RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)
An ISO 9001:2015 Certified Institution

From

01/08/2022

Mrs. Roselin Lourd
Assistant Professor/CSE
RAAK College of Engineering and Technology
Puducherry -110

To

The Principal
RAAK College of Engineering and Technology
Puducherry -110

Respected Sir,

Sub: Requisition for Approval to Conduct Skill Development program / Value added Course on **"22CSE01- Neural Network"** - reg.

This is to bring to your kind notice that the Skill Development Team is planning to conduct a Program on **"22CSE01- Neural Network"** for all the Third Year Computer Science and Engineering students from 09-08-2022 to 13-08-2022.

The main focus of this program is to provide a better exposure to our students on the Game Theory for practical applications.

The syllabus and course plan structured are not listed in the Pondicherry University Curriculum. and the same have been verified and approved by the Principal/HoD/Professors and Skill development team.

Hence, I kindly request you to approve event planned. The details and the necessary proofs are attached with this letter.

Thanking you,

Yours faithfully,

Mrs. Roselin Lourd
AP/CSE

Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
PRINCIPAL
RAAK College of Engineering & Technology
No.1, Muthupillai Palayam Road.
Sulthanpet Post,
Puducherry - 605 110

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RAAKCET/PRINCIPAL/CIR/AUG2022 **02/08/2022**

CIRCULAR

This is to inform that the Skill Development Team is planning to conduct a value added course on **"22CSE01- Neural Network"** for all the Third Year Computer Science and Engineering students from 09-08-2022 to 13-08-2022..Students are asked to utilize this opportunity and improve their skills.

PRINCIPAL

Circulation to:

1. All Students
2. All Faculty & Staff Members
3. All HoDs

Copy to:

1. All HoDs
2. Office

Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
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DEPARTMENT OF COMPUTER SCINCE AND ENGINEERING PRESENTS

VALUE ADDED COURSE ON

NEURAL NETWORK

2022-2023

DATE: 09/08/2022 to 13/08/2022

VENUE: RAAKCET

TIME: 09 am to 04 pm

Resource Person:

Mr. R. Sathishkumar
Assistant Professor,
Achariya College of Engg & Tech.

For Registration Contact:

Mrs. G. Velvizhi, AP/ CSE.,
8547621545.

HOD

Mrs. Roselin Lourd

RAAK College of Engineering & Technology

PRINCIPAL

Dr. S. Seenuvasamurthi

Dr. S. SEENUVASAMURTHI, M.E., Ph.L.
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VALUE ADDED COURSES
2022-2023
Department of Computer Science and Engineering
22CSE01- Neural Network

Syllabus

Duration: 36 hours

Course Objective:

- On completion of this course the students will be able to expose themselves towards intelligence systems and knowledge based systems.
- It also provides knowledge of learning networks.

Course Outcome:

- Understand the principles of Neural Networks.
- Identify different types of models of artificial neural networks.
- Analyse the feed-forward neural networks.
- Analyse the feedback neural networks.

MODULE 1: **(9 HOURS)**

Fundamentals of Neural Networks: What is Neural Network, Model of Artificial Neuron, Learning rules and various activation functions. Neural Network Architecture Single layer Feed-forward networks. Multilayer Feed-forward networks. Recurrent Networks.

MODULE 2: **(9 HOURS)**

Back propagation Networks: Back Propagation networks, Architecture of Back-propagation(BP) Networks, Back-propagation Learning, Variation of Standard Back propagation algorithms. Associative Memory Autocorrelators, Heterocorrelators, Wang et al's Multiple Training Encoding Strategy, Exponential BAM, Associative Memory for Real coded pattern pairs, Applications.

MODULE 3: **(9 HOURS)**

Adaptive Resonance Theory: Cluster Structure, Vector Quantization, Classical ART Network, Simplified ART Architecture,ART1 and ART2 Architecture and algorithms, Applications, Sensitivities of ordering of data.

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MODULE 4: **(9 HOURS)**

Introduction about Fuzzy set theory: Fuzzy versus Crisp, Crisp and fuzzy sets, Crisp and Fuzzy relations. Fuzzy Systems Crisp Logic, Predicate Logic, Fuzzy logic, Fuzzy rule based system, Defuzzification Methods, Applications.

MODULE 5: **(9 HOURS)**

Integration of Neural Network, Fuzzy logic and Genetic Algorithm: Hybrid system. Neural Networks, Fuzzy logic, and Genetic Algorithm Hybrids.

Course Designed by **Approved by** **Principal**

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CO - ATTAINMENT MAPPING

Sl. No	Register Number	Student Name	CO1	CO2	CO3	CO4
1	19TD1501	ABARNA .V	✓	✓	✓	✓
2	19TD1502	ABDUL RAHMAN .MA	✓	✓	✓	✓
3	19TD1503	ABIRAMI .K	✓	✓	✓	✓
4	19TD1504	BALAJI .K	✓	✓	✓	✓
5	19TD1505	BHARATHKUMARAN .M	✓	✓	✓	✓
6	19TD1506	CHARUMATHY .K	✓	✓	✓	✓
7	19TD1507	DHAKSHAYINI .S	✓	✓	✓	✓
8	19TD1508	DHANUSHKODI. P	✓	✓	✓	✓
9	19TD1509	GOUTHAM .G	✓	✓	✓	✓
10	19TD1510	GOWTHAM .V	✓	✓	✓	✓
11	19TD1511	JEEVANDHAMANI .M	✓	✓	✓	✓
12	19TD1512	JOTHI .M	✓	✓	✓	✓
13	19TD1513	KARTHI .P	✓	✓	✓	✓
14	19TD1514	KAVIARASAN .K	✓	✓	✓	✓
15	19TD1515	KARMALAJAY	✓	✓	✓	✓
16	19TD1516	KESHOR .M	✓	✓	✓	✓
17	19TD1517	MALLIGA .B	✓	✓	✓	✓
18	19TD1518	MANIKANDAN.R	✓	✓	✓	✓

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Puducherry - 605 110

19	19TD1519	MARZIA.M	✓	✓	✓	✓
20	19TD1520	MUKTHAR SHAKIR. K	✓	✓	✓	✓
21	19TD1521	NAMBIRAJU .P	✓	✓	✓	✓
22	19TD1522	NAVEENKUMAR .C	✓	✓	✓	✓
23	19TD1523	PAVITHRA .P	✓	✓	✓	✓
24	19TD1524	PRAISEN .B	✓	✓	✓	✓
25	19TD1525	PRAVEENKUMAR .A	✓	✓	✓	✓
26	19TD1526	PREETHA .K	✓	✓	✓	✓
27	19TD1527	RICHARD ANTONY .C	✓	✓	✓	✓
28	19TD1528	MONISHA. S	✓	✓	✓	✓
29	19TD1529	SABANA BANU. S	✓	✓	✓	✓
30	19TD1530	SAKTHIBALAN .V	✓	✓	✓	✓
31	19TD1531	SANDHIYA. A	✓	✓	✓	✓
32	19TD1532	SATHISHKUMAR .S	✓	✓	✓	✓
33	19TD1533	SENTHAMIZHAN .S	✓	✓	✓	✓
34	19TD1534	SHAMILI. B	✓	✓	✓	✓
35	19TD1535	SHIFANA FERVEEN .I	✓	✓	✓	✓
36	19TD1536	SHIYAMKUMAR .V	✓	✓	✓	✓
37	19TD1537	SOWMIYA .J	✓	✓	✓	✓
38	19TD1538	SUBASRI .S	✓	✓	✓	✓

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39	19TD1539	SWETHA .T	✓	✓	✓	✓
40	19TD1540	SYED VAHITH. V	✓	✓	✓	✓
41	19TD1541	VIJAY .N	✓	✓	✓	✓
42	19TD1542	VINODHINI .B	✓	✓	✓	✓
43	19TD1543	VINOTHBABU	✓	✓	✓	✓
44	19TD1544	YOGESH .V	✓	✓	✓	✓
45	19TD1545	YOVEL MISONRAJ .D	✓	✓	✓	✓
46	19TDL011	JAFFERSET.S	✓	✓	✓	✓

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VALUE ADDED COURSES
2022-2023
Department of Computer Science and Engineering
22CSE01- Neural Network

COURSE PLAN

S.no	Date	Hours	Time	Topic	Resource Person
DAY -1					
1	09.08.22	1,2	9AM -11AM	Fundamentals of Neural Networks: What is Neural Network,	Mr.K.Ramesh& Mr.R.Sathishkumar
2		3,4	11.15AM – 1.15 PM	Model of Artificial Neuron, Learning rules and various activation functions. Neural Network Architecture Single layer	Mr.K.Ramesh
3		5,6	2 PM -4PM	Feed-forward networks. Multilayer Feed-forward networks. Recurrent Networks.	Mr.R.Sathishkumar
DAY 2					
4	10.08.22	7,8	9AM -11AM	Back propagation Networks: Back Propagation networks, Architecture of Back-propagation(BP) Networks, Back-	Mr.K.Ramesh
5		9,10,	11.15AM – 1.15 PM	propagation Learning, Variation of Standard Back propagation algorithms. Associative	Mr.R.Sathishkumar
6		11,12	2 PM -4PM	Associative Memory Autocorrelators, Heterocorrelators, Wang et al's Multiple Training Encoding Strategy, Exponential BAM	Mr.K.Ramesh

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DAY -3					
7	11.08.22	13,14	9AM -11AM	Adaptive Resonance Theory: Cluster Structure, Vector Quantization,	Mr.R.Sathishkumar
8		15,16	11.15AM – 1.15 PM	Classical ART Network, Simplified ART Architecture,.	Mr.K.Ramesh
9		17,18	2 PM -4PM	,ART1 and ART2 Architecture and algorithms, Applications, Sensitivities of ordering of data.	Mr.R.Sathishkumar
DAY -4					
10	12.08.22	19,20	9AM -11AM	Introduction about Fuzzy set theory: Fuzzy versus Crisp, Crisp and fuzzy sets, Crisp and Fuzzy relations	Mr.K.Ramesh
11		21,22	11.15AM – 1.15 PM	Other Fuzzy Systems Crisp Logic, Predicate Logic,	Mr.R.Sathishkumar
12		23,24	2 PM -4PM	Fuzzy logic, Fuzzy rule based system, Defuzzification Methods, Applications.	Mr.K.Ramesh
DAY -5					
13	13.08.22	25,26	9AM -11AM	Integration of Neural Network, Fuzzy logic and Genetic	Mr.R.Sathishkumar
14		27,28	11.15AM – 1.15 PM	Hybrid system. Neural Networks,	Mr.K.Ramesh
15		29,30	2 PM -4PM	Fuzzy logic, and Genetic Algorithm Hybrids.	Mr.R.Sathishkumar
ASESSMENT EXAM WILL BE CONDUCTED AFTER ONE WEEK OF COURSE COMPLETION *					

BREAK TIME: 11.00 TO 11.15 AM **LUNCH BREAK: 1.15 PM TO 2.00 PM**

COURSE DESIGNED BY
MRS. ROSELIN LOURD

APPROVED BY
SKILL DEVELOPMENT TEAM

PRINCIPAL
Dr.S.SEENUVASAMURTHI

Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
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VALUE ADDED COURSES
2022-2023
Department of Computer Science and Engineering

EVENT REPORT

Name of the Course: 22CSE01- Neural Network

Name of the Instructors: Mr.K.Ramesh & Mr.R.Sathishkumar

Year/ Branch: IV/ CSE

Duration of Course: 30 Hours (09-08-2022 to 13-08-2022)

Assessment Date: 20.08.2022

Post Event Summary:

The course was inaugurated on 09-08-2022 at 9.30 A.M. by our respectable principal and sessions were continued as per the schedule. Students were enriched their knowledge by attending the course. Finally, the course concluded by vote of thanks.

On 20.08.2022 assessment was conducted and feedbacks were collected from all the participants.

CO - Attainment:

CO1: understand the principles of Neural Networks.

CO2: Identify different types of models of artificial neural networks.

CO3: Analyse the feed-forward neural networks.

CO4: Analyse the feedback neural networks.

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Value Added Course On Neural Network 2022-23

Other Fuzzy Systems Crisp Logic, Predicate Logic on 12.08.22

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01/08/2022

From

Mrs. Roselin Lourd
Assistant Professor/CSE
RAAK College of Engineering and Technology
Puducherry -110

To

The Principal
RAAK College of Engineering and Technology
Puducherry -110

Respected Sir,

Sub: Requisition for Approval to Conduct Skill Development program / Value added Course on **"22CSE02- Machine Learning"** - reg.

This is to bring to your kind notice that the Skill Development Team is planning to conduct a Program on **"22CSE02- Machine Learning"** for all the Third Year Computer Science and Engineering students from 09-08-2022 to 13-08-2022.

The main focus of this program is to provide a better exposure to our students on Machine Learning for practical applications.

The syllabus and course plan structured are not listed in the Pondicherry University Curriculum. and the same have been verified and approved by the Principal/HoD/Professors and Skill development team.

Hence, I kindly request you to approve event planned. The details and the necessary proofs are attached with this letter.

Thanking you,

Yours faithfully,

Mrs. Roselin Lourd
AP/CSE

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RAAKCET/PRINCIPAL/CIR/AUG2022 **02 /08/2022**

CIRCULAR

This is to inform that the Skill Development Team is planning to conduct a value added course on "**22CSE02- Machine Learning**" for all the Third Year Computer science and Engineering students from 09-08-2022 to 13-08-2022. Students are asked to utilize this opportunity and improve their skills.

PRINCIPAL

Circulation to:

1. All Students
2. All Faculty & Staff Members
3. All HoDs

Copy to:

1. All HoDs
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DEPARTMENT OF COMPUTER SCINCE AND ENGINEERING PRESENTS

VALUE ADDED COURSE ON

MACHINE LEARNING

2022-2023

DATE: 09/08/2022 to 13/08/2022

VENUE: RAAKCET

TIME: 09 am to 04 pm

Resource Person:

Dr. R. Ramachadiran
Assistant Professor,
Krishnaswami College of Engg & Tech.

For Registration Contact:

Mrs. D. Thamizhisai, AP/ CSE.,
9658745685.

HOD

Mrs. Roselin Lourd

PRINCIPAL

Dr. S. Seenuvasamurthi

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VALUE ADDED COURSES
2022-2023
Department of Computer science and Engineering
22CSE02- Machine Learning

Syllabus

Duration: 30 hours

Course Objective:

- Learn about supervised and unsupervised learning.
- Study about Classification algorithms and its applications.
- Learn the importance of dimensionality reduction methods.
- Study advanced topics like Q learning, genetic algorithms.

Course Outcome:

Upon successful completion of the course students able to

- Gain knowledge about basic concepts of Machine Learning.
- Identify machine learning techniques suitable for a given problem.
- Solve the problems using various machine learning techniques.
- Apply Dimensionality reduction techniques.

Module 1: - Introduction **(9 Hours)**

Introduction to machine Learning – Types of Machine Learning –Applications - Supervised Learning – The Brain and the Neuron – Design a Learning System – Perspectives and Issues in Machine Learning – Concept Learning Task – Concept Learning as Search –Finding a Maximally Specific Hypothesis – Version Spaces and the Candidate Elimination Algorithm- Perceptron – Linear Separability – Linear Regression.

Module 2: Unsupervised Learning **(9 Hours)**

Clustering–Applications- Metrics - Partitional Clustering - K means Algorithms – K- mediods - Hierarchical clustering – Density based clustering: DBSCAN, Mean-Shift clustering - Vector Quantization - Self Organizing Feature Map.

Module 3: Classification Metho **(9 Hours)**

Classification metrics –Confusion matrix - Neural Network model - Multi-layer Perceptron - Decision tree - Support Vector Machines- K-Nearest Neighbour – Boosting and Bagging - Convolutional Neural Network.

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Module 4: Dimensionality Reduction **(9 Hours)**

Dimensionality Reduction - Linear Discriminant Analysis - Principal Component Analysis (PCA)- Factor Analysis - Independent Component Analysis. Feature selection: Filter and Wrapper methods. Rank based algorithms.

Module 5: Advanced Topics **(9 Hours)**

Reinforcement learning - Non deterministic rewards and Actions – Q Learning – Genetic Algorithm. Tools for machine learning. Case study IRIS dataset using Weka: Classification, Feature selection – Case study.

Course Designed by **Approved by** **Principal**

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CO - ATTAINMENT MAPPING

Sl. No	Register Number	Student Name	CO1	CO2	CO3	CO4
1.	20TD0902	ARAVIND. V	✓	✓	✓	✓
2.	20TD0903	ASRAF ALI. A	✓	✓	✓	✓
3.	20TD0904	BHARATHI. S	✓	✓	✓	✓
4.	20TD0905	BHUVANESWARAN. U	✓	✓	✓	✓
5.	20TD0906	DINESH KUMAR. T	✓	✓	✓	✓
6.	20TD0907	FAHMETHA. J	✓	✓	✓	✓
7.	20TD0908	FROSE. S	✓	✓	✓	✓
8.	20TD0909	GNANAMOORTHI. E	✓	✓	✓	✓
9.	20TD0910	HEMALAKSHMI. J	✓	✓	✓	✓
10.	20TD0911	JASMEEN. O	✓	✓	✓	✓
11.	20TD0912	JAYASUDHA. S	✓	✓	✓	✓
12.	20TD0913	KARTHIKA. K	✓	✓	✓	✓
13.	20TD0914	KAVIARASAN. S	✓	✓	✓	✓
14.	20TD0915	KAVIYA. K	✓	✓	✓	✓
15.	20TD0916	MALAVIKA. K	✓	✓	✓	✓
16.	20TD0917	MARIMUTHU. N	✓	✓	✓	✓
17.	20TD0918	MERVIN IMMANUVEL. S	✓	✓	✓	✓

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18.	20TD0919	NATRAJAN. R	✓	✓	✓	✓
19.	20TD0920	PARKAVI. S	✓	✓	✓	✓
20.	20TD0922	RANJITH. A	✓	✓	✓	✓
21.	20TD0923	SATCHIDHANANDHAM. A	✓	✓	✓	✓
22.	20TD0924	SNEGA. G	✓	✓	✓	✓
23.	20TD0925	VIJAYA LAKSHMI. L	✓	✓	✓	✓
24.	20TD0926	VISHNU PRIYA. V	✓	✓	✓	✓
25.	20TD0927	YASMIN. A	✓	✓	✓	✓
26.	20TDL047	MOHANRAJ. D	✓	✓	✓	✓
27.	20TDL048	OVIYA P	✓	✓	✓	✓
28.	20TDL049	PATCHAIAPPAN. M	✓	✓	✓	✓
29.	20TDL050	PAVITHRA P	✓	✓	✓	✓
30.	20TDL051	REENA KUMARI. J	✓	✓	✓	✓

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VALUE ADDED COURSES
2022-2023
Department of Computer science and Engineering
22CSE02- Machine Learning

COURSE PLAN

S.no	Date	Hours	Time	Topic	Faculty details
DAY -1					
1	09.08.22	1,2	9AM -11AM	Introduction to machine Learning Types of Machine Learning Applications Supervised Learning The Brain and the Neuron Regression.	Ms.C.Reikha & Dr.R.Ramachandran
2		3,4	11.15AM – 1.15 PM	Design a Learning System Perspectives and Issues in Machine Learning Concept Learning Task Concept Learning as Search Finding a Maximally Specific Hypothesis	Ms.C.Reikha
3		5,6	2 PM -4PM	Version Spaces and the Candidate Elimination Algorithm Perceptron Linear Separability Linear	Dr.R.Ramachandran
DAY 2					
4	10.08.22	7,8	9AM -11AM	Clustering Applications Metrics Partitional Clustering - K means Algorithms	Ms.C.Reikha
5		9,10,	11.15AM – 1.15 PM	K-mediods Hierarchical clustering Density based clustering: DBSCAN,	Dr.R.Ramachandran
6		11,12	2 PM -4PM	Mean-Shift clustering Vector Quantization Self Organizing Feature Map.	Ms.C.Reikha
DAY -3					
7	11.08.22	13,14	9AM -11AM	Classification metrics Confusion matrix	Dr.R.Ramachandran

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Puducherry - 605 110

				Neural Network model	
8		15,16	11.15AM – 1.15 PM	Multi-layer Perceptron Decision tree - Support Vector Machines	Ms.C.Reikha
9		17,18	2 PM -4PM	K-Nearest Neighbour Boosting and Bagging Convolutional Neural Network.	Dr.R.Ramachandran
DAY -4					
10	12.08.22	19,20	9AM -11AM	Dimensionality Reduction - Linear Discriminant Analysis - Principal Component Analysis (PCA)-	Ms.C.Reikha
11		21,22	11.15AM – 1.15 PM	Factor Analysis - Independent Component Analysis. Feature selection:	Dr.R.Ramachandran
12		23,24	2 PM -4PM	Filter and Wrapper methods. Rank based algorithms.	Ms.C.Reikha
DAY -5					
13	13.08.22	25,26	9AM -11AM	Reinforcement learning - Non deterministic rewards and Actions .	Dr.R.Ramachandran
14		27,28	11.15AM – 1.15 PM	Q Learning – Genetic Algorithm. Tools for machine learning. Case	Ms.C.Reikha
15		29,30	2 PM -4PM	study IRIS dataset using Weka Classification, Feature selection Case study	Dr.R.Ramachandran
ASESSMENT EXAM WILL BE CONDUCTED AFTER ONE WEEK OF COURSE COMPLETION *					

BREAK TIME: 11.00 TO 11.15 AM **LUNCH BREAK: 1.15 PM TO 2.00 PM**

COURSE DESIGNED BY
MRS. ROSELIN LOURD

APPROVED BY
SKILL DEVELOPMENT TEAM

PRINCIPAL
Dr.S.SEENUVASAMURTHI

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VALUE ADDED COURSES
2022-2023
Department of Computer Science and Engineering
EVENT REPORT

Name of the Course: 22CSE02- Machine Learning

Name of the Instructors: Ms.C.Reikha & Dr.R.Ramachandran

Year/ Branch: III/ CSE

Duration of Course: 30 Hours (09-08-2022 to 13-08-2022)

Assessment Date: 20.08.2022

Post Event Summary:

The course was inaugurated on 09-08-2022 at 9.30 A.M. by our respectable principal and sessions were continued as per the schedule. Students were enriched their knowledge by attending the course. Finally, the course concluded by vote of thanks.

On 20.08.2022 assessment was conducted and feedbacks were collected from all the participants.

CO - Attainment:

CO1: Gain knowledge about basic concepts of Machine Learning.

CO2: Identify machine learning techniques suitable for a given problem.

CO3: Solve the problems using various machine learning techniques.

CO4: Apply Dimensionality reduction techniques.

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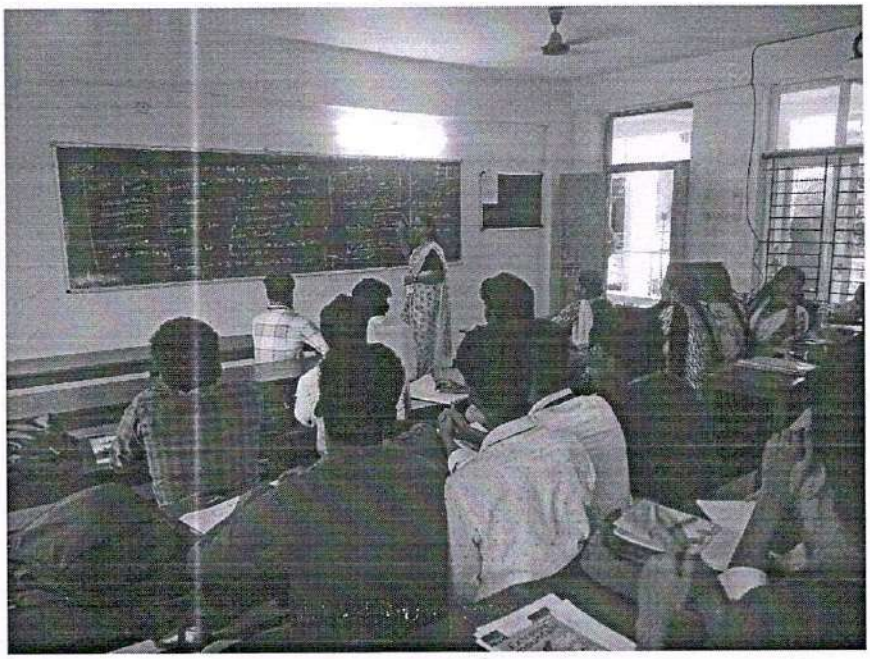
Value Added Course on Machine Learning 2022-23



Multi-layer Perceptron Decision tree - Support Vector Machines on 11.08.22

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From

01/08/2022

Mrs. Rajasri
Assistant Professor/ CSE
RAAK College of Engineering and Technology
Puducherry -110

To

The Principal
RAAK College of Engineering and Technology
Puducherry -110

Respected Sir,

Sub: Requisition for Approval to Conduct Skill Development program / Value added Course on **"22CSE03- Graph Theory"** — reg.

This is to bring to your kind notice that the Skill Development Team is planning to conduct a Program on **"22CSE03- Graph Theory"** for all the Second Year Computer science and Engineering students from 09-08-2022 to 13-08-2022.

The main focus of this program is to provide a better exposure to our students on Graph Theory for practical applications.

The syllabus and course plan structured are not listed in the Pondicherry University Curriculum and the same have been verified and approved by the Principal/HoD/Professors and Skill development team.

Hence, I kindly request you to approve event planned. The details and the necessary proofs are attached with this letter.

Thanking you,

Yours faithfully,

Mrs. Rajasri
AP/CSE

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RAAKCET/PRINCIPAL/CIR/AUG2022 **02/08/2022**

CIRCULAR

This is to inform that the Skill Development Team is planning to conduct a value added course on "**22CSE03-Graph Theory**" for all the Second Year Computer Science and Engineering students from 09-08-2022 to 13-08-2022. Studendts are asked to utilize this opportunity and improve their skills.

PRINCIPAL

Circulation to:

1. All Students
2. All Faculty & Staff Members
3. All HoDs

Copy to:

1. All HoDs
2. Office

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DEPARTMENT OF COMPUTER SCINCE AND ENGINEERING PRESENTS

VALUE ADDED COURSE ON

GRAPH THEORY

2022-2023

DATE: 09/08/2022 to 13/08/2022

VENUE: RAAKCET

TIME: 09 am to 04 pm

Resource Person:

Dr. R. Ramachadiran
Assistant Professor,
Krishnaswami College of Engg & Tech.

For Registration Contact:

Ms. T. Geetha, AP/ CSE.,
8596547841.

HOD

Mrs. Roselin Lourd

RAAK College of Engineering & Technology

PRINCIPAL

Dr. S. Seenuvasamurthi

Dr. S. SEENUVASAMURTHI, M.E., Ph.D.
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VALUE ADDED COURSES
2022-2023
Department of Computer Science and Engineering
22CSE03- Graph Theory

Syllabus

Duration: 30 hours

Course Objective:

- Understand the importance of Graph Theory with respect to computer science applications and application of the basic corollaries and theorems learnt.
- To apply Graph Theory based tools in solving practical problems.
- To understand and apply the fundamental concepts in Graph Theory.

Course Outcome:

Upon successful completion of the course students able to

- Use the concepts learnt in Graph Theory in designing algorithms for real world applications.
- Write precise and accurate mathematical definitions of objects in Graph Theory.
- Use mathematical definitions to identify and construct examples.
- Use a combination of theoretical knowledge and independent mathematical thinking in creative investigation of questions in Graph Theory.
- Validate and critically assess a mathematical proof.

Module 1: - Introduction **(9 Hours)**

Graphs – Introduction – Isomorphism – Sub graphs – Walks, Paths, Circuits – Connectedness – Components – Euler Graphs – Hamiltonian Paths and Circuits – Trees – Properties of trees – Distance and Centers in Tree – Rooted and Binary Trees.

Module 2: Trees, Cut-sets, Connectivity **(9 Hours)**

Spanning trees – Fundamental Circuits – Finding All Spanning Trees of a Graph – Cut Sets – Properties of Cut Set – All Cut Sets – Fundamental Circuits and Cut Sets – Connectivity and Separability.

Module 3: Planarity **(9 Hours)**

Combinational and Geometric Graphs – Planar Graphs – Kuratowski"s Two Graphs – Different Representation of a Planar Graph-Geometric Dual –Combinatorial Dual.

Module 4: Matrices, Colouring and Directed graph **(9 Hours)**

Incidence matrix – Circuit Matrix – Path Matrix – Adjacency Matrix – Chromatic Number – Chromatic partitioning – Chromatic polynomial – Matching – Covering – Four Color Problem – Directed Graphs – Types of Directed Graphs – Digraphs and Binary Relations – Euler Graphs – Adjacency Matrix of a Digraph.

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Module 5: Graph Theoretic Algorithms **(9 Hours)**

Algorithms: Connectedness and Components – Spanning tree – Set of Fundamental Circuits – Cut Vertices and Separability – Shortest Path Algorithm – Depth First Search – Planarity Testing – Isomorphism.

Course Designed by **Approved by** **Principal**

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CO - ATTAINMENT MAPPING

Sl. No	Register Number	Student Name	CO1	CO2	CO3	CO4
1.	20TC0704	AYISHA BEEVI.H	✓	✓	✓	✓
2.	21TD0701	AMEERA.A	✓	✓	✓	✓
3.	21TD0702	ARUN M	✓	✓	✓	✓
4.	21TD0703	BASITH RUBANI	✓	✓	✓	✓
5.	21TD0704	DEVANATHAN.R	✓	✓	✓	✓
6.	21TD0705	DHINESH KUMAR.R	✓	✓	✓	✓
7.	21TD0706	FELIX	✓	✓	✓	✓
8.	21TD0707	HARINI .D	✓	✓	✓	✓
9.	21TD0708	HARISH.T	✓	✓	✓	✓
10.	21TD0709	JABEEN.R	✓	✓	✓	✓
11.	21TD0710	JANA. A	✓	✓	✓	✓
12.	21TD0711	JEROMELUCIAN .C	✓	✓	✓	✓
13.	21TD0712	KALIMULLAHKHAN.D	✓	✓	✓	✓
14.	21TD0713	KISHORE.R	✓	✓	✓	✓
15.	21TD0714	KUMARAN.K	✓	✓	✓	✓
16.	21TD0715	LATHA.S	✓	✓	✓	✓
17.	21TD0716	MARY JENIFER M.B	✓	✓	✓	✓

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18.	21TD0717	MOHAMMED ALZUBAIRE.M	✓	✓	✓	✓
19.	21TD0718	MOHANRAJ .M	✓	✓	✓	✓
20.	21TD0719	MUHAMMED ASHRAR .AM	✓	✓	✓	✓
21.	21TD0720	NANDHINI.S	✓	✓	✓	✓
22.	21TD0721	PRAVEENA.M	✓	✓	✓	✓
23.	21TD0722	PREMKUMAR.R	✓	✓	✓	✓
24.	21TD0723	RAAFIYA TABASSUM.Z	✓	✓	✓	✓
25.	21TD0724	RAGAVI.R	✓	✓	✓	✓
26.	21TD0725	ROGAN.M	✓	✓	✓	✓
27.	21TD0726	SANTHOSH.S	✓	✓	✓	✓
28.	21TD0727	SHARON SAJI GEORGE	✓	✓	✓	✓
29.	21TD0728	SHIFA JASMINE.S	✓	✓	✓	✓
30.	21TD0729	SOBANA.R	✓	✓	✓	✓
31.	21TD0730	SRIDHAR.A	✓	✓	✓	✓
32.	21TD0731	SUBASH.M	✓	✓	✓	✓
33.	21TD0732	SUKESH.M	✓	✓	✓	✓
34.	21TD0733	THIRUVALLURU SUJITH	✓	✓	✓	✓
35.	21TD0734	VASU.P	✓	✓	✓	✓
36.	21TD0735	VIJI.B	✓	✓	✓	✓

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Puducherry - 605...

37.	21TD0736	VISHNU.R	✓	✓	✓	✓
38.	21TDL042	DHIVAGAR.V	✓	✓	✓	✓
39.	21TDL043	INMUL HASSAN.F	✓	✓	✓	✓
40.	21TDL044	MOHAMMED RILAN.J	✓	✓	✓	✓
41.	21TDL045	MOULEESWARAN.A	✓	✓	✓	✓

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VALUE ADDED COURSES
2022-2023
Department of Computer Science and Engineering
22CSE03- Graph Theory

COURSE PLAN

S.no	Date	Hours	Time	Topic	Faculty details
DAY -1					
1	09.08.22	1,2	9 AM -11 AM	Graphs Introduction, Isomorphism,Sub graphs, Walks, Paths,	Dr.R.Ramachandran & Mr.B.Dineshbabu
2		3,4	11.15 AM – 1.15 PM	Circuits Connectedness Components, Euler Graphs, Hamiltonian Paths and Circuits Trees	Dr.R.Ramachandran
3		5,6	2 PM -4 PM	Properties of trees Distance and Centers in Tree Rooted and Binary Trees.	Mr.B.Dineshbabu
DAY 2					
4	10.08.22	7,8	9 AM -11 AM	Spanning trees Fundamental Circuits Finding All Spanning Trees of a Graph	Dr.R.Ramachandran
5		9,10,	11.15 AM – 1.15 PM	Cut Sets , Properties of Cut Set, All Cut Sets	Mr.B.Dineshbabu
6		11,12	2 PM -4 PM	Fundamental Circuits and CutSets Connectivity and Separability. Operators	Dr.R.Ramachandran
DAY -3					
7	11.08.22	13,14	9 AM -11 AM	Combinational and Geometric Graphs Planar Graphs.	Mr.B.Dineshbabu
8		15,16	11.15 AM – 1.15 PM	Kuratowski"s Two Graphs – Different Representation of a Planar Graph-	Dr.R.Ramachandran
9		17,18	2 PM -4 PM	Geometric Dual Combinatorial Dual	Mr.B.Dineshbabu

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DAY -4					
10	12.08.22	19,20	9 AM -11 AM	Incidence matrix Circuit Matrix Path Matrix Adjacency Matrix Chromatic Number Chromatic partitioning	Dr.R.Ramachandran
11		21,22	11.15 AM – 1.15 PM	Chromatic polynomial Matching Covering Four Color Problem Directed Graphs Types of Directed Graphs	Mr.B.Dineshbabu
12		23,24	2 PM -4 PM	Digraphs and Binary Relations Euler Graphs Adjacency Matrix of a Digraph.	Dr.R.Ramachandran
DAY -5					
13	13.08.22	25,26	9 AM -11 AM	Algorithms: Connectedness and Components Spanning tree	Mr.B.Dineshbabu
14		27,28	11.15 AM – 1.15 PM	Set of Fundamental Circuits Cut Vertices and Separability Shortest Path Algorithm	Dr.R.Ramachandran
15		29,30	2 PM -4 PM	Depth First Search Planarity Testing Isomorphism.	Mr.B.Dineshbabu
ASESSMENT EXAM WILL BE CONDUCTED AFTER ONE WEEK OF COURSE COMPLETION *					

BREAK TIME: 11.00 TO 11.15 AM **LUNCH BREAK: 1.15 PM TO 2.00 PM**

COURSE DESIGNED BY
Mrs. RAJASRI

APPROVED BY
SKILL DEVELOPMENT TEAM

PRINCIPAL
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VALUE ADDED COURSES
2022-2023
Department of Computer Science and Engineering

EVENT REPORT

Name of the Course: 22CSE03- Graph Theory

Name of the Instructors: Dr.R.Ramachandran & Mr.B.Dineshbabu

Year/ Branch: II/ CSE

Duration of Course: 30Hours (09-08-2022 to 13-08-2022)

Assessment Date: 20.08.2022

Post Event Summary:

The course was inaugurated on 09-08-2022 at 9.30 A.M. by our respectable principal and sessions were continued as per the schedule. Students were enriched their knowledge by attending the course. Finally, the course concluded by vote of thanks.

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CO - Attainment:

CO1:Use the concepts learnt in Graph Theory in designing algorithms for real world applications.

CO2:Write precise and accurate mathematical definitions of objects in Graph Theory.

CO3:Use mathematical definitions to identify and construct examples.

CO4:Use a combination of theoretical knowledge and independent mathematical thinking in creative investigation of questions in Graph Theory.

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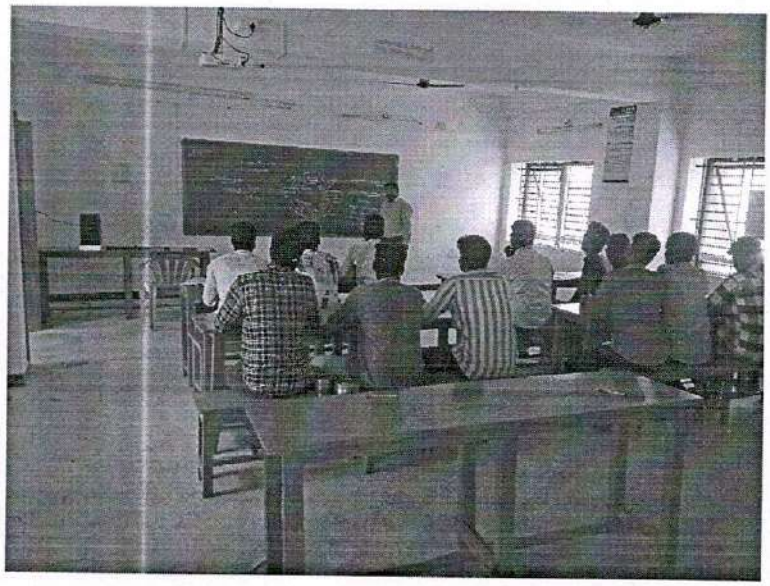
Value Added Course on Graph Theory 2022-23



Chromatic polynomial Matching Covering Four Color Problem on 12.08.22

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