RGPV (DIPLOMA WING) BHOPAL					RRICULUM E COURSE	FORMA	She		eet . 1/3	
Branch			Comput	er Science and Engi	neering	Semester		6 Th		
Course	Code			Course Name	Machine Learning	g And Deep Python	Lear	ning	Using	
Course	e Outco	ome 1	Under Learn		nental Concepts of Ma	achine	Tea Hu (24	rs	Marks (30)	
Learnin	g Outo	come 1	Expla	in the Basic Conce	epts of ML and its Aj	oplications.	06		10	
C	ontents	5	0 0 0	luction to machine Definition. Machine Learning Scope of Machine Application of mac	& Human Learning. Learning.					
Method	of Asse	ssment	Progre	essive Test- I (Inter	nal)					
Learnin	Learning Outcome 2Differentiate Various Types of Learning in ML.					IL.	08		10	
C	ontents	5		of Machine Learn Supervised Machir Unsupervised Mac Semi-supervised N Reinforcement Ma	ne Learning. hine Learning. Iachine Learning.					
Method	of Asse	ssment	End So	em Theory Exam (l	External)					
Learnin	g Outo	come 3		ppropriate Pythor lize ML Dataset.	n & R Libraries to Ma	anage and	10		10	
C	ontents	S		etc.). Importing Librarie Reading Files (.csv Managing the Data Splitting Dataset ir	(Jupyter, Pycharm, Go s. 7, .xlsx, .pdf, Image, etc	c.). st set.		ne P.	atform),	

	Suggested Datasets: Kaggle, UCI ML Repository, OpenMI	L, MNIS'	Γ, etc.
Method of Assessment	Practical (Internal)		
Course Outcome 2	Apply Regression and classification Techniques in Machine learning.	(36)	(55)
Learning Outcome 4	Explain Regression and it's Various Types.	08	10
Contents	 Concepts of Regression, Types and Metrics: Definition of Regression. Linear Regression. Polynomial Regression. Logistic Regression. Regression Metrics: Mean squared error, mean absolution 	ite devia	tion.
Method of Assessment	End Sem Theory Exam (External)		
Learning Outcome 5	Use Linear Regression to Develop a Model For House Rent Prediction.	08	10
Contents	 Implementation of Linear Regression: Load the Data (Kaggle Dataset OR Any Other Bench Explore the Data. Predicting House Rent. 	mark Da	taset).
Method of Assessment	Practical (External)		
Learning Outcome 6	Differentiate Decision Tree and Random Forest Classifier.	05	10
Contents	 Decision Tree and Random Forest Classifier: Define Classifier. Introduction to Decision Tree. Overview of Random Forest. Advantage of Random Forest Over Decision Tree. 		
Method of Assessment	End Sem Theory Exam (External)		
Learning Outcome 7	Describe Probabilistic Based Classification Technique.	05	10
Contents	 Conditional Probability. Bayes Theorem. Naive Bayes Classifier. 	1	
Method of Assessment	Progressive Test-II (Internal)		

Learning Outcome 8	Implement Support Vector Machine Classifier.	10	10
Contents	 Classification, Regression and Outlier Detection: SVM Overview of Support Vector Machine. SVM as Classification. SVM as Regression. 		
Method of Assessment	Practical (Internal)		
Course Outcome 3	Evaluate Performance Measure of Machine Learning Models.	(15)	(20)
Learning Outcome 9	Define Various Performance Measure Metrics in ML.	07	10
Contents	 Classification Accuracy. Confusion Matrix. Precision and Recall. Precision/Recall Trade-off. F1- score. ROC & AUC Curve. 		
Method of Assessment	End Sem Theory Exam (External)		
Learning Outcome 10	Compute Model's Performance with Various Performance Metrics.	08	10
Contents	 Measuring Accuracy Using Cross-Validation. Confusion Matrix. Precision & Recall. F1- score. ROC & AUC. 		
Method of Assessment	Practical (External)		
Course Outcome 4	Understand the Basics of Deep Learning.	(30)	(50)
Learning Outcome 11	Discuss Deep Learning Concepts and it's Applications.	05	10
Contents Method of Assessment	Introduction to deep learning:• Definitions.• AI, ML and DL Correlation.• Application of Deep Learning.• Recent Trends in Deep Learning Architectures.Term Work (Internal)	<u> </u>	

Learning Outcome 12	Illustrate ANN, Perceptron and the Concept of	06	10
	Backpropagation.		
Contents	Introduction to Artificial Neural Network:		•
	• Definitions.		
	 Biological Neurons. 		
	 Logical Computations with Neurons. 		
	• The Perceptron.		
	• The Multilayer Perceptron and Backpropagation.		
Method of Assessment	End Sem Theory Exam (External)		
Learning Outcome 13	Discuss the Importance of Activation Function in ANN.	06	10
g • • • • • • • • • •		00	10
Contents	• Overview of Activation Function.		•
	• Type(s) of Activation Function:		
	 Binary Step Function. 		
	 Linear Function. 		
	 Sigmoid Function. 		
	 ReLU & Leaky ReLU Function. 		
	 Exponential Function. 		
	■ Softmax.		
Method of Assessment	Practical (External)		
Learning Outcome 14	Explain Convolutional Neural Network.	07	10
Contents	Introduction to Convolutional Neural Network:		
Contents	• Definitions of CNN.		
	 Architecture(s) of CNN. 		
	 Overview of CNN Layers. 		
Method of Assessment	End Sem Theory Exam (External)		
Learning Octoor 15	Differentiate CNN and RNN.	06	10
Learning Outcome 15	Differentiate CNN and KNN.	06	10
Contents	Introduction to Recurrent Neural Network:	<u>ı</u>	I
	• Definitions of RNN.		
	• Architecture of RNN.		
	• Applications of RNN.		
	• Overview of LSTM Networks.		
Method of Assessment	End Sem Theory Exam (External)		

RC	GPV (Diplo	ma Wing) §	SCHEME FOR		Branch C	ode	Course Code	CO Code	LO Code	Format No. 4	
	Bhop	al	LEAF	RNING OUTCOME		0	4		1 1			
COU	RSE NAME	Machine Le	arning And Deep	Learning Using Python								
CO Dese	cription (CO1)	Understand	the Fundamental	Concepts of Machine Le	arning.							
LO Desc	cription (LO1)	Explain the	Basic Concepts of	f ML and its Application	s.							
				SCHEME OF ST	UDY							
S. No.	Learning Content		Learning (Content		Teach Hrs.	Pract. /Tut Hrs.		LRs equired	Remarks			
1	 Introduction to machine learning: Definition. Machine Learning & Human Learning. Scope of Machine Learning. Application of machine learning. 			Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher w explain th contents a provide handouts. Teacher w conduct q make stud practice th knowledg	e nd vill uiz to lents neir	06		Cha Boa Pap Vid PPT	ndout/ alk- ard / per-Pen / leos / I/ E- tents.	/ NIL	
				SCHEME OF ASSES	SSMENT							
S. No.	Method of A	ssessment	Desc	scription of Assessment			ximum arks	Resources Re		Required Exte		
1	Progressiv	e Test- I	Students will be as etc. based on Cont	sked to Explain/ Differenti tents.	ate/ Lists		10	Question/ Te Quiz Ques		-	Internal	

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)	

RC	GPV (Diplo	ma Wing	;)	SCH	HEME FOR		Branch	Code	Course Code	CO Code	LO Code	Format No. 4
	Bhop	al]	LEARNI	ING OUTCOME		<i>C</i> 0	4		1	2	
COU	RSE NAME	Machine Le	earning Ar	nd Deep Lear	ning Using Pytho	n						
CO Dese	cription (CO1)	Understand	l the Fund	amental Con	cepts of Machine	Learning.						
LO Deso	cription (LO2)	Differentiat	te Various	Types of Lea	rning in ML.							
					SCHEME OF	STUDY						
S. No.	Learning Content		Teaching – Learning Method	-	otion of rocess	Teach Hrs.	Pract. /Tut Hrs.		LRs equired	Remarks		
1 Types of Machine Learning: • Supervised Machine Learning. • Unsupervised Machine Learning. • Semi-supervised Machine Learning. • Reinforcement Machine Learning.			Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher explain the contents provide he Teacher conduct of make stu practice to knowledg	ne and andouts. will quiz to dents heir	08	00	Handout/ Chalk- Board / Paper-Pen Videos / PPT/ E- contents.		/ NIL		
				SC	CHEME OF ASS	ESSMEN	Т					
S. No.	Method of A	ssessment		Description of Assessment			ximum Iarks	Resources Required		uired	External / Internal	
1	End Sem Th	eory Exam		will be asked l on Contents.	to Explain/ Differe	entiate/ List	S	10	Question/ Test Paper/ Quiz Questions		-	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing)) SCHEME	FOR		Branch Code	C	ourse Code	CO Code	LO Code	Format No. 4	
	Bhop	al	LEARNING OU	JTCOM	E <i>C</i>	0	4		1	3	
COU	RSE NAME	Machine Lea	arning And Deep Learning Using	g Python							
CO Deso	cription (CO1)	Understand	the Fundamental Concepts of Ma	achine Learn	ing.						
LO Desc	cription (LO3)	Use Appropr	riate Python & R Libraries to Ma	anage and Vis	sualize	ML Datas	et.				
			SCHEM	E OF STUD	θY						
S. No.	Learning Content			Teaching - Learning Method		iption of Process	Teac h Hrs.	Pract. /Tut Hrs.		LRs equired	Remarks
1	 Python IDE and Dataset(s): Setup Python IDE (Jupyter, Pycharm, Google Colab (Online Platform), etc.). Importing Libraries. Reading Files (.csv, .xlsx, .pdf, Image, etc.). Managing the Dataset. Splitting Dataset into Training set and Test set. Perform Data Visualization & Plotting Using R & Python. Suggested Datasets: Kaggle, UCI ML Repository, OpenML, MNIST, etc. 					n the ts and e uts. er will ct quiz to students ee their		10	Cha Boa Pap Vid PPT	ndout/ alk- ard / per-Pen / leos / I/ E- tents.	, NIL
			SCHEME O	F ASSESSN	IENT						I
S. No.	Method of A	ssessment	Description of Asse	Description of Assessment		Maximum Marks		Question/ Test Paper/ Quiz Questions			External / Internal
1	Practica Assessme		Students will be asked to write pro explain, etc. in the lab and prepare	•	nstrate,	1(Lab File Test Pa Que	-	uiz	Internal

RC	RGPV (Diploma Wing)			SCHEME F	_	Branch (Code	Course Code	CO Code	LO Code	Format No. 4
	Bhop	al		CARNING OU	ГСОМЕ	<i>C</i> 0	4		2	4	
COU	RSE NAME	Machine Le	earning And D	Deep Learning Using F	Python						
CO Desc	cription (CO2)	Apply Regr	ession and cla	ssification Technique	s in Machine lea	rning.					
LO Desc	cription (LO4)	Explain Reg	gression and i	t's Various Types.							
				SCHEME	OF STUDY						
S. No.	o. Learning Content		8 1 1		Teach Hrs.	Pract. /Tut Hrs.		LRs equired	Remarks		
1	Metrics: O Definitio Linear R O Polynom Logistic O Regression	Regression, on of Regression egression. ial Regression Regression. on Metrics: Mean absolute de	on. Mean squared	Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will explain the contents and provide handouts. Teacher will conduct quiz to make students practice their knowledge.		08	_	Cha Boa Pap Vid PPT	ndout/ alk- ard / per-Pen / leos / I/ E- tents.	/ NIL
				SCHEME OF	'ASSESSMEN'	Г					
S. No.	Method of A	ssessment	I	Description of Assess	sessment		ximum larks	Resources	s Required		External / Internal
1	End Sem Th	eory Exam	Students will etc. based on	be asked to Explain/ D Contents.	Differentiate/ Lists		10	Question/ Quiz Q		-	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

	Branch Code	Course Code	CO Code	LO Code	
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RGPV (Diploma Wing) Bhopal LE		SCHEME F		0	4		2 5	Format No. 4				
COU	RSE NAME	Machine Lea	arning And I	Deep Learning Using P	ython			, ,,	· · ·			
CO Description (CO2) Apply Regression and cla			assification Techniques	ssification Techniques in Machine learning.								
LO Dese	cription (LO5)	Use Linear I	Regression to	Develop a Model For	House Rent Predic	ction.						
				SCHEME	OF STUDY							
S. No.				Teaching – Learning Method	Description of Process	T-L	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks		
1	Implementation of Linear Regression:		Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will explain the contents and provide handouts. Teacher will conduct quiz to make students practice their knowledge.		_	08	Handout/ Chalk- Board / Paper-Pen / Videos / PPT/ E- contents.	NIL			
				SCHEME OF	ASSESSMENT							
S. No.	Method of A	ssessment]	Description of Assess	sment		kimum arks	Resources	Required	External / Internal		
1	Practical: Lab	Assessment		be asked to write program the lab and prepare lab			Lab File/ Question/10Test Paper/ Quiz Questions.		er/ Quiz	External		

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RC	RGPV (Diploma Wing) Bhopal			SCHEME F EARNING OU		Branch Code Cours C 0 4		Course Code	CO CodeLO Code26		Format No. 4		
COU	RSE NAME	Machine Le	arning And I	Deep Learning Using F	ython								
CO Desc	CO Description (CO2) Apply Regression and c			classification Techniques in Machine learning.									
LO Description (LO6) Differentiate Decision T			e Decision Tr	ee and Random Fores	t Classifier.								
				SCHEME	OF STUDY								
S. No.	. Learning Content		Teaching – Learning Method	Description Process		Teach Hrs.	Pract. /Tut Hrs.		LRs quired	Remarks			
1	Classifier: Define C Introduct Overview Advantage 	 Classifier: Define Classifier. Introduction to Decision Tree. Overview of Random Forest. 			Teacher will exp contents and pro- handouts. Teach conduct quiz to students practice knowledge.	ovide ner will make	05		Cha Boa Papo Vido PPT	rd / er-Pen eos /	NIL		
				SCHEME OF	ASSESSMEN	Г	1		I		I		
S. No.	Method of A	of Assessment Desc.		Description of Assess	sment		ximum larks	Resources	s Requ	ired	External / Internal		
1	End Sem The	eory Exam		l be asked to Explain/ D and Disadvantages base			10	0 Question/ Test Paper/ Quiz Questions		-	External		

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

	Branch Code	Course Code	CO Code	LO Code	
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RGPV (Diploma Wing Bhopal		·	SCHEME F		0	4		2 7	Format No. 4				
COUI	RSE NAME	Machine Le	arning And	Deep Learning Using P	ython		· · · · ·						
CO Description (CO2) Apply Regress			ession and cl	ssion and classification Techniques in Machine learning.									
LO Desc	ription (LO7)	Describe Pr	obabilistic B	ased Classification Tec	hnique.								
				SCHEME	OF STUDY								
S. No.	Learning Conten		nt	Teaching – Learning Method	Description of Process	T-L	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks			
1	 Conditional Probability Bayes Theorem. Naive Bayes Classifier. 			Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will expla contents and provi handouts. Teacher conduct quiz to m students practice t knowledge.	ide : will ake	05	_	Handout/ Chalk- Board / Paper-Pen / Videos / PPT/ E- contents.	NIL			
	·			SCHEME OF	ASSESSMENT		·						
S. No.	o. Method of Assessment			Description of Assess	sment		ximum [arks	Resources	Required	External / Internal			
1				ll be asked to Solve/ Exp e/ Prove etc. Based on Co			10	Question/ T Quiz Qu	-	Internal			

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing)	SCHEME F	OR	Branch (Code	Course Code	Course CodeCO CodeLO Code		Format No. 4		
	Bhop	al	LE	LEARNING OUTCOME		C 0	4		2 8		• • • • • • • •	
COURSE NAME Machine Learning And				Deep Learning Using F	ython				-			
CO Description (CO2) Apply Regression and cla				ssification Technique	s in Machine lear	ning.						
LO Desc	cription (LO8)	Implement S	Support Vect	or Machine Classifier.	,							
				SCHEME	OF STUDY							
S. No.	Learning Content			Teaching – Learning Method	Description of Process		Teach Hrs.	Pract. /Tut Hrs.	Re	LRs equired	Remarks	
1	Classification, Regression and OutlierDetection: SVM• Overview of Support Vector Machine.• SVM as Classification.• SVM as Regression.		Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will exp contents and pro- handouts. Teach conduct quiz to students practice knowledge.	will explain the s and provide ts. Teacher will quiz to make s practice their		10	Cha Boa Pap Vid PP	ndout/ ulk- urd / eer-Pen / eos / F/ E- tents.	NIL		
				SCHEME OF	ASSESSMENT	Г						
S. No.	Method of A	Assessment D		Description of Assess	sment		ximum [arks	Resources	Resources Required		External / Internal	
1	Practical: Lan Assessment			be asked to write prog in the lab and prepare la		2,	Lab File/ Question/10Test Paper/ Quiz Questions.			Internal		

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)	

RG	RGPV (Diploma Wing		;)	SCHEME F	OR	Branch (Code	Course Code	CO Code	LO Code	Format No. 4		
	Bhop	al]	LEARNING OU	ГСОМЕ	C 0	4		3	9			
COU	RSE NAME	Machine Le	earning An	nd Deep Learning Using P	ython								
CO Description (CO3) Evaluate Performan				nce Measure of Machine Learning Models.									
LO Desc	cription (LO9)	Define Vari	ious Perfor	mance Measure Metrics	in ML.								
				SCHEME	OF STUDY								
S. No.	Learning Content			Teaching – Learning Method	Description o Process		Teach Hrs.	Pract. /Tut Hrs.	Re	LRs equired	Remarks		
1	1 • Classification Accuracy. • Confusion Matrix. • Precision and Recall. • Precision/Recall Trade-of • F1- score. • ROC & AUC Curve.			Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will exp contents and pro handouts. Teach conduct quiz to r students practice knowledge.	vide er will make	07	_	Cha Boa Pap Vid PP	ndout/ alk- ard / per-Pen / leos / I/ E- tents.	/ NIL		
				SCHEME OF	ASSESSMENT	- -							
S. No.	Method of A	Assessment I		Description of Assess	sment		ximum larks	Resources Required		External / Internal			
1	End Nem Theory Exam			will be asked to Explain/ D l on Contents.	ifferentiate/ Lists		10	Question/ Quiz Q		-	External		

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)

RGPV (Diploma Wing		;)	SCHEME F	OR	Branch (Code	Course Cod		CO Code	LO Code	Format No. 4	
	Bhop	al	LE	EARNING OUTCOME		. 0	4			3	10	
COUL	RSE NAME	Machine Le	earning And I	Deep Learning Using P	ython							
CO Description (CO3) Evaluate Performance M				easure of Machine Lea	arning Models.							
LO Desc	ription (LO10)	Compute M	lodel's Perfor	mance with Various P	erformance Metri	cs.						
		1		SCHEME	OF STUDY							
S. No.	Learning Content			Teaching – Learning Method	Description of Process	T-L	Teach Hrs.	Prac /Tut H			LRs quired	Remarks
1	 Measuring Accuracy Using Cross- Validation. Confusion Matrix. Precision & Recall. F1- score. ROC & AUC. 		Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will expl contents and prov handouts. Teache conduct quiz to n students practice knowledge.	ride r will nake	_	08	▲		/ NIL		
				SCHEME OF	ASSESSMENT							
S. No.	Method of A	f Assessment I		Description of Assess	sment		kimum [arks	Resou	rces I	Requ	ired	External / Internal
1	Practical: Lan Accelement			be asked to write progr in the lab and prepare la			10	Test	File/ Q t Pape Questie	r/ Qu	uiz External	

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)	

RG	RGPV (Diploma Wing)		;)	SCHEME F	OR	Branch (Code	Course Code	CO Code	LO Code	Format No. 4	
Bhopal		LE	LEARNING OUTCOME			4		4	11	1 0111111 1 (0)		
COURSE NAME Machine Learning And I			Deep Learning Using P	ython								
CO Desc	cription (CO4)	Understand	the Basics of	Deep Learning.								
LO Desc	cription (LO11)	Discuss Dee	p Learning C	Concepts and it's Appli	cations.							
		1		SCHEME	OF STUDY							
S. No.	Learning Content			Teaching – Learning Method	Description Proces		Teach Hrs.	Pract. /Tut Hrs.	Re	LRs equired	Remarks	
1	 Introduction to deep learning: Definitions. AI, ML and DL Correlation. Application of Deep Learning. Recent Trends in Deep Learning Architectures. 			Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will ex- contents and pri- handouts. Teac conduct quiz to students praction knowledge.	ovide her will make	05	8	Cha Boa Pap Vid PP	ndout/ alk- ard / ber-Pen leos / I/ E- tents.	/ NIL	
				SCHEME OF	ASSESSMEN	Т						
S. No.	Method of A	ssessment]	Description of Assessment			ximum larks	Resources	s Requ	uired	External / Internal	
1	Term Work: A	Assignment		l be asked to Submit As for Assignment Questic	U	re 10		Question/ Quiz Q		-	Internal	

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)	

RGPV (Diploma Wing)				SCHEME F	OR	Branch	Code	Course Co	ode	CO Code	LO Code	Format No. 4
	Bhopal		LF	LEARNING OUTCOME			4			4	12	
COU	COURSE NAME Machine Learning And D			Deep Learning Using P	ython							
CO Deso	cription (CO4)	Understand	the Basics of	Deep Learning.								
LO Desc	cription (LO12)	Illustrate A	NN, Perceptr	on and the Concept of	Backpropagati	on.						
		1		SCHEME	OF STUDY							
S. No.	Learning Content			Teaching – Learning Method	Description Proces		Teach Hrs.			LRs quired	d Remarks	
1	Logical CThe Perce	ns. Il Neurons. Computations v eptron. Iltilayer Per		Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will ex contents and pr handouts. Teac conduct quiz to students praction knowledge.	ovide her will make	06	_	-	Har Cha Boa Pap Vid PPT	idout/ ilk-	NIL
				SCHEME OF	ASSESSMEN	Т						
S. No.	Method of A	ssessment]	Description of Assess	sment		Maximum Marks		urces	ces Required		External / Internal
1	End Sem The	eory Exam		be asked to Illustrate/ l etc. based on Contents.	-	10		Question/ T Quiz Qu				External

RGPV (Diploma Wing)	SCHEME FOR	Branch Code	Course Code	CO Code	LO Code	Format No. 4
Bhopal	LEARNING OUTCOME	C 0 4		4	<i>13</i>	

COU	RSE NAME	Machine Le	earning And	Deep Learning Using P	ython						
CO Desc	eription (CO4)	Understand	l the Basics o	f Deep Learning.							
LO Desc	ription (LO13)	Discuss the	Importance	of Activation Function	in ANN.						
		1		SCHEME	OF STUDY						
S. No.	Lea	rning Conte	nt	Teaching – Learning Method	Description of Process	T-L	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks	
1	• Type(s) o	Sigmoid Fu	Function: p Function. ction. unction. eaky ReLU	Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will explain the contents and provide handouts. Teacher will conduct quiz to make students practice their knowledge.		_	06	Handout/ Chalk- Board / Paper-Pen / Videos / PPT/ E- contents.	NIL	
				SCHEME OF	ASSESSMENT						
S. No.	Method of A	ssessment		Description of Assess	Assessment		kimum arks	Resources	Required	External / Internal	
1	Practical: Lab	Assessment		l be asked to write prograin the lab and prepare la				Lab File/ (Test Pape Quest	er/ Quiz	External	

RGPV (Diplor	na Wing)	SCHEME FOR	Branch Code	Course Code	CO Code	LO Code	Format No. 4
Bhopa	al	LEARNING OUTCOME	C 0 4		4	14	
COURSE NAME	Machine Learning	And Deep Learning Using Python					

CO Dese	cription (CO4)	Understand	l the Basics o	of Deep Learning.					
LO Deso	cription (LO14)	Explain Co	nvolutional I	Neural Network.					
		1		SCHEME	OF STUDY				
S. No.	Lea	earning Content		Teaching – Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks
1	 Introduction to Convolutional Neural Network: Definitions of CNN. Architecture(s) of CNN. Overview of CNN Layers. 			Traditional lecture method + Handouts + Assignments + Videos + Quiz.	Teacher will explain the contents and provide handouts. Teacher will conduct quiz to make students practice their knowledge.	07	_	Handout/ Chalk- Board / Paper-Pen / Videos / PPT/ E- contents.	, NIL
				SCHEME OF	ASSESSMENT				
S. No.	Method of A	ssessment		Description of Assess	ment	aximum Marks	Resources	Required	External / Internal
1	End Sem The	ory Exam		Il be asked to Illustrate/ I e etc. based on Contents.	-	10	Question/ T Quiz Qu	External	

RGPV (Diploma Wing) Bhopal)	SCHEME F	OR	Branch	Code	Course Code	CO Code	LO Code	Format No. 4	
]	LEARNING OUTCOME		<i>C</i> 0	4		4	15	1 office 1 (0).	
COURSE NAME Machine Learning Au			earning An	d Deep Learning Using P	ython						
CO Dese	cription (CO4)	Understand	the Basics	s of Deep Learning.							
LO Deso	cription (LO15)	Differentiat	e CNN and	I RNN.							
		1		SCHEME	OF STUDY						
S. No.	Learning Content		Teaching – Learning Method	Description Proce		Teach Hrs.	Pract. /Tut Hrs.	R	LRs equired	Remarks	
1	 Architect Applicati	• Recurrent N ns of RNN. ure of RNN. ons of RNN. v of LSTM Ne		Lab practicals with traditional lecture method and handouts	Teacher will e contents and p handouts. Stuc program it in t	rovide lents will	06		Cha Boa Pap Vic PP	ndout/ alk- ard / per-Pen leos / I/ E- itents.	/ NIL
				SCHEME OF	ASSESSMEN	T					
S. No.	Method of A	ssessment		Description of Assess	sment		ximum Iarks	Resources	Resources Required		External / Internal
1	End Sem The	eory Exam		will be asked to Illustrate/ I ate/ Lists etc. based on Cor	1	10		Question/ Test Paper Quiz Questions		-	External

ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)	

Student(s) can Pick the Following Topic(s) for Micro/Major Project:

Prerequisite:

- Experiment with ML open source development environment (Google Colab, etc.)
- Importing and summarizing the various available datasets (Kaggle, UCI ML repository, OpenML)
- Managing the dataset (Missing data, encoding categorical data, one hot encoder)
- Splitting dataset into training and test test
- Perform Data visualization
- Feature scaling

Project Topic: -Building an ANN model -House rate estimation -Loan prediction projects -Building a CNN Model -Handwritten digit classification -Cat dog classification -Breast Cancer/Tumours detection -MNIST (Fashion) classification -Object detection/ Face recognition -Saving the model