



THIRD-YEAR DIPLOMA INFORMATION TECHNOLOGY ENGINEERING SYLLABUS

Semester: 6TH

Course Code: 002204675

Type of Course: PEC-3

Course Name: Fundamental of Artificial Intelligence

Course Prerequisites: The Basic Knowledge Of Artificial Intelligence Is Solve Real World Problems.

COURSE OBJECTIVE(S):

Artificial Intelligence (AI) and Machine Learning (ML) technologies have immense growth potential and are expected to shape the future of various fields. Understanding AI and ML gives learners a competitive edge in today's era. This course provides the foundation concepts of AI and ML. It covers topics such as Fundamentals of AI, Types of machine learning, Artificial Neural Networks (ANN) and Natural Language Processing (NLP). ANN and NLP is an integral part of the broader field of Artificial Intelligence (AI). This helps students to develop basic models of neural network to solve real world problems.

TEACHING & EXAMINATION SCHEME:

Teaching Scheme (Hrs/Week)				Examination Scheme					
Theory	Tutorial	Practical	Credit	SEE		CA			Total
				Th	Pr	MSE	PLE	LA	
3	0	0	3	60	00	20	20	00	100

Th: Theory; Pr: Practical; FA: Final Assessment; CAT: Continuous Assessment Theory; CAP: Continuous Assessment Practical;

TOTAL Theory Hours: No. of Th. and Tut.Hrs/Week*15 = 45

COURSE CONTENT(S):

Unit No.	Content	Hours	Weightage (%)
1	Introduction to artificial intelligence <ul style="list-style-type: none"> The AI Problem The Underlying Assumption AI Techniques The level of model Criteria for success Application of AI 	08	25%
2	State Space Search and Heuristic Technique <ul style="list-style-type: none"> Solving problems as state space search Production system Problem characteristics Depth First Search Breadth-First Search Heuristic function Hill climbing Best First Search 	12	10%
3	Knowledge Representation <ul style="list-style-type: none"> Knowledge Representation 	08	25%



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	<ul style="list-style-type: none"> Issues in Knowledge Representation FIRST ORDER LOGIC Computable function and predicates Forward/Backward reasoning Unification and Lifting Resolution procedure Logic programming 		
4	Expert System <ul style="list-style-type: none"> Expert System Building Blocks of Expert System Development phases of ExpertSystem Expert System-shell Explanations Knowledge Acquisition Application of the expert system 	08	20%
	AI Cas eStudies <ul style="list-style-type: none"> Chatbots ChatGPT Recommendation Algorithm Digital (Voice) Assistant Virtual Face Filters 	06	20%
		TOTAL	45
			100%

Text Book(s):

Title of the Book	Author(s)	Publication
Artificial Intelligence		Atul prakashan

Reference Book(s):

Title of the Book	Author(s)	Publication
Machine Learning_ Step-by-Step Guide To Implement Machine Learning Algorithms with Python.	Rudolph Russell	Rudolph Russell Publications
Machine Learning	Saikat Dull, S.Chjandramouli	Das, Pearson
Speech and Language Processing	Daniel Jurafsky & James H. Martin.	Second Edition, Prentice Hall, 2008.

Web Material Link(s):

- <https://www.geeksforgeeks.org/machine-learning/>
- <https://www.geeksforgeeks.org/natural-language-processing-nlp-tutorial/>
- https://www.tutorialspoint.com/machine_learning_with_python/index.htm
- https://onlinecourses.nptel.ac.in/noc19_cs56/preview



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- e) https://onlinecourses.nptel.ac.in/noc20_cs29/preview

Equivalent/Corresponding Course on NPTEL (SWAYAM):

NPTEL course on

https://onlinecourses.nptel.ac.in/noc24_ge47/preview

COURSE EVALUATION:

Sr. No.	Activity	Marks	Weightage
1	Semester End Examination (External Th)	60	60%
2	Internal Examination	40	40%
2(a)	Mid Semester Examination	20	
2(b)	Attendance	10	
2(c)	Assessment Types (Any One from 2(c).1 to 2(c).7)	10	
2(c).1	Subject (Course) based Mini-Project		
2(c).2	Industry/Site Visit & Report		
2(c).3	Assignment		
2(c).4	Seminar		
2(c).5	Case Study		
2(c).6	Surprise Class Quiz		
2(c).7	Design Exercise		
2(c).7	Presentation		
2(d)	Practical (if Applicable)		

* For 4 Credit Subjects

1 Credit = 25 Marks

Theory: 3 Credits = 75 Marks

Practicals: 1 Credit = 25 Marks

SEE Evaluation will be of 100 marks and converted to 50 Marks (75 Th + 25 Pr)

CA Evaluation will be of 100 Marks and converted to 50 Marks. (75 Th + 25 Pr)

Distribution of Marks for Theory Evaluation as per Bloom's Taxonomy Level:

Level	Remember	Understand	Apply	Analyse	Evaluate	Create
% Weightage	20%	30%	20%	10%	10%	10%

COURSE OUTCOMES:

CO1	Understand fundamental principles of Artificial Intelligence.
CO2	Compare types of machine learning.
CO3	Build a simple Neural Network model to solve real world problem.
CO4	Apply data preprocessing on text/paragraph using NLTK library.
CO5	Demonstrate word embedding techniques to develop real world NLP applications.