter(Depends upon your subject coordination meeting)	Highly Effective (>80% to 100%)	Effective (>60% to <=80%)	Just Effective (>40% to <=60%)	Improvement Required (<=40%)

12. Assessment Mapping to COs

CO	CA 1	CA 2	CA 3	CA 4	Total
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CO1	10				10
CO2		10			10
CO3			10		10
CO4				5	5
CO5				5	5
Total					40

13. CO-Question Mapping for Unit Test

Unit Test	Section A : MCQS								Section B: 3 out of 4				Section C: Case study (compulsory)	Total
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q6	Q7	Q8	Q9	Q10	
Marks														
CO1														
CO2														
CO3														
CO4														
CO5														

14. CO-Question Mapping for Semester Exams

Semester End Exam	Section A : 4 out of 5					Section B: 2 out of 3			Section C: Case Study	Total
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	
Marks	5	5	5	5	5	9	9	9	12	64
CO1										
CO2										
CO3										
CO4										

C05										
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15. Consolidate Mapping (**Continuous Assessment, Unit Test and End Semester Exam**)

Course Outcomes	Continuous Assessment	Unit Test	End Semester Exam	Total
C01				
C02				
C03				
C04				
C05				
Total				

16. . Master Talk session details: **Unveiling the Future: Master Talk on Emerging Technologies in Computer Science**