

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/5
Branch	Information Technology			Semester	V
Course Code	502	Course Name	Artificial Intelligence with Machine Learning		
Course Outcome - 1	Utilize AI tools technique & algorithms to learn its behaviour and applications			Teach Hrs	Mark s
Learning Outcome 1	Summarize AI concepts			6	10
Contents	<ul style="list-style-type: none"> Artificial Intelligence: definition, features & limitations, types, applications, challenges AI building blocks & Infrastructure AI production system & its type 				
Method of Assessment	External: End semester theory examination (Pen paper test).				
Learning Outcome 2	Explain AI algorithms & techniques			5	10
Contents	<ul style="list-style-type: none"> Uninformed Search Strategy: Breadth first search, Depth first search Informed Search Strategy(Heuristic Search): A* & AO* algorithms Local Search: Hill Climbing 				
Method of Assessment	External: End semester theory examination (Pen paper test).				
Learning Outcome 3	Identify AI tools and technologies			4	10
Contents	<ul style="list-style-type: none"> Make use of programming languages (Python) for AI Implementation Install & configure AI libraries for python (Scikit, pandas, numpy, nltk, matplotlib, Tensorflow) 				
Method of Assessment	External: Laboratory observation and viva voce.				
Learning Outcome 4	Solve AI problems			4	10

Contents	Solve basic AI problems (eg. Water jug problem, 8-Queen problem, Optimal Path finding) using python programming			
Method of Assessment	Internal: Lab Observation/Assignment			
RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-3	Sheet No. 2/5	
Branch	Information Technology	Semester	V	
Course Code	502	Course Name	Artificial Intelligence with Machine Learning	
Course Outcome - 2	Apply AI search strategy in different areas		Teach Hrs	Marks
Learning Outcome 5	Outline Knowledge Representation for AI logic concept		8	10
Contents	<ul style="list-style-type: none"> • Knowledge Representation: Concept, Issues, Approaches • Propositional and Predicate logic • Semantic Network, Conceptual Dependency 			
Method of Assessment	Internal: Mid semester theory examination (Pen paper test).			
Learning Outcome 6	Explain Natural language processing & Gaming Strategy		8	10
Contents	<ul style="list-style-type: none"> • NLP: Introduction, applications, phases , Top down & bottom up sentence parsing • Gaming Strategy: Min-max Search technique, alpha beta pruning 			
Method of Assessment	External: End semester theory examination (Pen paper test).			
Learning Outcome 7	Make use of AI Processing & Predicting behaviour		4	10
Contents	Make use of available AI programming language (eg. Python) for creating conversational application (eg: text translator, sentimental analysis)			
Method of Assessment	External: Laboratory observation and viva voce.			

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 3/5
Branch	Information Technology			Semester	V
Course Code	502	Course Name	Artificial Intelligence with Machine Learning		
Course Outcome - 3	Classify Artificial neural network and genetic algorithms			Teach Hrs	Marks
Learning Outcome 8	Explain concept of Artificial Neural network			7	10
Contents	<ul style="list-style-type: none"> AI vs Human intelligence, Biological & Artificial Neurons, ANN: Introduction, Structure of Neural Network, Applications of Neural network, Hebb network 				
Method of Assessment	External: End semester theory examination (Pen paper test).				
Learning Outcome 9	Classify Genetic algorithm			8	10
Contents	Genetic algorithm : Concept, Flowchart & Algorithm of GA, Selection, Crossover & Mutation operators				
Method of Assessment	Internal: Mid semester theory examination (Pen paper test).				
RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 4/5
Branch	Information Technology			Semester	V
Course Code	502	Course Name	Artificial Intelligence with Machine Learning		
Course Outcome - 4	Construct Machine Learning activities			Teach Hrs	Marks
Learning Outcome 10	Explain machine learning from examples			10	10

Contents	<ul style="list-style-type: none"> AI vs ML, ML models, ML need & future scope Supervised learning: Regression & classification, Linear regression, logistic regression, KNN Unsupervised Learning: K-means 			
Method of Assessment	External: End semester theory examination (Pen paper test).			
Learning Outcome 11	Explain reinforcement learning & dataset for ML processing	6	10	
Contents	<ul style="list-style-type: none"> Reinforcement learning : Introduction, types & applications Dataset: Introduction, steps of data processing, data cleaning, feature extraction 			
Method of Assessment	Internal: Mid semester theory examination (Pen paper test).			
Learning Outcome 12	Experiment with ML open source development environment	8	10	
Contents	Explore & design ML datasets (Training set & Test set) from various available sources (Kaggle datasets, UCI machine learning repository, Google dataset search, OpenML)			
Method of Assessment	Internal: Lab Observation/Assignment			
RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 5/5
Branch	Information Technology		Semester	V
Course Code	502	Course Name	Artificial Intelligence with Machine Learning	
Course Outcome - 5	Apply Machine learning model activities with fuzzy system		Teach Hrs	Mar ks
Learning Outcome 13	Classify Machine learning classification model		8	10
Contents	<ul style="list-style-type: none"> Decision Tree: concepts, basic structure, construction of decision tree, Confusion matrix, Finding precision & recall 			
Method of Assessment	External: End semester theory examination (Pen paper test).			

Learning Outcome 14	Explain fundamental of fuzzy logic system	9	10
Contents	<ul style="list-style-type: none"> • Fuzzy logic: Introduction, Crisp Sets, fuzzy sets & its operations • Membership function, Defuzzification & its methods • Arithmetic operation on fuzzy numbers 		
Method of Assessment	External: End semester theory examination (Pen paper test).		
Learning Outcome 15	Make use of Machine learning techniques	10	10
Contents	<ul style="list-style-type: none"> • Perform various activity with machine to recognize images, sound and poses (Open Web sources eg. AI.google, teachable machine, machinelearningforkids) • Make a simple ML Model. 		
Method of Assessment	External: Laboratory observation and viva voce.		

REFERENCE BOOKS:

S No	Title & Publication	Author
1	Artificial Intelligence (3 rd edition) published by Tata McGraw Hill	ElanIne Rich & Kevin Knight
2	Artificial intelligence and soft computing behavioural & cognitive modelling of human brain Published by CRC Press	Amit Konar
3	Artificial intelligence: A modern Approach(3 rd Edition) Published by Pearson educ. Inc.	Stuart Russell , Peter Norvig
4	Machine learning- published by Tata McGraw Hill	Tom M. Mitchell
5	Advanced machine learning with python- published by PACKT	John Hearty
9	https://www.ai.google/	Open Web Resource
10	https://www.machinelearningforkids.co.uk	
11	https://teachablemachine.withgoogle.com	
12	https://www.javatpoint.com/artificial-intelligence-tutorial	Open Web Resource

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	1	1	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Utilize AI tools technique & algorithms to learn its behaviour and applications												
LO Description	Summarize AI concepts												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Artificial Intelligence: definition, features & limitations, types, applications, challenges AI building blocks & Infrastructure AI production system & its type 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/quiz/tutorial to make students practice their knowledge.	6	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Pen paper test	Student will be asked Questions on basics of artificial intelligence	10	Question paper + Rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
<ul style="list-style-type: none"> Instructor explains the working of Artificial intelligence with real life AI applications like Google assistant, Navigation System & Maps etc. Students can act out with a list of questions and answers. There will be three students. One student will act as the computer, responding to questions using only the answers given, while another will act as the human, answering questions as they see fit; both should be located outside the classroom. The third student will convey their answer back to the class, which must then determine (identify) which one is human and which is computer. 													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	1	2	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Utilize AI tools technique & algorithms to learn its behaviour and applications												
LO Description	Explain AI algorithms & techniques												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Uninformed Search Strategy: Breadth first search, Depth first search Informed Search Strategy(Heuristic Search): A* & AO* algorithms Local Search: Hill Climbing 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	5	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal								
1	Pen paper test	Student will be asked question related to AI algorithm and techniques	10	Test Paper + rating scale	External								
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Instructor can perform various games related to BFS, DFS, Hill climbing. (eg. pacman game for understanding the concept of DFS)													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	1	3	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Utilize AI tools technique & algorithms to learn its behaviour and applications												
LO Description	Identify AI tools and technologies												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Make use of programming languages (Python) for AI Implementation Install & configure AI libraries for python (Scikit, pandas, numpy, nltk, matplotlib, Tensorflow) 	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	4	Handouts, chalk board, PPT, text book, charts, Computers/text editors/IDE							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal								
1	Lab Observation/Assignment	Student will be asked to prepare report and install python libraries which are important for artificial intelligence	10	Observation schedule/check-list /rating scales /rubrics	External								
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				I	0	4	5	0	2	1	4	
COURSE NAME	Artificial Intelligence with Machine Learning											
CO Description	Utilize AI tools technique & algorithms to learn its behaviour and applications											
LO Description	Solve AI problems											
SCHEME OF STUDY												
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks					
1	Solve basic AI problems (eg. Water jug problem, 8-Queen problem, Optimal Path finding) using python programming	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	4	Handouts, chalk board, PPT, text book, charts, Computers/text editors/IDE .						
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal					
1	Lab observation/Assignment	Student will be asked to prepare report to implement AI basic problems using python	10	Observation schedule/check-list /rating scales /rubrics			Internal					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
NIL												

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				I	0	4	5	0	2	2	5	
COURSE NAME	Artificial Intelligence with Machine Learning											
CO Description	Apply AI search strategy in different areas											
LO Description	Outline Knowledge Representation for AI logic concept											
SCHEME OF STUDY												
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks					
1	<ul style="list-style-type: none"> Knowledge Representation: Concept, Issues, Approaches Propositional and Predicate logic Semantic Network, Conceptual Dependency 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8	NIL	Handouts, chalk board, PPT, text book, charts, video film.						
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal							
1	Paper pen test	Student will be asked basic concept of knowledge representation via logic	10	Test paper + Rating scale	Internal							
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
NIL												

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	2	6	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Apply AI search strategy in different areas												
LO Description	Explain Natural language processing & Gaming Strategy												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> NLP: Introduction, applications, phases ,Top down & bottom up sentence parsing Gaming Strategy: Min-max Search technique, alpha beta pruning 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Pen paper test	Student will be asked questions on NLP and gaming strategy.	10	Question paper + Rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	2	7	
COURSE NAME		Artificial Intelligence with Machine Learning											
CO Description		Apply AI search strategy in different areas											
LO Description		Make use of AI Processing & Predicting behaviour											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Make use of available AI programming language (eg. Python) for creating conversational application (eg: text translator, sentimental analysis)	Interactive lab classroom teaching, demonstration , quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	4	Handouts, chalk board, PPT, text book, charts, Computers/text editors/IDE.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Lab Observation/Assignment	Student will be asked to create AI conversational application	10	Observation schedule/check-list /rating scales /rubrics			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Teacher will teach production rules for AI problems so students can be easily implement it on machine.													

RGPV (Diploma Wing) Bhopal	SCHEME FOR LEARNING OUTCOME	Branch Code			Course Code			CO Code	LO Code	Format No. 4
		I	0	4	5	0	2	3	8	

COURSE NAME	Artificial Intelligence with Machine Learning
CO Description	Classify Artificial neural network and genetic algorithms
LO Description	Explain concept of Artificial Neural network

SCHEME OF STUDY

S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	<ul style="list-style-type: none"> AI vs Human intelligence, Biological & Artificial Neurons, ANN: Introduction, Structure of Neural Network, Applications of Neural network, Hebb network 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/quiz/tutorial to make students practice their knowledge.	7	NIL	Handouts, chalk board, PPT, text book, charts, video film.	

SCHEME OF ASSESSMENT

S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal
1	Pen paper test	Student will be asked Questions on ANN	10	Question paper + Rating scale	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

class activity to demonstrate neural network process through various games (example: Guess songs, places) where Students split in four teams each representing input layer, hidden layer , hidden layer 2 and output layer respectively. Input layer gets data which is passed on to hidden layers after some processing. The output layer finally gets all information and gives meaningful information as output.

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	3	9	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Classify Artificial neural network and genetic algorithms												
LO Description	Classify Genetic algorithm												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Genetic algorithm : Concept, Flowchart & Algorithm of GA, Selection, Crossover & Mutation operators	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Paper pen test	Student will be asked basic concept of Genetic algorithm	10	Quiz/Test paper + Rating scale			Internal						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	4	10	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Construct Machine Learning activities												
LO Description	Explain machine learning from examples												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> AI vs ML, ML models, ML need & future scope Supervised learning: Regression & classification, Linear regression, logistic regression, KNN Unsupervised Learning: K-means 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	10	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Pen paper test	Student will be asked Questions on ML	10	Question paper + Rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	4	11	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Construct Machine Learning activities												
LO Description	Explain reinforcement learning & dataset for ML processing												
SCHEME OF STUDY													
S. No.	Learning Content			Teaching – Learning Method		Description of T-L Process		Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks		
1	<ul style="list-style-type: none"> Reinforcement learning : Introduction, types & applications Dataset: Introduction, steps of data processing, data cleaning, feature extraction 			Interactive classroom teaching, demonstration, quiz, assignments, tutorial		Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.		6	NIL	Handouts, chalk board, PPT, text book, charts, video film.			
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment			Maximum Marks	Resources Required				External / Internal			
1	Paper pen test	Student will be asked basic concept of dataset and reinforcement learning			10	Quiz/Test paper + Rating scale				Internal			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	4	12	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Construct Machine Learning activities												
LO Description	Experiment with ML open source development environment												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Explore & design ML datasets (Training set & Test set) from various available sources (Kaggle datasets, UCI machine learning repository, Google dataset search, OpenML)	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	8	Handouts, chalk board, PPT, text book, charts, Computers/text editors/IDE.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Lab observation/Assignment	Student develop simple machine learning application	10	Observation schedule/check-list /rating scales /rubrics			Internal						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Instruct to do Machine learning model exercise through Kaggle													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	5	13	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Apply Machine learning model activities with fuzzy system												
LO Description	Classify Machine learning classification model												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Decision Tree: concepts, basic structure, construction of decision tree, Confusion matrix, Finding precision & recall 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Pen paper test	Student will be asked Questions on decision tree and confusion matrix with numerical problems	10	Question paper + Rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Faculty can be enhanced the decision making skill of students through decision tree.													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	5	14	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Apply Machine learning model activities with fuzzy system												
LO Description	Explain fundamental of fuzzy logic system												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Fuzzy logic: Introduction, Crisp Sets, fuzzy sets & its operations Membership function, Defuzzification & its methods Arithmetic operation on fuzzy numbers 	Interactive classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	9	NIL	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required					External / Internal			
1	Pen paper test	Student will be asked Questions related to fuzzy logic, membership function & simple arithmetic		10	Question paper + Rating scale					External			
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
NIL													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					I	0	4	5	0	2	5	15	
COURSE NAME	Artificial Intelligence with Machine Learning												
CO Description	Apply Machine learning model activities with fuzzy system												
LO Description	Make use of Machine learning techniques												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	<ul style="list-style-type: none"> Perform various activity with machine to recognize images, sound and poses (Open Web sources eg. AI.google, teachable machine, machinelearningforkids) Make simple ML Model. 	Interactive lab classroom teaching, demonstration, quiz, assignments, tutorial	Teacher will demonstrate major components inside the lab to students, students will practice, provide quiz, assignment etc., teacher will conduct remedial and tutorials.	NIL	10	Handouts, PPT, ML development IDE Computer	Student must be aware with skfuzzy						
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal								
1	Lab Observation/Assignment	Student will be asked to develop an ML fuzzy based application or to recognize content as image, audio and positions	10	Observation schedule/check-list /rating scales /rubrics	External								
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
<p>Faculty can be demonstrating a simple fuzzy control system as a “Tip Problem in Restaurant”. In this model student can be able to predict a tip which should give at restaurant. It can be design into three steps.</p> <ol style="list-style-type: none"> 1. Create membership values [import skfuzzy, numpy libraries; create fuzzy set (restaurant service: poor, acceptable, amazing; Quality: bad, decent, great)] 2. Specify Fuzzy rules [Tip: low, medium, high (eg: if service was good or food quality was good then tip will be high)] 3. Deffuzification for output [if rate the service as 9.5 & quality 6.5 then leave 20% tip]. 													