



SRI RAAJA RAAJAN

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)

146/14B1, Amaravathi Village, Amaravathiputhur Post,

Karaikudi – 630 301, SivagangaiDt, Tamil Nadu

Website : www.sriraaajaraajan.in, E-mail : srrcet2010@gmail.com, Ph: 04565-234230

DEPARTMENT OF COMPUTER SCIENCE AND **ENGINEERING**

***Certificate Course/Add on Course/
Value Added Course***



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Certificate Course/Add on Course/

Value Added Course

Artificial Intelligence &

Machine Learning

2017-18



SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY

AMARAVATHIPUDUR, KARAİKUDI

DIPLOMA IN ARTIFICIAL INTELLIGENCE :: 2017-18

REGISTRATION DETAILS

S.NO	REGISTER NO	NAME	SIGNATURE
1	912514104002	ALAGESHWARI AL	Alageshwari
2	912514104003	ALAGUMEENAKSHI S	Alagumeenakshi
3	912514104004	ANBU NILA K	Anbu Nilak
4	912514104005	ASHONA S	Ashona
5	912514104006	AZHAGUNANTHINI N	Azhagunanthini
6	912514104009	JEYALAKSHMI S	Jeyalakshmi
7	912514104010	KANIMOZHI A	Kanimozhi
8	912514104011	KOWSALYA A	Kowsalya
9	912514104012	KOWSALYA C	Kowsalya
10	912514104013	MALARVIZHI V	Malarvizhi
11	912514104014	NARMATHA M	Narmatha
12	912514104015	NATHIYA S	Nathiya
13	912514104016	PRAVEEN RAJ P	Praveen Raj
14	912514104017	PRICILA J	Pricila
15	912514104018	PRIYATHARSHINI S	Priyatharshini
16	912514104019	RAJESH R	Rajesh
17	912514104022	RAMYA B	Ramya
18	912514104023	ROJA S	Roja
19	912514104025	SHANMUGA PRIYA M	Shanmuga Priya
20	912514104027	SUBBU LAKSHMI P	Subbu Lakshmi
21	912514104028	VANAROJA A	Vanaroja
22	912514104029	VIGNESH S	Vignesh
23	912514104030	YAMUNA P	Yamuna
24	912515104001	S.Abinaya	Abinaya
25	912515104002	A.Ajaykumar	Ajay Kumar
26	912515104003	S.Amala vinitha	Amala Vinitha
27	912515104004	S.Athirethinam	Athirethinam
28	912515104005	PR.Banumathi	Banumathi
29	912515104006	M.Barath	Barath
30	912515104007	A.Devi Abarna sri	Devi Abarna
31	912515104008	L.Ganeshwari	Ganeshwari
32	912515104009	S.Geethanjali	Geethanjali

33	912515104010	R.Ilamathi	Ilamathi
34	912515104011	G.Kamali	Kamali
35	912515104012	C.Kavitha	Kavitha
36	912515104013	RJ.Keerthana	Keerthana
37	912515104014	S.Leelavathi	Leela
38	912515104015	S.Muthumani	Muthu
39	912515104016	P.Nirmala	Nirmala
40	912515104017	T.Nithya sri	Nithya
41	912515104019	P.Parkavi	Parkavi
42	912515104020	P.Pavithra	Pavithra
43	912515104021	R.Pavithra	Pavithra
44	912515104022	S.Priyatharsini	Priyatharsini
45	912515104023	C.Ramya	Ramya
46	912515104024	A.Ranjithkumar	Ranjith
47	912515104025	C.Roja	Roja
48	912515104026	D.Saranya	Saranya
49	912515104027	D.Sivapriya	Sivapriya
50	912515104028	R.Soundharya	Soundharya
51	912515104029	P.Thavaselman	Thavaselman
52	912515104030	B.Valarmathi	Valarmathi
53	912515104301	M.Indumathi	Indumathi
54	912515104302	S.Marirajan	Marirajan
55	912515104303	S.Sindhu	Sindhu
56	912515104501	S.Raman	Raman
57	912516104002	AJITH.S	Ajith
58	912516104003	DEEPIKA NANDHNI.K	Deepika
59	912516104004	GOWSALYA.M	Gowsalya
60	912516104005	GOWTHAMI.R	Gowthami
61	912516104006	GUNASEELAN.S	Gunaseelan
62	912516104007	KARTHIKEYAN.M	Karthikeyan
63	912516104008	KAVITHA.K	Kavitha
64	912516104009	MALARVIZHI.S	Malarvizhi
65	912516104010	MAYURI.G	Mayuri
66	912516104011	MUTHUKRISHNAN.A	Muthukrishnan
67	912516104012	PARAMESWARI.P	Parameswari
68	912516104013	PRIYADHARSHINI.N	Priyadharshini
69	912516104014	RAKKUMUTHU.M	Rakkumuthu
70	912516104016	SETHUMUTHU.M	Sethumuthu
71	912516104017	SNEHA.R	Sneha

72	912516104019	VAITHEESWARLT	V. up
73	912516104301	GAYATHRI .PL	Gayathri
74	912516104302	GAYATHRI K	Gayathri
75	912516104303	LAKSHMI.G	Lakshmi
76	912516104701	MUTHU LAKSHMI.G	Muthu



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2017-18

ATTENDANCE

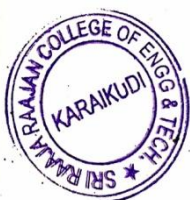


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AMARAVATHIPUDUR, KARAISKUDI

DIPLOMA IN ARTIFICIAL INTELLIGENCE :: 2017-18

S.NO	REGISTER NO	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	
DATE			3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6																
MONTH			7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7														
CLASS HOURS			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8														
1	912514104002	ALAGE SHWARI AL	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
2	912514104003	ALAGU MEENAKSHI S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
3	912514104004	ANBU MILA K	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
4	912514104005	ASHONA S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
5	912514104006	AZHAGUNANTHINI N	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
6	912514104009	JEYALAKSHMI S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
7	912514104010	KANIMOZHI A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
8	912514104011	KOWSALYA A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
9	912514104012	KOWSALYA C	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
10	912514104013	MALARVIZHI V	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
11	912514104014	NARMATHA M	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
12	912514104015	NATHIYA S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
13	912514104016	PRAVEEN RAJ P	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
14	912514104017	PRICILAJ	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
15	912514104018	PRIYATHARSHINI S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
16	912514104019	RAJESH R	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
17	912514104022	RAMYA B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
18	912514104023	ROJA S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
19	912514104025	SHANMUGA PRIYA M	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
20	912514104027	SUBBU LAKSHMI P	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
21	912514104028	VANARAJA A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
22	912514104029	VIGNESH S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/



[Signature]
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QUESTION PATER - THEORY



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE : ARTIFICIAL INTELLIGENCE (2017-18)

Time: 3 Hours

Total Marks: 60

Section –A

Answer any Ten of the following question not exceeding 300 words each (10x3=30)

1. What is the difference between learning and deep learning?
2. Write a note on soft skills.
3. What is meant by Regularization?
4. Describe briefly about back propagation.
5. Define Reinforcement.
6. Illustrate generative model.
7. Write a note on concept programming.
8. Briefly describe about Relationship Models in prolog programs.
9. What do you mean by positive visualization?
10. Describe the importance of Unit Corporate Culture.
11. Differentiate generative model from relational models.
12. What is the positive visualization impression of etiquette?

Section -B

Answer any four of the following question not exceeding 800 words each(4x5=20)

13. List out the merits of deep learning.
14. Explain the deep learning architecture.
15. Describe about Deep Reinforcement Learning.
16. What is Recursion? Discuss.
17. Explain the professional ethics in soft skills.

Section – C

Answer any one of the following question not exceeding 1500 words each (1x10=10)

18. How do you create positive visualization impression social etiquette? Describe.

(OR)

19. Explain Neural Network Architecture in detail.



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2017-18***

**MARK ALLOCATION &
QUESTION PAPER- LAB**



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DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year ::2017-18

CERTIFICATE COURSE

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Assessment Procedure for Certificate course, Skill Development course and Add-on-course:

For Theory Course:

- Set the multiple-choice question paper (MCQ) or theory questions (3 marks, 5 Marks & 10 Marks) to the prescribed given syllabus.
- Time limit for the examination is depended upon the question paper.
- Secured marks for theory course is added to the practical course marks.

For Practical Course:

- Set the list of experiments in a question paper to the prescribed given syllabus.
- The students to do the experiments to the given schedule.

Finally add both theory and practical marks scored by the student are printed in the grade sheet.

Assessment Outline:

Course type	Paper Title	Theory	Practical	Total
Certificate course	Artificial Intelligence and Machine Learning	60	40	100




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Academic Year ::2017-18

CERTIFICATE COURSE

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

PRACTICAL EXAMINATION

Time : 3 hours

Answer any one Question

Total Marks : 40

Aim/Principle/Apparatus required/Procedure	Tabulation/Circuit/ Program/Drawing	Output & Results	Total
10	20	10	40

1.	Implementation of Uninformed Search Algorithms (BFS, DFS)
2.	Implementation of informed Search Algorithms (A*, Memory-bounded A*)
3.	Implement Naive Bayes Model
4.	Implement Bayesian Networks
5.	Implementation and Build Regression models
6.	Build decision trees and Random forest
7.	Build SVM Models
8.	Implement Clustering algorithms




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ANSWER SCRIPT

THEORY & PRACTICAL



SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
AMARAVATHIPUDUR, KARAUKUDI

MODEL EXAM ANSWER BOOKLET

Read the Instructions given overleaf carefully before filling the title page
(To be filled by the candidate)

Register Number	9	1	2	5	1	A	1	0	4	0	0	9
-----------------	---	---	---	---	---	---	---	---	---	---	---	---

 Signature / Faculty of the Principal
--

College Code & Name	9	1	2	5	SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY
Degree / Branch	B.E / CSE				
Subject Code	-		Subject Title Artificial Intelligence AND Machine Learning Lab.		

Semester	-
Date & Session	6.7.2017 / F.N
No. of Pages Used	08

 Signature of the Hall Superintendent with Date
M. Sindhu Name of the Hall Superintendent

(DO NOT WRITE THE REGISTER NUMBER AND THE COLLEGE CODE/NAME IN ANY OTHER PART OF THE ANSWER BOOK)

Date 6.7.2017. Session : F.N

Subject Code / Title : Artificial Intelligence AND Machine Learning Lab

PART - A	
Q.No	Marks
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
Total	

PART - B				
Q.No	Marks			Total
	I	II	III	
11 (a)				
11 (b)				
12 (a)				
12 (b)				
13 (a)				
13 (b)				
14 (a)				
14 (b)				
15 (a)				
15 (b)				
Total				

Grand Total (in Words) Thirty Five
Grand Total (in Figure) 35

Signature of the Staff with Date

R. Rama prabha
 Name of the Staff

Signature of the HOD

1. Implementation of uniformed Searching Algorithms

uniformed Searching Algorithms.

- Breadth First Search
- Depth First Search.
- ~~Globalive~~ deepening Search
- Depth Limit Search.

Solution with chosen Algorithm on the State - Space Tree

~~BFS.~~

Aim: To implementation of uniformed Searching algorithms.

Algorithm:

1. Start

2.

Output

Enter the Source Node: 0
Enter the goal node: 5

0 1 2 3 4 5 Node found.

Result: Thus the program was
executed
verified and successfully.

2. DFS

```
import java.util.*;
```

```
public class DFS
```

```
{ static int adj [][ ] = {
```

```
{ 0, 1, 1, 0, 0, 0 },
```

```
{ 1, 0, 0, 1, 1, 0 },
```

```
{ 1, 0, 0, 0, 1, 0 },
```

```
{ 0, 1, 0, 0, 1, 1 },
```

```
{ 0, 1, 1, 1, 0, 1 },
```

```
{ 0, 0, 0, 1, 1, 0 };
```

```
}
```

```
static int N=6;
```

```
static vector<int> path = {};
```

```
public static int dfs(int cur,   
                        boolean visit
```


Output:

Enter the Source Node: 0

Enter the Goal Node: 5

Path: 0 → 1 → 3 → 4 → 5

Enter the Source node: 1

Enter the Goal Node: 2

Path: 1 → 0 → 2

Results:

Thus the Program was
verified and executed
Successfully.

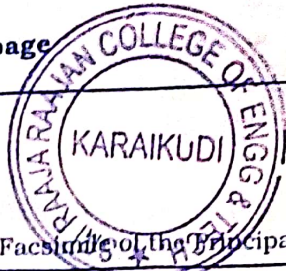


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MODEL EXAM ANSWER BOOKLET

Read the Instructions given overleaf carefully before filling the title page
(To be filled by the candidate)

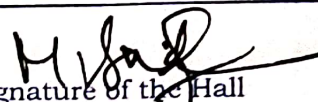
Register Number	9	1	2	5	1	4	1	0	4	0	0	9
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Signature / Facsimile of the Principal

College Code & Name	9	1	2	5	SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY.
Degree / Branch	B.E / CSE				
Subject Code	-		Subject Title Artificial Intelligence AND Machine Learning		

Semester	-
Date & Session	6.7.2017/A.N
No. of Pages Used	12.


 Signature of the Hall Superintendent with Date

M. Sindhu
 Name of the Hall Superintendent

(DO NOT WRITE THE REGISTER NUMBER AND THE COLLEGE CODE/NAME IN ANY OTHER PART OF THE ANSWER BOOK)

Date : 6.7.2017. Session : A.N.

Subject Code / Title : Artificial Intelligence AND Machine Learning.

PART - A	
Q.No	Marks
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
Total	

PART - B				
Q.No	Marks			Total
	I	II	III	
11 (a)				
11 (b)				
12 (a)				
12 (b)				
13 (a)				
13 (b)				
14 (a)				
14 (b)				
15 (a)				
15 (b)				
Total				

Grand Total (in Words)

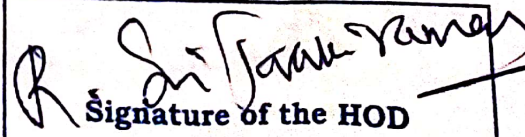
Forty Six

Grand Total (in Figure)

46.

Signature of the Staff with Date

R. Rama Prabha
Name of the Staff


 Signature of the HOD

Section 1.

1. Learning

• It is a subfield of artificial intelligence.

• It involves training algorithms on large databases to identify patterns and relationships.

Deep learning.

• It is a subset of machine learning.

• It uses neural networks with multiple layers to analyze complex patterns and relationships.

2. Soft Skills.

• It is used as a synonym for people skills or emotional intelligence.

• It includes adaptability, diplomacy and respect.

4. Back propagation.

• It is used algorithm for training feed forward neural networks.

• It calculates the gradient of the error function.

3. Regularization

- It is a process that changes the result answer to be simpler.

4. Reinforcement

- It is an area of machine learning concerned with how intelligent agents.
- It is one of 3 basic machine learning paradigms, alongside supervised learning and supervised learning.

7. Concept Programming

- It is a description of supported

Operations on a type, including syntax and semantics.

3 basic concepts:

1. AAA
2. BBC Bile
3. BBC

11. Generative model

relational model

1. It is a relation data model.

1. The model is a relational environment

2. It's really good for the flexibility.

- It has everything to do with terminology and method.

3. Generic model is very very important data model. It consists of 5 entity types,
1. Hubs 2. Links 3. Sub

9. Positive Visualization

- It involves intentionally developing a picture in your mind to practice the performance, feeling or behavior you desire.

- It is "mentally rehearsing" to enhance performance.

Section B.

13. Merits of deep learning

1. Automatic Feature Learning.

- This is particularly used for tasks where the features are difficult to define, such as image recognition.

2. Handling large and complex data.

- It is a useful tool for extracting insights from big data.

3. Improved Performance.

- It includes image and speech recognition, natural language processing and computer vision.

4. Handling non-linear relationships

- It can uncover non-linear relationships in data that would be difficult to detect through traditional methods.

6. Predictive modeling.

- It can be used to make predictions about future events or trends.

7. Handling missing data.

- It handling algorithm can handle missing data and still make predictions.

8. Handling Sequential data

9. Scalability.

10. Generalization.

15. Deep Reinforcement Learning.

- It is a subset of machine learning that combines reinforcement learning and deep learning.

- RL considers the problem of a computational agent learning to make decisions by trial and error.

• It is a category of machine Learning and AI where intelligent machines can learn from their actions similar to the way humans learn from experience.

• It is agent is rewarded or penalised based on their actions.

• It can automate repetitive tasks saving time and money.

• It can help identify and optimize key business processes.

• It can improve decision making by providing valuable data and insights.

16. Recursion.

• It is relating to, or constituting a procedure that can repeat itself indefinitely.

• It is a rule in a grammar, recursively adverb.

Two types

1. Direct recursion

2. Indirect recursion

1. Direct recursion

• It occurs when a function calls itself as part of its execution.

2. Indirect recursion

• It requires at least two functions to call each other during their execution, resulting in a more complex structure.

- It is a formula that defines any term of a sequence in terms of its preceding terms.

- It is thinking, knowing, Perceiving or feeling what others are thinking, knowing and feeling.

✓ It is implied by statements such as I'm an idiot.

Section C

19. Neural Network architecture

- It is made up of an input, output and hidden layer.
- These are a subset of machine learning designed to mimic the processing power of a human brain.

Types of Neural Network architecture

1. Standard neural network

- Perception

- It applies mathematical operation to an input value, providing an output variable.

Feed forward Networks

A multi-layered neural network where the information moves from left to right or other words, in a forward direction.

- The input values pass through a series of hidden layers on their way to the output layer.

2. Recurrent Neural networks

- It learned predictions to help make future predictions with accuracy.

- Long Short Term memory Network
— LSTM adds extra structures or gates, to an RNN to improve memory capabilities.

- Echo State network (ESN) —
A type of RNN hidden layers that are sparsely connected.

Convolutional neural networks

- These are a type of feed-forward network that are used for image analysis and language processing.

- There are hidden convolutional layers that convnets and detect patterns.

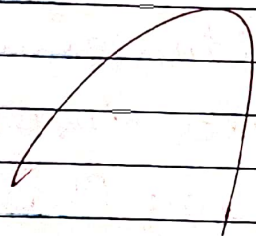
Generative adversarial networks

- It creates synthetic data from the learning phase of the model.

- Discrimination decides the images produced are false or genuine.

Transformer Neural Networks

- Pass through multiple inputs at once, making them a more efficient way to process data.





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DEPARTMENT OF COMPUTER SCIENCE AND **ENGINEERING**

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Value Added Course

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MARK STATEMENT



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year ::2017-18

CERTIFICATE COURSE

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

MARK STATEMENT

S.NO.	REG. NO.	NAME OF THE STUDENT	Theory	Practical	Total
1	912514104002	ALAGESHWARI AL	50	37	87
2	912514104003	ALAGUMEENAKSHI S	45	34	79
3	912514104004	ANBU NILA K	48	36	84
4	912514104005	ASHONA S	49	36	85
5	912514104006	AZHAGUNANTHINI N	30	37	67
6	912514104009	JEYALAKSHMI S	46	35	81
7	912514104010	KANIMOZHI A	49	34	83
8	912514104011	KOWSALYA A	51	32	83
9	912514104012	KOWSALYA C	35	32	67
10	912514104013	MALARVIZHI V	34	31	65
11	912514104014	NARMATHA M	36	36	72
12	912514104015	NATHIYA S	39	34	73
13	912514104016	PRAVEEN RAJ P	38	38	76
14	912514104017	PRICILA J	37	31	68
15	912514104018	PRIYATHARSHINI S	41	34	75
16	912514104019	RAJESH R	46	35	81
17	912514104022	RAMYA B	47	36	83
18	912514104023	ROJA S	48	37	85
19	912514104025	SHANMUGA PRIYA M	53	38	91
20	912514104027	SUBBU LAKSHMI P	46	39	85
21	912514104028	VANAROJA A	48	34	82
22	912514104029	VIGNESH S	42	32	74
23	912514104030	YAMUNA P	49	33	82
24	912515104001	S.ABINAYA	45	36	81
25	912515104002	A.AJAYKUMAR	47	34	81



26	912515104003	S.AMALA VINITHA	46	32	78
27	912515104004	S.ATHIRETHINAM	46	31	77
28	912515104005	PR.BANUMATHI	47	33	80
29	912515104006	M.BARATH	41	34	75
30	912515104007	A.DEVI ABARNA SRI	43	33	76
31	912515104008	L.GANESHWARI	44	32	76
32	912515104009	S.GEETHANJALI	48	31	79
33	912515104010	R.ILAMATHI	49	33	82
34	912515104011	G.KAMALI	43	34	77
35	912515104012	C.KAVITHA	47	32	79
36	912515104013	RJ.KEERTHANA	48	33	81
37	912515104014	S.LEELAVATHI	41	35	76
38	912515104015	S.MUTHUMANI	43	36	79
39	912515104016	P.NIRMALA	44	37	81
40	912515104017	T.NITHYA SRI	45	38	83
41	912515104019	P.PARKAVI	46	39	85
42	912515104020	P.PAVITHRA	48	32	80
43	912515104021	R.PAVITHRA	47	34	81
44	912515104022	S.PRIYATHARSINI	45	33	78
45	912515104023	C.RAMYA	44	34	78
46	912515104024	A.RANJITHKUMAR	43	36	79
47	912515104025	C.ROJA	42	37	79
48	912515104026	D.SARANYA	41	38	79
49	912515104027	D.SIVAPRIYA	44	34	78
50	912515104028	R.SOUNDHARYA	46	35	81
51	912515104029	P.THAVASELVAN	47	36	83
52	912515104030	B.VALARMATHI	48	37	85
53	912515104301	M.INDUMATHI	47	38	85
54	912515104302	S.MARIRAJAN	43	36	79
55	912515104303	S.SINDHU	42	38	80
56	912515104501	S.RAMAN	44	37	81
57	912516104002	AJITH.S	47	38	85
58	912516104003	DEEPIKA NANDHNI.K	46	36	82
59	912516104004	GOWSALYA.M	43	38	81
60	912516104005	GOWTHAMI.R	47	37	84
61	912516104006	GUNASEELAN.S	41	38	79
62	912516104007	KARTHIKEYAN.M	42	37	79
63	912516104008	KAVITHA.K	44	38	82
64	912516104009	MALARVIZHI.S	45	37	82
65	912516104010	MAYURI.G	47	36	83
66	912516104011	MUTHUKRISHNAN.A	48	35	83
67	912516104012	PARAMESWARI.P	51	34	85
68	912516104013	PRIYADHARSHINI.N	50	33	83
69	912516104014	RAKKUMUTHU.M	38	35	73
70	912516104016	SETHUMUTHU.M	39	36	75
71	912516104017	SNEHA.R	37	37	74



72	912516104019	VAITHEESWARI.T	37	38	75
73	912516104301	GAYATHRI .PL	41	37	78
74	912516104302	GAYATHRI .K	43	36	79
75	912516104303	LAKSHMI.G	41	38	79
76	912516104701	MUTHU LAKSHMI.G	42	35	77




PRINCIPAL
 Sri Raaja Raajan College of Engg. & Tech.,
 Amaravathipudur, Karaikudi - 630 301
 Sivagangai Dist. Tamil Nadu



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Karaikudi – 630 301, SivagangaiDt, Tamil Nadu

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2017-18

REPORT



SRI RAAJA RAAJAN

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REPORT

Department of Computer science and Engineering has organized certificate programme titled "**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**" from 03.07.2017 to 06.07.17. This program started with an inauguration function. Ms.C.KOWSALYA, Final year, B.E, delivered welcome address. Resource person **Dr.K.KARTHICK** has given a key note address about the program. The Principal, Dr.A.Kumaravadivel, Sri RaajaRaajan college of engineering and Technology, Karaikudi and the Head of Department, **Mr.P.PONVASAN** of Sri Raaja Raajan college of engineering and Technology, Karaikudi has consented felicitation address. Students and faculties from various departments attended the function. The students learn basics Computer Science which focuses on developing programmed machines or computers that can function similarly to a human brain. The first significant work in AI was completed in the mid-twentieth century. The Turing Test, for example, was created around this time to assess a machine's ability to act intelligently and display behavior that is indistinguishable from that of a human.

Although no machine has yet passed this test, current AI models typically use variations of it to better align with our current understanding of AI and machine learning. Without a doubt, artificial intelligence has come a long way. It is used in language translations, data mining, our smartphones and computers, and a variety of other technologies that we have come to rely on.

The program was successfully completed on 06.07.2017 with a valedictory function. Resource person **Dr.K.KARTHICK** and students of department of Computer science & Engineering express feedback about the program and participation certificates are distributed to all the participants and delivered vote of thanks and national anthem.

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CERTIFICATES



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CERTIFICATE OF COMPLETION

*This is to certify that Mr./Ms.....S...A.THERETHINAM.....
of Computer Science and Engineering Department has successfully completed a course titled
"Artificial Intelligence & Machine Learning" at the Duration 03.07.2017 to 06.07.2017.*

Jimmy
HoD

Principal



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of Computer Science and Engineering Department has successfully completed a course titled
"Artificial Intelligence & Machine Learning" at the Duration 03.07.2017 to 06.07.2017.*

Submy
HOD

Submy
Principal



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CERTIFICATE OF COMPLETION

*This is to certify that Mr./Ms..... S. AMALA VINITHA.....
of Computer Science and Engineering Department has successfully completed a course titled
"Artificial Intelligence & Machine Learning" at the Duration 03.07.2017 to 06.07.2017.*

[Signature]
HoD

[Signature]
Principal



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CERTIFICATE OF COMPLETION

*This is to certify that Mr./Ms.....KARTHIKEYAN..M.....
of Computer Science and Engineering Department has successfully completed a course titled
"Artificial Intelligence & Machine Learning" at the Duration 03.07.2017 to 06.07.2017.*

Signature
HoD

Signature
Principal



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Certificate Course/Add on Course/

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Basics of C & C++ Programming

2018-19



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Karaikudi – 630 301, SivagangaiDt, Tamil Nadu

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2018-19

SYLLABUS



SRI RAAJA RAAJAN

COLLEGE OF ENGINEERING AND TECHNOLOGY

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

BASICS OF C, C++ PROGRAMMING

COURSE CONTENT :: 2018-2019

OBJECTIVE OF THE COURSE:

C and C++ Programming are must to learn for every one who are interested in programming and want to start their career in software industry. It is the basic foundation of any programming languages. All the programming languages like java, c# or any object oriented programming language are all inherited from c and c++.

In this course you will learn all the basic fundamentals of c and c++ from scratch then proceed to advanced topics.

LEARNING OUTCOME:

After the completion of the course, the students will be work and process with various source of images.

After competing this course, you will be able to:

- Describe OOPs concepts
- Use functions and pointers in your C++ program
- Understand tokens, expressions, and control structures
- Explain arrays and strings and create programs using them
- Describe and use constructors and destructors
- Understand and employ file management
- Demonstrate how to control errors with exception handling

DURATION OF THE COURSE:

❖ 4 Days

MINIMUM ELIGIBILITY CRITERIA:

- ❖ Academic and un-academic students with basic C, C++ knowledge.

COURSE OUTLINE

1. Exploring Programming Basics and OOPs Concepts
2. Introducing C,C++ Programming
3. Working with Tokens, Expressions and Control Structures in C,C++
4. Managing Input and Output Data
5. Arranging the Same Data Systematically: Arrays
6. Classes and Objects in C,C++
7. Implementing OOPs Concepts in C++
8. Constructors and Destructors
9. Groups of Statements: Functions
10. Implementing Structures and Unions
11. Pointing to a location: Pointers
12. File Management in C,C++
13. Templates in C,C++
14. Handling Exceptions in C,C++
15. Manipulating Strings in C,C++
16. Working with Pre-processor Directives
17. Advanced Labs

DETAILED COURSE SYLLABUS:

Module 1: C++ overview

Module 2: Functions and variables

Module 3: Classes in C++

Module 4: Operator overloading

Module 5: Initialization and assignment

A brief explanation of the C, C++ course syllabus, all modules mentioned below:

Module 1:

- Object-oriented Fundamentals

- Programming Paradigms
- Conquering Complexity

C,C++ Basics

- Comments, Keywords, I/O Streams
- Built-in operators and control constructs
- Built-in types, Arrays, and pointers
- Dynamic Free Store operators

C,C++ Functions

- Definition and prototypes
- Inline Functions

- Structures and References

Module 2:

Encapsulation

- Private and Public
- Data Members, Member Function

Constructors and Destructors

- Default Arguments
- Storage Allocation and Deallocation
- Copy Constructors
- This Pointer

Module 3:

Overloading

- Overloading Operators
- ~~Overloading Functions~~
- Unary and Binary OperstorsA
- Stream Input and Output
- Initialization vs. Assignment

Module 4:

Polymorphic programming

Inheritance

- Public inheritance and subtyping
- Constructors and destructors
- Base and derived classes
- Base class initialization
- Using protected keyword

Virtual functions

- Base class pointers and references

Dynamic Binding

- Pure virtual functions
- Abstract base classes
- Virtual destructors

Module 5:

Code reuse in C,C++

Private inheritance

- Access declarations
- Base and derived relationship

- Containment

- Member Initialization
- Objects as data members



A handwritten signature in green ink, likely of the Principal, written over the printed name.

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Sivagangai Dist. Tamil Nadu



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PARTICIPATION LIST



SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY

AMARAVATHIPUDUR, KARAİKUDI

PROGRAMMING IN C & C++ :: 2018-19

REGISTRATION DETAILS

S.NO	REGISTER NO	NAME	SIGNATURE
1	912517104001	Abitha .M	Abitha
2	912517104003	Arthiga.M	Arthiga
3	912517104004	Arthiga.P	Arthiga
4	912517104005	Ashwini.A	Ashwini
5	912517104006	BharathiKannan.K	BharathiKannan
6	912517104007	Chinniah.s	Chinniah
7	912517104008	Devadharshini.K	Devadharshini
8	912517104009	Dhanalakshmi.M	Dhanalakshmi
9	912517104010	Divya.M	Divya
10	912517104011	Divya bharathi.M	Divya bharathi
11	912517104012	Divyabharathi.S	Divyabharathi
12	912517104013	Gangadevi.C	Gangadevi
13	912517104014	Gayathri.S	Gayathri
14	912517104015	Geetha Lakshmi.D	Geetha
15	912517104016	Gowtham.R	Gowtham
16	912517104017	Hemalatha.N	Hemalatha
17	912517104018	Ishwarya.A	Ishwarya
18	912517104019	Kannan.P	Kannan
19	912517104020	Karthiga.K	Karthiga
20	912517104021	Karthimani.B	Karthimani
21	912517104022	Karunakaran.K	Karunakaran
22	912517104023	KishorKumar.K	KishorKumar
23	912517104024	Lakshmi.V	Lakshmi
24	912517104025	Lavanya.S	Lavanya
25	912517104026	Maryamerlin.M	Maryamerlin
26	912517104027	Nandheswari.K	Nandheswari
27	912517104028	Nathiya.M	Nathiya
28	912517104029	Navatharani.V	Navatharani
29	912517104030	Nirmala.N	Nirmala
30	912517104031	Panthala Raj.R	Panthala Raj
31	912517104032	Pavithra.G	Pavithra
32	912517104033	Pavithra.N	Pavithra

33	912517104034	Priya.K	Priya
34	912517104035	Priyadharshini.S	Priyadharshini
35	912517104036	Priyanga.M	Priyanga
36	912517104037	Rajathi.K	Rajathi
37	912517104038	RajeshWari.R	Raji
38	912517104039	Rethinam.M	Rethinam
39	912517104041	Sinthiya.AR	Sinthiya
40	912517104042	Sivappriya.P	Sivappriya
41	912517104043	Sneha.G	Sneha
42	912517104044	Sornababu.p	Sornababu
43	912517104045	Sowdharya.S.P	Sowdharya
44	912517104047	Sumithra.K	Sumithra
45	912517104048	Sumithra.P	Sumithra
46	912517104049	Surenthar.V	Surenthar
47	912517104051	Swathi.K	Swathi
48	912517104052	Yuvarani.M	Yuvarani
49	912516104002	AJITH.S	Ajith
50	912516104003	DEEPIKA NANDHIN.K	Deepika nand.
51	912516104004	GOWSALYA.M	Gowsalya
52	912516104005	GOWTHAMI.R	Gowthami
53	912516104006	GUNASEELAN.S	Gunaseelan
54	912516104007	KARTHIKEYAN.M	Karthikeyan
55	912516104008	KAVITHA.K	Kavitha
56	912516104009	MALARVIZHI.S	Malarvizhi
57	912516104010	MAYURI.G	Mayuri
58	912516104011	MUTHUKRISHNAN.A	Muthukrishnan
59	912516104012	PARAMESWARI.P	Parameswari
60	912516104013	PRIYADHARSHINI.N	Priyadharshini
61	912516104014	RAKKUMUTHU.M	Rakkumuthu
62	912516104016	SETHUMUTHU.M	Sethumuthu
63	912516104017	SNEHA.R	Sneha
64	912516104019	VAITHEESWARI.T	Vaitheswari
65	912516104301	GAYATHRI .PL	Gayathri
66	912516104302	GAYATHRI .K	Gayathri
67	912516104303	LAKSHMI.G	Lakshmi
68	912516104701	MUTHU LAKSHMI.G	Muthu Lakshmi
69	912515104001	S.Abinaya	Sabinaya
70	912515104002	A.Ajithkumar	Ajithkumar
71	912515104003	S.Amala vinitha	Amala vinitha

72	912515104004	S.Athirethinam	Athir
73	912515104005	PR.Banumathi	Banumathi
74	912515104006	M.Barath	Barath
75	912515104007	A.Devi Abarna sri	Devi Abarna
76	912515104008	L.Ganeshwari	Ganeshwari
77	912515104009	S.Geethanjali	Geethanjali
78	912515104010	R.Ilamathi	Ilamathi
79	912515104011	G.Kamali	Kamali
80	912515104012	C.Kavitha	Kavitha
81	912515104013	RJ.Keerthana	Keerthana
82	912515104014	S.Leelavathi	Leelavathi
83	912515104015	S.Muthumani	Muthumani
84	912515104016	P.Nirmala	Nirmala
85	912515104017	T.Nithya sri	Nithya sri
86	912515104019	P.Parkavi	Parkavi
87	912515104020	P.Pavithra	Pavithra
88	912515104021	R.Pavithra	Pavithra
89	912515104022	S.Priyatharsini	Priyatharsini
90	912515104023	C.Ramya	Ramya
91	912515104024	A.Ranjithkumar	Ranjithkumar
92	912515104025	C.Roja	C.Roja
93	912515104026	D.Saranya	Saranya
94	912515104027	D.Sivapriya	Sivapriya
95	912515104028	R.Soundharya	Soundharya
96	912515104029	P.Thavaselvan	Thavaselvan
97	912515104030	B.Valarmathi	Valarmathi
98	912515104301	M.Indumathi	Indumathi
99	912515104302	S.Marirajan	Marirajan
100	912515104303	S.Sindhu	Sindhu
101	912515104501	S.Raman	Raman




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ATTENDANCE

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AMARAVATHIPUDUR, KARAİKUDI

PROGRAMMING IN C & C++ :: 2018-19

S.NO	REGISTER NO	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45		
DATE			1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4																
MONTH			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8														
CLASS HOURS			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8															
1	912517104001	Abitha.M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
2	912517104003	Arthiga.M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
3	912517104004	Arthiga.P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
4	912517104005	Ashwini.A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
5	912517104006	BharathiKannan.K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
6	912517104007	chinnich.s	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
7	912517104008	Devadharshini.K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
8	912517104009	Dhanalakshmi.M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
9	912517104010	Divya.M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
10	912517104011	Divya Bharathi.M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
11	912517104012	Divya Bharathi.S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
12	912517104013	Gangalevi.C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
13	912517104014	Gayathri.S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
14	912517104015	Geetha Lakshmi.D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
15	912517104016	Gowtham.R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
16	912517104017	Hemalatha.N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
17	912517104018	Ishwarya.A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
18	912517104019	Kannan.P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
19	912517104020	Karthiga.K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
20	912517104021	Karthirani.B	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															
21	912517104022	Karunakaran.K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1															

22	912517104023	Kishor Kumar.K
23	912517104024	Lakshmi.V
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25	912517104026	Maryamerin.M
26	912517104027	Nandheswari.K
27	912517104028	Nathiyai.M
28	912517104029	Navatharani.V
29	912517104030	Nirmala.N
30	912517104031	Panthala Raj.R
31	912517104032	Pavithra.G
32	912517104033	Pavithra.N
33	912517104034	Priya.K
34	912517104035	Priyadarshini.S
35	912517104036	Priyanja.M
36	912517104037	Rajathi.K
37	912517104038	Rajesh Vari.R
38	912517104039	Rethinam.M
39	912517104041	Sinthiya.AR
40	912517104042	Sivappriya.P
41	912517104043	Sneha.G
42	912517104044	Somababu.p
43	912517104045	Sowdharya.S.P
44	912517104047	Sumithra.K
45	912517104048	Sumithra.P
46	912517104049	Surenthar.V
47	912517104051	Swathi K
48	912517104052	Yuvarani.M
49	912516104002	AJITH. S
50	912516104003	NANDHINI.K

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Certificate Course/Add on Course/

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2018-19

QUESTION PATER - THEORY



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
COURSE : BASICS OF C, C++ PROGRAMMING (2018-19)

Time: 3 Hours

Total marks: 60

Section-A

I. Answer the following question (10x3=30)

1. What is the difference between C and C++?
2. What are classes and objects in C++
3. Difference between equal and assignment operator?
4. What is a C?
5. Define null pointer?
6. Which is a compiler?
7. What is a C token and types of C token?
8. What is loop in C?
9. What are access modifiers?
10. Difference between a while loop and a do while loop?

II. Answer any four of the following question

(4x5=20)

1. Why is c called mid-level programming language?
2. Explain the data types in C?
3. What is inheritance? Explain the types of inheritance
4. What is dynamic memory allocation? Explain its use in C++.
5. What is overloading?

III. Answer any one of the following question

(1x10=10)

1. Write ac program to check the integer is palindrome or not?
(OR)
2. Explain about polymorphism in C++ and is types.



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**MARK ALLOCATION &
QUESTION PAPER- LAB**



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DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year ::2018-19

CERTIFICATE COURSE :: BASICS OF C & C++

Assessment Procedure for Certificate course, Skill Development course and Add-on-course:

For Theory Course:

- Set the multiple-choice question paper (MCQ) or theory questions (3 marks, 5 Marks & 10 Marks) to the prescribed given syllabus.
- Time limit for the examination is depended upon the question paper.
- Secured marks for theory course is added to the practical course marks.

For Practical Course:

- Set the list of experiments in a question paper to the prescribed given syllabus.
- The students to do the experiments to the given schedule.

Finally add both theory and practical marks scored by the student are printed in the grade sheet.

Assessment Outline:

Course type	Paper Title	Theory	Practical	Total
Certificate course	Basics of C & C++	60	40	100




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Academic Year ::2018-19

CERTIFICATE COURSE

BASICS OF C & C++

PRACTICAL EXAMINATION

Time: 3 hours

ANSWER ANY QUESTION

Total Marks: 40

Aim/Principle/Apparatus required/Procedure	Tabulation/Circuit/ Program/Drawing	Output & Results	Total
10	20	10	40

1.	Write a Simple C Program a. Print Your Name and address b. Find Simple and Compound Interest
2.	Write a C program Swap two variables without using third variable
3.	Write a C program Print Months and Days
4.	Use of Variable in Expression
5.	Write a C program on decision making constructs : if else, goto, switch-case, break-continue
6.	Write a C++ program on Function Calls
7.	Write a C++ program on Bubble sort
8.	Write a C++ program on Merge sort




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2018-19

**ANSWER SCRIPT
THEORY & PRACTICAL**

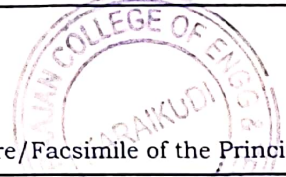


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MODEL EXAM ANSWER BOOKLET

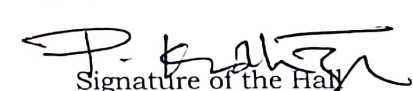
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 Signature/Facsimile of the Principal

College Code & Name	9	1	2	5	SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY		
Degree / Branch	B.E / CSE						
Subject Code	-			Subject Title	Basics of C, C++ Programming Lab		

Semester	-
Date & Session	04.08.2018 & AN
No. of Pages Used	6

 Signature of the Hall Superintendent with Date
P. Krittiga Name of the Hall Superintendent

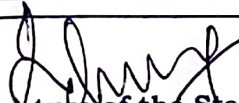
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Date : 04.08.2018 Session : AN
Subject Code / Title : Basics of C, C++ Programming Lab

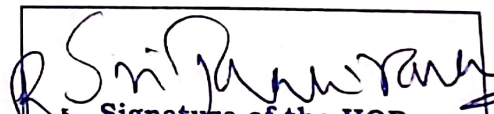
PART - A	
Q.No	Marks
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PART - B				
Q.No	Marks			Total
	I	II	III	
11 (a)				
11 (b)				
12 (a)				
12 (b)				
13 (a)				
13 (b)				
14 (a)				
14 (b)				
15 (a)				
15 (b)				
Total				

Grand Total (in Words) Thirty Six only
Grand Total (in Figure) 36

 Signature of the Staff with Date

P. Ponvasan Name of the Staff

 Signature of the HOD

Do not write anything on this page

8.

Merge Sort

Aim

To implement Merge Sort Program Using C.

Algorithm:

1. Start
2. Declare an array and left, right, Mid Variable
3. Perform Merge Function
4. Stop

Program:

```
#include <stdio.h>
```

```
#include <conio.h>
```

```
void merge (int a[], int l, int m)
```

```
{
```

```
    int i, j, k;
```

```
    int n1 = m - l + 1;
```

```
    int n2 = m - m;
```

```
    int L[n1], R[n2];
```

```
    for (i = 0; i < n1; i++)
```

```
        L[i] = a[l + i];
```

```
    for (j = 0; j < n2; j++)
```




```

R[j] = arr[m+1+j];
i = 0;
j = 0;
k = 1;
while (i < n1 && j < n2)
{
    if (L[i] <= R[j])
    {
        arr[k] = L[i];
        i++;
    }
    else
    {
        arr[k] = R[j];
        j++;
    }
    k++;
}
while (j < n2)
{
    arr[k] = R[j];
    j++;
    k++;
}
}

```

```

void mergeSort (int arr[], int l, int r)
{
    if (l < r)
    {
        int m = 1 + (r-l)/2;
        mergeSort (arr, l, m);
        mergeSort (arr, m+1, r);
    }
}

int main()
{
    int arr[] = {12, 11, 13, 5, 6};
    int arr_size = sizeof(arr) / sizeof(arr[0]);
    printf("Given array");
    PrintArray (arr, arr_size);
    mergeSort (arr, 0, arr_size - 1);
    printf("In Sorted Array");
    PrintArray (arr, arr_size);
    return 0;
}

```

Output:

o/p Given array

12 11 13 5 6



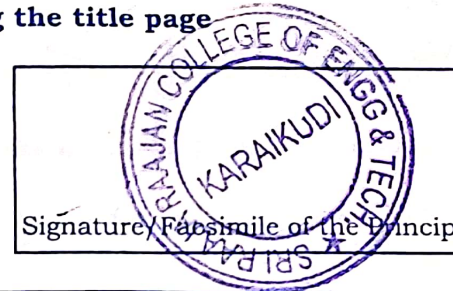


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Subject Code	-			Subject Title	Basics of C, C++ Programming		

Semester	-
Date & Session	04.08.2018 - FN
No. of Pages Used	15

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P. Kuthiga
Name of the Hall Superintendent

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Date : 04.08.2018 Session : FN
Subject Code / Title : Basics of C, C++ Programming

PART - A	
Q.No	Marks
1.	
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PART - B				
Q.No	Marks			Total
	I	II	III	
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11 (b)				
12 (a)				
12 (b)				
13 (a)				
13 (b)				
14 (a)				
14 (b)				
15 (a)				
15 (b)				
Total				

Grand Total (in Words)
Forty Nine only
Grand Total (in Figure)
49

P. Ponvasan



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Section-A

1) Answer the following:

1. C and C++:-

C

C++

1. C is a Structural Language

1. C++ is Structural as well as Object Oriented Programming language

2. C was developed by Dennis Ritchie in 1972

2. C++ was developed by Bjarne Stroustrup in 1979

3. C contains 32 Keywords

3. C++ contains 63 Keywords

2. C++ classes and objects:

* A class is a User defined data type that has data members and member functions.

* An Object is an instance of a class.

Ex:

```
class Stud
```

```
{
```

```
int roll-no;
```

```
char name[30];
```

```
};
```

```
Stud s;
```



3. Equal To Operator

1. `==` is an Equal To operator. It's a Binary operator which operates on two operands.

2. `==` assigns value

of left and side expression right side to the left side return 1, if they are equal, otherwise return 0.

Ex: `x = 10;`

Assignment Operator

1. `=` is an Assignment Operator. It's a Binary operator which operates on two operands

2. `=` assigns the value of right side to the left side variable.

Ex: `if (x == y)`

4. What is a C?

* The C Programming Language is a Procedural and general Purpose Language.

* A Program written in C must be run through a C Compiler to convert it into an Executable.

Pros and Cons of C:

1. Structural
2. Portable
3. Mid-Level Programming Language.
4. Dynamic Memory Allocation.

5. Null Pointer:

* A Pointer that is assigned NULL is called a Null Pointer.

* A Null Pointer constant can be `0`, `0L` or such an expression that can be cast to type `(void *)`.

* A Null Pointer is a special reserved value which is defined in a `stddef` header file.

6. Compiler:

* A compiler is a special program that translates a programming language source code into Target Code.

* The term compiler was coined by American Computer Scientist Grace Hopper, who designed one of the first compilers in the early 1950s.

Ex: C, C++, C#.

* C, C++ and Pascal are Native/Traditional Compilers.

7. C Token:

* Tokens are building blocks used to construct or develop together a C Program.

* C Compiler breaks Program Source Code into "group of characters" and convert it into target code.

Types of Tokens:

1. Identifiers

2. Keywords

3. constants

4. Special characters

5. Operator

6. Strings

8. Loop in C:

* Loops in Programming are used to repeat or iterate upto the condition met false.

* A loop allows Program execute Multiple times without repeat Portion of code.

Ex:

```
for (i=1; i<=5; i++)
```

```
{
```

```
    PrintLn("Hello");
```

```
}
```

```
.....
```

9. Access Modifiers:

* Access Modifiers are used to implement "data Hiding" aspect of object oriented Programming.

* 3 Types of Access Modifiers

1. Public

2. Private

3. Protected

10. While Loop

1. While Loop is entry condition checking Structure.

2. Allow iteration when condition met true

Ex:

```
while (i<=10)
```

```
{
```

```
    PrintLn("Hello");
```

```
}
```

Do While Loop

1. Do-While is exit Condition Checking Structure.

2. Allow iteration once even if condition met false.

Ex:

```
do
```

```
{
```

```
    PrintLn("Hi");
```

```
} while (i>10);
```



Section - B

II Answer the Following Question

2. Data types in C:

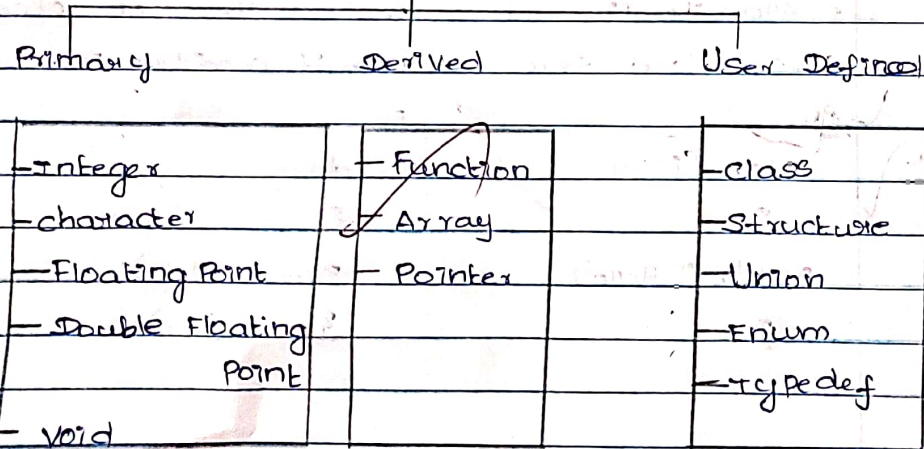
* Each Variable in C has an data type.

* It Specifies type of data that the variable can store like integer, character, float, double etc.

* Each data type requires different amount of Memory and some specific Operations which can be performed over it.

Data types Classification-

Data types in C



Data Type	Size	Range
short int	2	-32,768 to 32,767
unsigned short int	2	0 to 65,535
unsigned int	4	0 to 4,294,967,295
int	4	-2,147,483,648 to 2,147,483,647
float	4	1.2E-38 to 3.4E+38
double	8	1.7E-308 to 1.7E+308

3. Inheritance :

* In C++, to inherit attributes and Methods from one class to another.

* Two categories

→ Derived class - The class that inherits from another class.

→ Base class - The class being inherited from



Types of Inheritance:

- 1) Single Inheritance
- 2) Multilevel Inheritance
- 3) Multiple Inheritance

1) Single Inheritance:

* Car class inherits the attributes and Methods from Vehicle class.

Ex:

```
class Vehicle
```

```
{
```

```
...
```

```
}
```

```
class Car: public Vehicle
```

```
{
```

```
...
```

```
}
```

Vehicle



Car

2) Multilevel Inheritance

* A class can also be derived from one class, which is derived from another class.

Parent



Child



Grand Child

3) Multiple Inheritance:

* A class can also be derived from more than one base class using a comma-separated list.

Myclass

MyOtherClass

MyChildclass

4. Dynamic Memory Allocation:

* Dynamic Memory Allocation using malloc(), calloc(), free() and realloc().

* It can be defined as a procedure in which the size of a data structure is changed during the runtime.

* There are four library functions provided by <stdlib.h> header file to provide dynamic.

Uses:

1) c - Malloc() Method:

* Malloc() or Memory Allocation method in C is used to dynamically allocate a single large block of memory with specified size.

Syntax:

Ptr = (Cast-type *) malloc (byte-size)

Ex:

Ptr = (int *) malloc (100 * sizeof (int));



2) C calloc() Method:

* Calloc or Contiguous Allocation Method is used to dynamically allocate the specified number of blocks of memory.

Syntax:

`Ptr = (cast type *) calloc(n, element-size)`

Ex:

`Ptr = (float *) calloc(25, size of(float))`

3) C free() Method:

* free method is used to dynamically deallocate memory.

* free() method is used whenever the dynamic memory allocation takes place.

Syntax:

`free(ptr);`

4) C realloc() Method:

* realloc or reallocation method is used to dynamically change the memory allocation of previously allocated memory.

Syntax:

`Ptr = realloc(ptr, new size);`

5. Overloading:

* Function Overloading is a feature of object oriented programming where 2 or more functions can have the same name but different parameters.

* In function overloading "function" name should be same and the arguments should be different parameters.

Ex: Polymorphism.

* `add(int a, int b)`

`add(float a, float b)`

Parameters have same type.

* Parameters should have different parameter numbers.

`add(int a, int b)`

`add(int a, int b, int c)`

* Function overloading works - Function name and parameter match each other.

* If there are two functions `int sum` and `float sum()` will generate compile-time error as function overloading is not possible here.

Section C

III Answer the Question:

1. Program to check the integer is Palindrome or not:

* A Palindrome number is a number that is same after reverse.

Ex: 121, 34543, 343.

Algorithm:

1. Get the number.
2. Store into variable (T)
3. Reverse the number
4. Compare the number (T) with Reverse number.
5. If both numbers are same, Print Palindrome number.
6. Else Print not Palindrome number

Program:

```
#include <stdio.h>

int main()
{
    int n, r, sum = 0, temp;
    printf("Enter the number");
    scanf("%d", &n);
```

```
temp = n;
while (n > 0)
{
    r = n % 10;
    sum = (sum * 10) + r;
    n = n / 10;
}

if (temp == sum)
    printf("Palindrome number");
else
    printf("Not Palindrome");

return 0;
}
```

Output:

① Enter the number = 151
Palindrome number

② Enter the number = 5621
Not Palindrome number



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146/14B1, Amaravathi Village, Amaravathiputhur Post,

Karaikudi – 630 301, SivagangaiDt, Tamil Nadu

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DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year ::2018-19

CERTIFICATE COURSE

BASICS OF C & C++

MARK STATEMENT

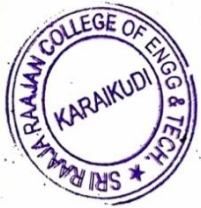
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1	912517104001	ABITHA .M	48	37	85
2	912517104003	ARTHIGA.M	53	38	91
3	912517104004	ARTHIGA.P	46	39	85
4	912517104005	ASHWINI.A	48	34	82
5	912517104006	BHARATHIKANNAN.K	42	32	74
6	912517104007	CHINNIAH.S	50	37	87
7	912517104008	DEVADHARSHINI.K	45	34	79
8	912517104009	DHANALAKSHMI.M	48	36	84
9	912517104010	DIVYA.M	49	36	85
10	912517104011	DIVYA BHARATHI.M	30	37	67
11	912517104012	DIVYABHARATHI.S	46	35	81
12	912517104013	GANGADEVI.C	49	34	83
13	912517104014	GAYATHRI.S	44	37	81
14	912517104015	GEETHA LAKSHMI.D	47	38	85
15	912517104016	GOWTHAM.R	45	36	81
16	912517104017	HEMALATHA.N	47	34	81
17	912517104018	ISHWARYA.A	46	32	78
18	912517104019	KANNAN.P	46	31	77
19	912517104020	KARTHIGA.K	47	33	80
20	912517104021	KARTHIMANI.B	41	34	75
21	912517104022	KARUNAKARAN.K	43	33	76
22	912517104023	KISHORKUMAR.K	49	33	82
23	912517104024	LAKSHMI.V	49	33	82
24	912517104025	LAVANYA.S	45	36	81
25	912517104026	MARYAMERLIN.M	47	34	81



26	912517104027	NANDHESWARI.K	46	32	78
27	912517104028	NATHIYA.M	46	31	77
28	912517104029	NAVATHARANI.V	47	33	80
29	912517104030	NIRMALA.N	41	34	75
30	912517104031	PANTHALA RAJ.R	43	33	76
31	912517104032	PAVITHRA.G	44	32	76
32	912517104033	PAVITHRA.N	48	31	79
33	912517104034	PRIYA.K	49	33	82
34	912517104035	PRIYADHARSHINI.S	43	34	77
35	912517104036	PRIYANGA.M	47	32	79
36	912517104037	RAJATHI.K	48	33	81
37	912517104038	RAJESHWARI.R	41	35	76
38	912517104039	RETHINAM.M	43	36	79
39	912517104041	SINTHIYA.AR	44	37	81
40	912517104042	SIVAPPRIYA.P	45	38	83
41	912517104043	SNEHA.G	46	39	85
42	912517104044	SORNABABU.P	48	32	80
43	912517104045	SOWDHARYA.S.P	47	34	81
44	912517104047	SUMITHRA.K	45	33	78
45	912517104048	SUMITHRA.P	44	34	78
46	912517104049	SURENTHAR.V	43	36	79
47	912517104051	SWATHI.K	42	37	79
48	912517104052	YUVARANI.M	41	38	79
49	912516104002	AJITH.S	44	34	78
50	912516104003	DEEPIKA NANDHNI.K	51	32	83
51	912516104004	GOWSALYA.M	35	32	67
52	912516104005	GOWTHAMI.R	34	31	65
53	912516104006	GUNASEELAN.S	36	36	72
54	912516104007	KARTHIKEYAN.M	39	34	73
55	912516104008	KAVITHA.K	38	38	76
56	912516104009	MALARVIZHI.S	37	31	68
57	912516104010	MAYURI.G	41	34	75
58	912516104011	MUTHUKRISHNAN.A	46	35	81
59	912516104012	PARAMESWARI.P	47	36	83
60	912516104013	PRIYADHARSHINI.N	38	35	73
61	912516104014	RAKKUMUTHU.M	41	38	79
62	912516104016	SETHUMUTHU.M	42	37	79
63	912516104017	SNEHA.R	44	38	82
64	912516104019	VAITHEESWARI.T	45	37	82
65	912516104301	GAYATHRI .PL	47	36	83
66	912516104302	GAYATHRI .K	48	35	83
67	912516104303	LAKSHMI.G	51	34	85
68	912516104701	MUTHU LAKSHMI.G	50	33	83
69	912515104001	S.ABINAYA	38	35	73
70	912515104002	A.AJAYKUMAR	39	36	75
71	912515104003	S.AMALA VINITHA	37	37	74



72	912515104004	S.ATHIRETHINAM	37	38	75
73	912515104005	PR.BANUMATHI	41	37	78
74	912515104006	M.BARATH	43	36	79
75	912515104007	A.DEVI ABARNA SRI	41	38	79
76	912515104008	L.GANESHWARI	42	35	77
77	912515104009	S.GEETHANJALI	42	37	79
78	912515104010	R.ILAMATHI	44	38	82
79	912515104011	G.KAMALI	45	37	82
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81	912515104013	RJ.KEERTHANA	48	35	83
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89	912515104022	S.PRIYATHARSINI	47	36	83
90	912515104023	C.RAMYA	48	37	85
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94	912515104027	D.SIVAPRIYA	44	37	81
95	912515104028	R.SOUNDHARYA	47	38	85
96	912515104029	P.THAVASELVAN	46	36	82
97	912515104030	B.VALARMATHI	43	38	81
98	912515104301	M.INDUMATHI	47	37	84
99	912515104302	S.MARIRAJAN	44	37	81
100	912515104303	S.SINDHU	47	38	85
101	912515104501	S.RAMAN	47	38	85




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2018-19

REPORT



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REPORT

Department of Computer science&Engineering has organized Certificate Course Titled “**Basics of C. C++ PROGRAMMING**” on 01.08.2018 to 04.08.2018. This program started with an inauguration function. Department of Department of computer science & Engineering student **Ms.A.DeviAbarnasri** Final year, B.E. Department of Computer science & Engineering deliver welcome address. Resource person **Mr.S.Hariharan** has address a key note about the program. The Principal, **Dr.A.Kumaravadivel** Sri RaajaRaajan college of engineering and Technology, karaikudi and the Head of Department, **Mr.S.P.PONVASAN** of Sri RaajaRaajan college of engineering and Technology, Karaikudi has consented felicitation address. Students and faculties from various departments attended the function. The students learnt basics designed to the C++ programming language and introductory and intermediate programming concepts with examples and applications using the C++ language. The course builds and extends topics covered in the prerequisite course, COSC 1315 and prepares students for more advanced programming courses such as ITSE 2431 (Advanced C++ Programming) and COSC 2415 (Data Structures) as well as for entry level programming employment.

Resource person **Mr.S.Hariharan** and students from various departments express feedback about the program and participation certificates are distributed to all the participants. The program valedictory with an vote of thanks by the staff **Mrs.M.Sindhu** Final year, Department of Computer science and Engineering and national anthem.

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[Signature]
HOD

[Signature]
Principal



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HoD

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Basics of Robotics

2019-20



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Value Added Course

2019-20

SYLLABUS



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146- 485, Amarasathi Village,
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Karaikudi - 630 301.
Ph : 04565 - 234230 / 326132

Fax : 04565 - 234430
Mobile : 73737 11322, 73737 11333
E-mail : srrcet2010@gmail.com
Website : www.raajaraajan.org

DEPARTMENT OF COMPUTERSCIENCE & ENGINEERING

BASICS OF ROBOTICS

COURSE CONTENT:: 2019-2021

OBJECTIVE OF THE COURSE:

Robotics develops machines that can substitute for humans and replicate human actions. Robots can be used in many situations for many purposes, but today many are used in dangerous environments (including inspection of radioactive materials, bomb detection and deactivation), manufacturing processes, or where humans cannot survive (e.g. in space, underwater, in high heat, and clean up and containment of hazardous materials and radiation).

LEARNING OUTCOME:

After the completion of the course, the students will be able to design some robots.

DURATION OF THE COURSE:

❖ 6 Days (45 Hours)

MINIMUM ELIGIBILITY CRITERIA:

❖ Pursuing BE Students

COURSE OUTLINE

SL.No.	ModulestobeCovered
1	Automation
2	Fundamentals of Robots
3	Introduction to Robot End Effectors, Sensors and Control System
4	Robot Programming and Applications
5	Intelligent Robots and Lab work
6	Project

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146 /4B1, Amaravathi Village,
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Karaikudi - 630 301.
Ph : 04565 - 234230 / 326132

Fax : 04565 - 234430
Mobile : 73737 11322, 73737 11333
E-mail : srreet2010@gmail.com
Website : www.raajaraajan.org

DETAILED COURSE SYLLABUS:

1. Automation

- ❖ MechanizationAutomationHistory of Automation
- ❖ Reasons for automationMerits and limitationsAutomation systems
- ❖ Types of AutomationProgrammable Automation
- ❖ Intelligent Industrial AutomationAutomation and Robotics.

2.Fundamentals of Robots

- ❖ Definition of Fundamentals of RobotsHistorical background
- ❖ Various generations of robotsRobotAnatomy
- ❖ Robot configurationJoint-armconfiguration
- ❖ Degree of freedomWork volume and Dead zone
- ❖ Dynamic performanceSpeed of response and Stability
- ❖ Precision of movementSpatial Resolution & Accuracy
- ❖ Repeatability and Compliance

3. Introduction to Robot End Effectors, Sensors and Control System

- ❖ Introduction to Robot End EffectorsEnd Effectors
- ❖ Characteristics & FeaturesMechanical grippers
- ❖ Magnetic grippersAdhesive gripper
- ❖ Vacuum cupsHooks and Scoops
- ❖ Tools as end effectorsRobot / End-effectors interface
- ❖ Consideration in Gripper selection and Design

4. Robot Programming and Applications

- ❖ Robot ProgrammingTextural Programming
- ❖ Requirements of robot programming language
- ❖ Problems pertaining to robot programming languagesAnalysis the problems
- ❖ Common languagesSoftware details
- ❖ Robot programsRobot program as a path in space
- ❖ Factors influencing the selection of RobotsRobots for Materials handling
- ❖ Assembly, Agriculture and Chemical PlantsAdvanced applications

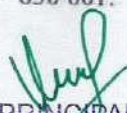
5. Intelligent Robots and Lab work

- ❖ Intelligent RobotsIntroduction to Mobile Robots
- ❖ Legged Robots and Remote Controlled RobotsAutomated Guided Robots
- ❖ Micro RobotsControl and Safety Issues

6. Project

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Sri Raaja Raajan College of Engg. & Tech.
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AMARAVATHIPUDUR, KARAIKUDI

ROBOTICS :: 2019-20

REGISTRATION DETAILS

S.NO	REGISTER NO	NAME	SIGNATURE
1	912518104001	Aarthi. L	Aarthi.
2	912518104002	Aarthi.R	Aarthi.R
3	912518104003	Abirami.M	Abirami
4	912518104004	Abirami. S	Amu.
5	912518104005	Akila.A	Akila
6	912518104007	Kamalesh	Kamalesh
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15	912518104017	Muthiah.M	Muthiah
16	912518104019	Pavithra P	Pavithra
17	912518104020	Raja lakshmi D	Raja lakshmi
18	912518104021	B.Raja Rajeswari Nachiyar	B.Raja Rajeswari
19	912518104022	Saranya.B	Saranya
20	912518104023	Saravanan	Saravanan
21	912518104025	Senthamizhan V	Senthamizhan
22	912518104026	Shiny Hebzibha E	Shiny Hebzibha
23	912518104027	Shruthi. K	Shruthi
24	912518104028	Solaiselvan. M	Solaiselvan
25	912518104029	Stephen raj .T	Stephen raj .T
26	912518104030	Vaigeshwari. K	Vaigeshwari
27	912518104031	Vignesh.c	Vignesh
28	912518104032	Vinotha.k	Vinotha
29	912518104301	kiruthika	Kiruthika
30	912518104302	Rajamanikandan. M	Rajamanikandan
31	912517104001	Abitha .M	Abitha
32	912517104003	Arthiga.M	Arthiga.M

33	912517104004	Arthiga.P	Athiga
34	912517104005	Ashwini.A	Ashwini
35	912517104006	BharathiKannan.K	Bharathi Kannan
36	912517104007	chinniah.s	Chinniah
37	912517104008	Devadharshini.K	Devadharshini
38	912517104009	Dhanalakshmi.M	Dhanalakshmi
39	912517104010	Divya.M	Divya
40	912517104011	Divya bharathi.M	Divya Bharathi
41	912517104012	Divyabharathi.S	Divyabharathi
42	912517104013	Gangadevi.C	Gangadevi
43	912517104014	Gayathri.S	Gayathri
44	912517104015	Geetha Lakshmi.D	Geetha Lakshmi
45	912517104016	Gowtham.R	Gowtham
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48	912517104020	Karthiga.K	Karthiga
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51	912517104023	KishorKumar.K	Kishor Kumar
52	912517104024	Lakshmi.V	Lakshmi
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54	912517104027	Nandheswari.K	Nandheswari
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56	912517104029	Navatharani.V	Navatharani
57	912517104030	Nirmala.N	Nirmala
58	912517104032	Pavithra.G	Pavithra
59	912517104033	Pavithra.N	Pavithra
60	912517104034	Priya.K	Priya
61	912517104036	Priyanga.M	Priyanka
62	912517104037	Rajathi.K	Rajathi
63	912517104038	RajeshWari.R	Rajesh Wari
64	912517104041	Sinthiya.AR	Sinthiya
65	912517104042	Sivappriya.P	Sivappriya
66	912517104043	Sneha.G	Sneha
67	912517104044	Sornababu.p	Sornababu
68	912517104045	Sowdharya.S.P	Sowdharya
69	912517104047	Sumithra.K	Sumithra
70	912517104048	Sumithra.P	Sumithra
71	912517104049	Surenthar.V	Surenthar

72	912517104051	Swathi.K	Swathi.K
73	912517104052	Yuvarani.M	Yuvarani.M
74	912516104002	AJITH.S	Ajith
75	912516104003	DEEPIKA NANDHNLK	Deepika.K
76	912516104004	GOWSALYA.M	Gowsalya.M
77	912516104005	GOWTHAMI.R	Gowthami.R
78	912516104006	GUNASEELAN.S	Gunaselan
79	912516104007	KARTHIKEYAN.M	Karthikeyan.M
80	912516104008	KAVITHA.K	Kavitha
81	912516104009	MALARVIZHI.S	Malarvizhi.S
82	912516104010	MAYURI.G	Mayuri
83	912516104011	MUTHUKRISHNAN.A	Muthukrishnan.A
84	912516104012	PARAMESWARI.P	Parameswari.P
85	912516104013	PRIYADHARSHINI.N	Priya Dharshini.N
86	912516104014	RAKKUMUTHU.M	Rakkumuthu.M
87	912516104016	SETHUMUTHU.M	Sethumuthu.M
88	912516104017	SNEHA.R	Sneha.R
89	912516104019	VAITHEESWARI.T	Vaitheswari.T
90	912516104301	GAYATHRI .PL	Gayathri.P
91	912516104302	GAYATHRI .K	Gayathri.K
92	912516104303	LAKSHMI.G	Lakshmi
93	912516104701	MUTHU LAKSHMI.G	Muthu Lakshmi.G



[Signature]

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Amaravathipur, Karaikudi - 630 30
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2019-20

ATTENDANCE

[illegible]

[illegible]

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
51	912517104023	KishorKumar.K	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														



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Website : www.sriraaajaraajan.in, E-mail : srrcet2010@gmail.com, Ph: 04565-234230

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QUESTION PATER - THEORY



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE : ROBOTICS (2019-20)

Time: 3 Hours

Total Marks: 60

Section –A

Answer any Ten of the following question not exceeding 300 words each (10x3=30)

1. What is the difference between learning and deep learning?
2. Write a note on soft skills.
3. What is meant by Regularization?
4. Describe briefly about back propagation.
5. Define Reinforcement.
6. Illustrate generative model.
7. Write a note on concept programming.
8. Briefly describe about Relationship Models in prolog programs.
9. What do you mean by positive visualization?
10. Describe the importance of Unit Corporate Culture.
11. Differentiate generative model from relational models.
12. What is the positive visualization impression of etiquette?

Section -B

Answer any four of the following question not exceeding 800 words each(4x5=20)

13. List out the merits of deep learning.
14. Explain the deep learning architecture.
15. Describe about Deep Reinforcement Learning.
16. What is Recursion? Discuss.
17. Explain the professional ethics in soft skills.

Section – C

Answer any one of the following question not exceeding 1500 words each (1x10=10)

18. How do you create positive visualization impression social etiquette? Describe.

(OR)

19. Explain Neural Network Architecture in detail.



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**MARK ALLOCATION &
QUESTION PAPER- LAB**



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DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year ::2019-20

CERTIFICATE COURSE :: BASICS OF ROBOTICS

Assessment Procedure for Certificate course, Skill Development course and Add-on-course:

For Theory Course:

- Set the multiple-choice question paper (MCQ) or theory questions (3 marks, 5 Marks & 10 Marks) to the prescribed given syllabus.
- Time limit for the examination is depended upon the question paper.
- Secured marks for theory course is added to the practical course marks.

For Practical Course:

- Set the list of experiments in a question paper to the prescribed given syllabus.
- The students to do the experiments to the given schedule.

Finally add both theory and practical marks scored by the student are printed in the grade sheet.

Assessment Outline:

Course type	Paper Title	Theory	Practical	Total
Certificate course	Basics of Robotics	60	40	100




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Website : www.srirajaraajan.in, E-mail : srrcet2010@gmail.com, Ph: 04565-234230

DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year ::2018-19

CERTIFICATE COURSE

BASICS OF ROBOTICS

PRACTICAL EXAMINATION

Time: 3 hours

ANSWER ANY QUESTION

Total Marks: 40

Aim/Principle/Apparatus required/Procedure	Tabulation/Circuit/ Program/Drawing	Output & Results	Total
10	20	10	40

1.	Implement Simple NN Models.
2.	Implement ensembling Techniques.
3.	Build deep learning NN models.
4.	Build a regression models.
5.	Build decision trees and random models




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**ANSWER SCRIPT
THEORY & PRACTICAL**



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MARK STATEMENT



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MODEL EXAM ANSWER BOOKLET

Read the Instructions given overleaf carefully before filling the title page

(To be filled by the candidate)

Register Number	9	1	2	5	1	8	1	0	4	0	3	2
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 Signature/Es-simile of the Principal
--

College Code & Name	9	1	2	5	Sri RaaJa RaaJa College of Engineering & Technology
Degree / Branch	BE/CSE				
Subject Code	—		Subject Title	Robotics lab	

Semester	—
Date & Session	09.08.2019/AN
No. of Pages Used	5

 Signature of the Hall Superintendent with Date
Indhumathir Name of the Hall Superintendent

(DO NOT WRITE THE REGISTER NUMBER AND THE COLLEGE CODE/NAME IN ANY OTHER PART OF THE ANSWER BOOK)

Date : 09.08.2019

Session :

Subject Code / Title : Robotics lab

PART - A	
Q.No	Marks
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
Total	

PART - B				
Q.No	Marks			Total
	I	II	III	
11 (a)				
11 (b)				
12 (a)				
12 (b)				
13 (a)				
13 (b)				
14 (a)				
14 (b)				
15 (a)				
15 (b)				
Total				

Grand Total (in Words) Thirty Eight Grand Total (in Figure) 38
--

 Signature of the Staff with Date

A. Mohammed Abdul Name of the Staff Kathar Khan

 Signature of the HOD

Do not write anything on this page

Simple Neural Network models.

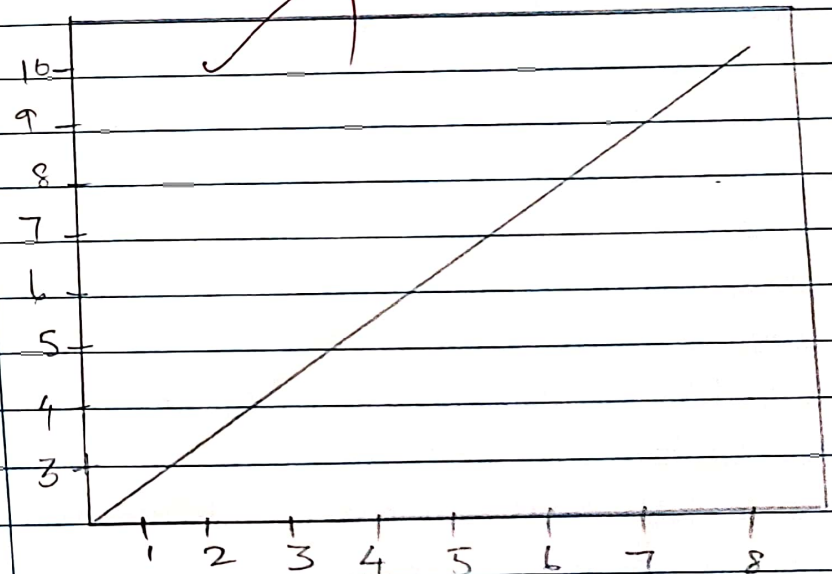
1. Python Basics:

Aim: To implement the NN models.

```
import matplotlib.pyplot as plt  
import numpy as np
```

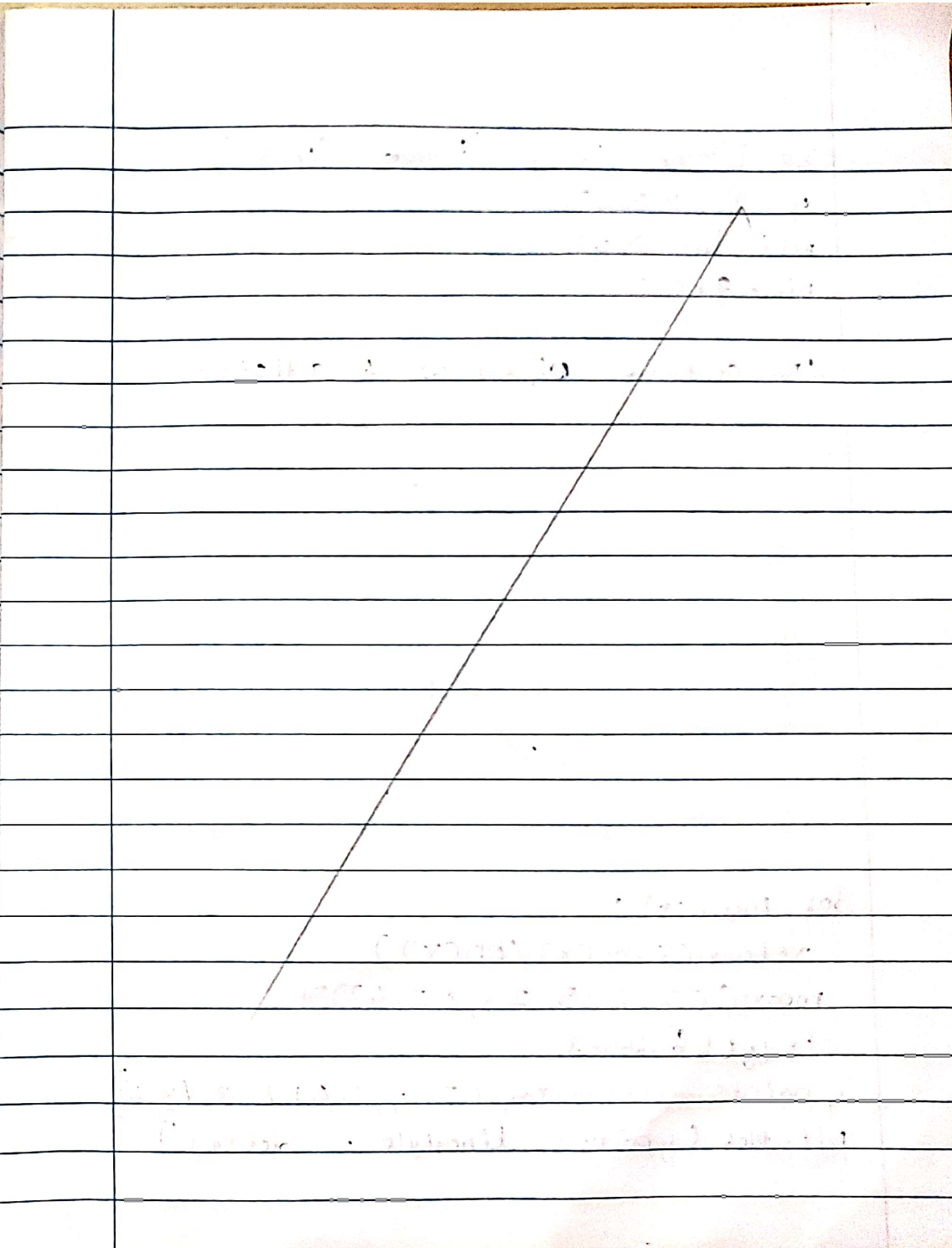
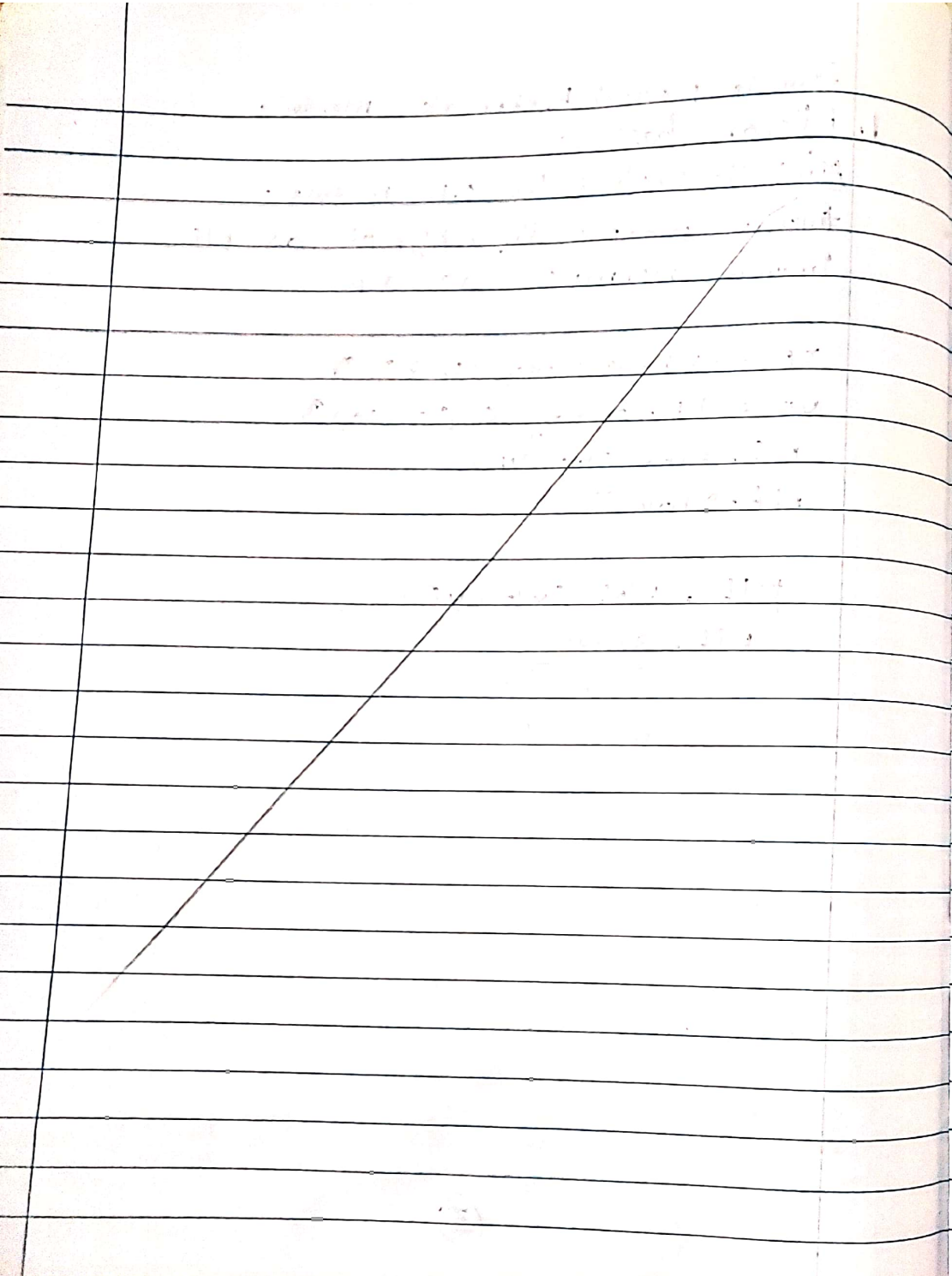
```
xp = np.array([1, 2, 3])  
yp = np.array([3, 10, 3])  
plt.plot(xp, yp)  
plt.show()
```

```
plt.plot(xp, yp)  
plt.show
```



3





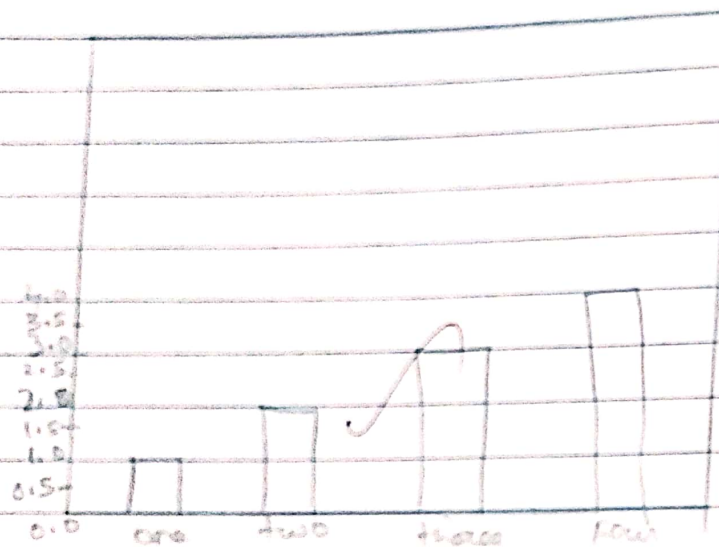
```
x = ['one', 'two', 'three', 'four']
```

```
y = [1, 2, 3, 4]
```

```
plt.bar(x, y)
```

```
plt.grid()
```

<BarContainer object of 4 artists>



```
def mean(x):
```

```
    return (sum(x)/len(x))
```

```
mean([2, 4, 15, 23, 42, 42])
```

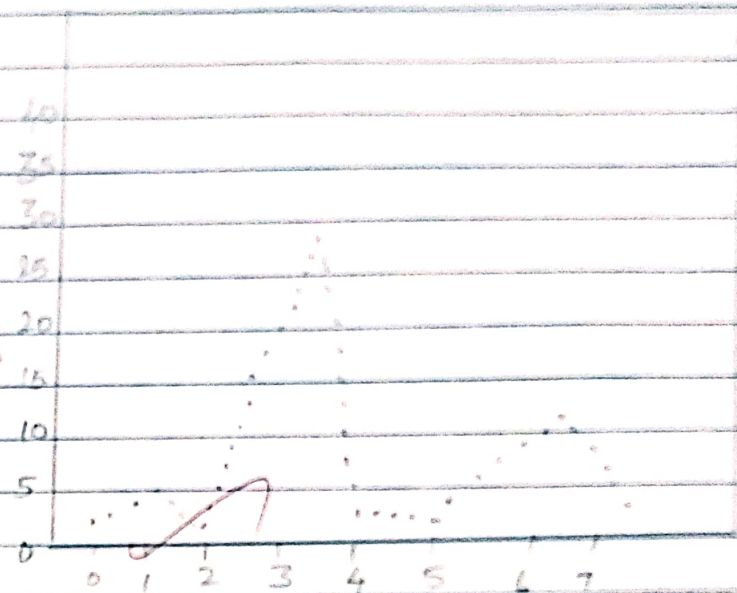
```
19.666666666666668
```

```
y_points = np.array([2, 4, 1, 4, 1, 3, 13, 4])
```

```
plt.plot(y_points, linestyle = 'dotted')
```

```
[<matplotlib.lines.Line2D object at 0x7f6b1e8548d>]
```

Verified



78

Result.

The Program was implemented Successfully.

5





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MODEL EXAM ANSWER BOOKLET
Read the Instructions given overleaf carefully before filling the title page
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Register Number	9	1	2	5	1	8	1	0	4	0	3	2
-----------------	---	---	---	---	---	---	---	---	---	---	---	---

Signature/Faculty of the Principal

College Code & Name	9	1	2	5	Sri Raja Rajan college of Engineering & Technology.
Degree / Branch	BE/CSE				
Subject Code	—		Subject Title	Robotics	

Semester	—
Date & Session	09.08.2019 / FN
No. of Pages Used	9

Signature of the Hall Superintendent with Date
Indhumathi R
Name of the Hall Superintendent

(DO NOT WRITE THE REGISTER NUMBER AND THE COLLEGE CODE/NAME IN ANY OTHER PART OF THE ANSWER BOOK)

Date : 09.08.2019

Session :

Subject Code / Title : Robotics

PART - A	
Q.No	Marks
1.	
2.	
3.	
4.	
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Total	

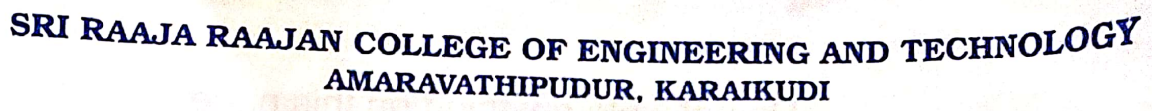
PART - B				
Q.No	Marks			Total
	I	II	III	
11 (a)				
11 (b)				
12 (a)				
12 (b)				
13 (a)				
13 (b)				
14 (a)				
14 (b)				
15 (a)				
15 (b)				
Total				

Grand Total (in Words) Fifty Three
Grand Total (in Figure) 53

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A. Mohamud Abdul Name of the Staff Kattur Khan
--

S. Arjun Signature of the HOD



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Indhumathi
Name of the Hall Superintendent


Signature of the HOD

I

1. Learning and Deep learning:

* Machine learning algorithm typically require less data than deep learning algorithms, but the quality of the data is more important.

2 * Deep learning algorithms, on the other hand, require large amounts of data to train the neural networks but can learn and improve on their own as they process more data.

2. Soft Skill

The things that we learn on the job rather than a classroom or staging area are called Soft Skill.

2 They are

- (i) Problem solving (ii) Critical thinking
- (iii) Leadership (iv) Good communication
- (v) Strong work ethic (vi) Attention to detail

3. Regularization:

2 Regularization refers to techniques that are used to calibrate machine learning models in order to minimize the adjusted loss function and prevent overfitting or underfitting.

(3)

4. Backpropagation

Back propagation is the essence of neural net training. It is the practice of fine tuning the weight of a neural net based on the error rate (i.e. loss) obtained in the previous epoch (i.e. iteration).

5. Reinforcement.

Reinforcement learning is an area of machine learning concerned with how intelligent agents ought to take actions in an environment in order to maximize the notation of cumulative reward.

6. Generative model

The generated data can be similar to the original data set, but some variation or noise. For example, a data set containing image of horses could be used to build a model that can generate a new image of a horse that has never existed but still looks almost realistic.

7. Concepts of programming.

variables, datatypes, sequence, selection and iteration are examples of these basic concepts, which all know programmers need to learn.

8. Relationship Models in prolog programs

It specifies the relationship between objects and properties of the objects.

9. Positive visualization.

Visualization is a technique that allows you to set the parameters to make your future vision a reality.

10. General model and Relational model.

General model and relational model both are type of Data model. Data model describes a way to design database at physical, logical and view level.

General model is entity specific and relational model is table specific.

II

13. Merits of Deep learning:

- * Deep learning is a subset of machine learning that uses artificial neural networks (ANNs) to model and solve complex problem.

- * It is based on the idea of building artificial neural networks, that can learn hierarchical representations of the data.

- * Deep learning algorithms use a layered architecture, where the input data is passed through an input layer and then propagated through multiple hidden layers.

- * Each layer applies a set of mathematical operations, called weights and biases, to the input data, and the output of one layer serves as the input to the next.

- * Deep learning has a wide range of applications, including images and speech recognition.

- * Deep learning also has the ability to handle large and complex data.

15. Deep Reinforcement learning

- * Deep reinforcement learning that combines reinforcement learning (RL) and deep learning.

- * RL considers the problem of computational agent learning to make decisions by trial and error.

- * Deep RL algorithms are able to take in very large inputs (eg. every pixel rendered to take in very large screen in a video game).

- * It decides what action to perform to optimize an objective.

- * Deep reinforcement learning has been used for a diverse set of applications including but not limited to robotics, video games, natural language processing, computer vision, education, transportation, finance and health care.

16. Recursion:

* Recursion is a logical process in which one or more task are set aside while the main argument is being made.

* Recursion is common in computer program where it can take the form of nested loops.

* Recursion is also useful in proving mathematical and logical propositions. It is a powerful tool in artificial intelligence. Keep final goal in mind.

Recursion can be intricate, and is one of the most advanced forms of human reasoning. For recursion to work, the overall direction of progress is toward the final goal.

Hang-ups

↳ * If a computer uses recursive logic and gets sidetracked too much, it might lose sight of the final objective or go around and around in logical circles.

* When this happens in a computer program, it is called an endless loop or an infinite loop.

* Computers, properly programmed, do not make mistakes.

17. Professional Ethics

* Ethics is the branch of philosophy which studies human conduct, moral assessments, the concepts of good and evil, wrong and right, justice and injustice.

* The concepts of robotics brings up a fundamental ethical reflection that is related to particular issues and moral dilemmas generated by the development of robotic applications.

* Robotics also called machine ethics deals with the code of conduct that robotic designer engineers must implement in the artificial intelligence of a robot.

↳ * Ethical issues are going to continue to be on the rise as long as more advanced robotics come into the picture.

* In the Ethical Landscape of Robotics (PDF) by Pawel Lichocki published by IEEE Robotics and Automation Magazine.

* Service robots are created to partially live and interact with others.

(7)



19 Neural Network Architecture

* The architecture of neural networks is made up of an input, output, and hidden layer.

* Neural networks themselves, or artificial neural networks, are a subset of machine learning designed to mimic the processing power of a human brain.

* Neural networks function by passing data through the layers of an artificial neuron.

Main components of neural network architecture

⇒ There are many components to a neural network architecture. Each neural network has a few components in common.

⇒ Input - Input is data that is put into the model for learning and training purposes.

⇒ Weight - Weight helps organize the variables by importance and impact of contribution.

⇒ Transfer function - Transfer function is when all the inputs are summarized and combined into one output variable.

Activation function - The role of the activation function is to decide whether or not a specific neuron should be activated. This decision is based on whether or not the neuron's input will be important to the prediction process.

Types of Neural Network Architectures

⇒ Neural networks are an efficient way to solve machine learning problems and can be used in various situations.

Standard neural network

* Perceptron - A neural network that applies a mathematical operation to an input value, providing an output variable.

* Feed-Forward Networks - A multi-layered neural network where the information moves from left to right or in other words.



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146/14B1, Amaravathi Village, Amaravathiputhur Post,

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Website : www.srirajaraajan.in, E-mail : srrcet2010@gmail.com, Ph: 04565-234230

DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year ::2019-20

CERTIFICATE COURSE

BASICS OF Robotics

MARK STATEMENT

S.NO.	REG. NO.	NAME OF THE STUDENT	Theory	Practical	Total
1	912518104001	AARTHI. L	38	35	73
2	912518104002	AARTHI.R	39	36	75
3	912518104003	ABIRAMI.M	37	37	74
4	912518104004	ABIRAMI. S	46	35	81
5	912518104005	AKILA.A	47	36	83
6	912518104007	KMALESH	48	37	85
7	912518104008	KARTHICK S	47	38	85
8	912518104009	KARTHICKEYAN. N	43	36	79
9	912518104010	KAVYASRI.K	42	38	80
10	912518104011	KAYALVIZHI. P	44	37	81
11	912518104012	MADHUMITHA.M	46	35	81
12	912518104013	MAHALINGAM.A	44	37	81
13	912518104014	MANISHA.U	47	38	85
14	912518104016	MOHAMED ANAS A	47	38	85
15	912518104017	MUTHIAH.M	43	33	76
16	912518104019	PAVITHRA P	49	33	82
17	912518104020	RAJA LAKSHMI D	49	33	82
18	912518104021	B.RAJA RAJESWARI NACHIYAR	45	36	81
19	912518104022	SARANYA.B	47	34	81
20	912518104023	SARAVANAN	46	32	78
21	912518104025	SENTHAMIZHAN V	43	33	76
22	912518104026	SHINY HEBZIBHA E	49	33	82
23	912518104027	SHRUTHI. K	45	37	82
24	912518104028	SOLAISELVAN. M	47	36	83
25	912518104029	STEPHEN RAJ .T	48	35	83
26	912518104030	VAIGESHWARI. K	51	34	85



27	912518104031	VIGNESH.C	48	37	85
28	912518104032	VINOTHA.K	53	38	91
29	912518104301	KIRUTHIKA	46	39	85
30	912518104302	RAJAMANIKANDAN. M	48	34	82
31	912517104001	ABITHA .M	42	32	74
32	912517104003	ARTHIGA.M	50	37	87
33	912517104004	ARTHIGA.P	45	34	79
34	912517104005	ASHWINI.A	48	36	84
35	912517104006	BHARATHIKANNAN.K	49	36	85
36	912517104007	CHINNIAH.S	30	37	67
37	912517104008	DEVADHARSHINI.K	46	35	81
38	912517104009	DHANALAKSHMI.M	49	34	83
39	912517104010	DIVYA.M	44	37	81
40	912517104011	DIVYA BHARATHI.M	47	38	85
41	912517104012	DIVYABHARATHI.S	45	36	81
42	912517104013	GANGADEVI.C	47	34	81
43	912517104014	GAYATHRI.S	46	32	78
44	912517104015	GEETHA LAKSHMI.D	46	31	77
45	912517104016	GOWTHAM.R	47	33	80
46	912517104018	ISHWARYA.A	41	34	75
47	912517104019	KANNAN.P	41	38	79
48	912517104020	KARTHIGA.K	42	37	79
49	912517104021	KARTHIMANI.B	44	38	82
50	912517104022	KARUNAKARAN.K	45	37	82
51	912517104023	KISHORKUMAR.K	47	36	83
52	912517104024	LAKSHMI.V	48	35	83
53	912517104026	MARYAMERLIN.M	51	34	85
54	912517104027	NANDHESWARI.K	50	33	83
55	912517104028	NATHIYA.M	38	35	73
56	912517104029	NAVATHARANI.V	39	36	75
57	912517104030	NIRMALA.N	37	37	74
58	912517104032	PAVITHRA.G	38	35	73
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60	912517104034	PRIYA.K	37	37	74
61	912517104036	PRIYANGA.M	49	33	82
62	912517104037	RAJATHI.K	47	38	85
63	912517104038	RAJESHWARI.R	46	35	81
64	912517104041	SINTHIYA.AR	34	31	65
65	912517104042	SIVAPPRIYA.P	36	36	72
66	912517104043	SNEHA.G	39	34	73
67	912517104044	SORNABABU.P	38	38	76
68	912517104045	SOWDHARYA.S.P	37	31	68
69	912517104047	SUMITHRA.K	41	34	75
70	912517104048	SUMITHRA.P	46	35	81
71	912517104049	SURENTHAR.V	47	36	83
72	912517104051	SWATHI.K	34	31	65



73	912517104052	YUVARANI.M	47	36	83
74	912516104002	AJITH.S	48	35	83
75	912516104003	DEEPIKA NANDHNI.K	44	37	81
76	912516104004	GOWSALYA.M	47	38	85
77	912516104005	GOWTHAMI.R	44	32	76
78	912516104006	GUNASEELAN.S	48	31	79
79	912516104007	KARTHIKEYAN.M	49	33	82
80	912516104008	KAVITHA.K	47	38	85
81	912516104009	MALARVIZHI.S	46	35	81
82	912516104010	MAYURI.G	47	36	83
83	912516104011	MUTHUKRISHNAN.A	48	37	85
84	912516104012	PARAMESWARI.P	47	38	85
85	912516104013	PRIYADHARSHINI.N	43	36	79
86	912516104014	RAKKUMUTHU.M	47	36	83
87	912516104016	SETHUMUTHU.M	48	35	83
88	912516104017	SNEHA.R	44	37	81
89	912516104019	VAITHEESWARI.T	47	38	85
90	912516104301	GAYATHRI .PL	44	32	76
91	912516104302	GAYATHRI .K	48	31	79
92	912516104303	LAKSHMI.G	49	33	82
93	912516104701	MUTHU LAKSHMI.G	47	38	85




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Karaikudi – 630 301, SivagangaiDt, Tamil Nadu
Website : www.srirajaraajan.in, E-mail : srrcet2010@gmail.com, Ph: 04565-234230

DEPARTMENT OF COMPUTER SCIENCE AND
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Value Added Course

2019-20

REPORT



SRI RAAJA RAAJAN

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REPORT

Department of Computer science and Engineering has organized certificate programme titled “BASICS OF ROBOTICS” from 05.08.2019 to 09.08.2019 This program started with an inauguration function. Ms.G.MAYURI, Thrid year, B.E, delivered welcome address. Resource person **Dr.K.GANGATHARAN, M.E., Ph.D.**, has given a key note address about the program. The Principal, **Dr.AL.MAYILVAHANAN**, Sri RaajaRaajan college of engineering and Technology, Karaikudi and the Head of Department, **Mr.S.AANJAN KUMAR** of Sri Raaja Raajan college of engineering and Technology, Karaikudi has consented felicitation address. Students and faculties from various departments attended the function. The students learn basics Computer Science which focuses on developing programmed Robots that can function similarly to a human brain. The first significant work in AI was completed in the mid-twentieth century. The Turing Test, for example, was created around this time to assess a machine's ability to act intelligently and display behavior that is indistinguishable from that of a human.

Although no machine has yet passed this test, current AI models typically use variations of it to better align with our current understanding of AI and machine learning. Without a doubt, artificial intelligence has come a long way. It is used in language translations, data mining, our smartphones and computers, and a variety of other technologies that we have come to rely on.

The program was successfully completed on 09.08.2019 with a valedictory function. Resource person **Dr.K.GANGATHARAN, M.E., Ph.D.**, and students of department of Computer science & Engineering express feedback about the program and participation certificates are distributed to all the participants and delivered vote of thanks and national anthem.

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CERTIFICATE OF COMPLETION

*This is to certify that Mr./Ms. SHINY...HEEZIBHA E.....
of Computer Science and Engineering Department has successfully completed a course titled
"Basics of Robotics" at the Duration 05.08.2019 to 09.08.2019.*

S. Anjan
HoD

San
Principal



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HoD

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S. Anjan
HoD

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146/14B1, Amaravathi Village, Amaravathiputhur Post,

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Website : www.sriraaajaraajan.in, E-mail : srrcet2010@gmail.com, Ph: 04565-234230

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Certificate Course/Add on Course/

Value Added Course

Cloud Computing Technologies

2021-22



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146/14B1, Amaravathi Village, Amaravathiputhur Post,

Karaikudi – 630 301, SivagangaiDt, Tamil Nadu

Website : www.sriraaajaraajan.in, E-mail : srrcet2010@gmail.com, Ph: 04565-234230

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Certificate Course/Add on Course/

Value Added Course

2021-22

SYLLABUS



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COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Anna University)

146-1891, Amaravathi Village,
Amaravathipuram (Po.),
Kumbakonam - 612 001.
Ph - 04565 - 234430 - 234432

Fax : 04565 - 234430
Mobile : 73737 11322, 73737 11333
E-mail : sreet2010@gmail.com
Website: www.raajarajan.org

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CLOUD COMPUTING TECHNOLOGIES :: 2021-22

COURSE CONTENT

COURSE OBJECTIVES:

- The skill competition is intended to reflect international best practice as described by the WSSS, and to the extent that it is able to. The Standards Specification is therefore a guide to the required training and preparation for the skill competition.
- In the skill competition the assessment of knowledge and understanding will take place through the assessment of performance. There will only be separate tests of knowledge and understanding where there is an overwhelming reason for these.

COURSE OUTCOMES:

- Evaluate, select and implement foundational cloud computing services such as compute, network, and storage.
- Evaluate, select and implement advanced cloud computing services such as managed data services, caching services, and automated scaling and availability features.
- Evaluate, select and implement various network-related technologies to infrastructure design such as network communication protocols, sub netting, NAT, DNS, VPN, broadcast networking, and dynamic routing protocols.

1. Introduction to Cloud Computing

Defining cloud computing

- Components of a computing cloud
- Differentiating types of clouds: public, private, hybrid

Delivering services from the cloud

- Categorizing service types
- Comparing vendor cloud products: Amazon, Google, Microsoft and others

2. Adopting the Cloud

Key drivers of cloud computing solutions

- Instantaneous provisioning of computing resources
- Tapping into an infinite storage capacity
- Cost-effective pay-as-you-use billing models

Evaluating barriers to cloud computing

- Handling sensitive data
- Aspects of cloud security
- Assessing governance solutions

3. Exploiting Software as a Service (SaaS)

Characterizing SaaS

- Streamlining administration with centralized installation
- Optimizing cost and performance with scale on demand

Comparing service scenarios

- Improving collaboration with business productivity tools
- Simplifying business process creation by integrating existing components

Inspecting SaaS technologies

- Deploying web applications
- Implementing web services: SOAP, REST
- Choosing a development platform

4. Delivering Platform as a Service (PaaS)

Exploring the technical foundation for PaaS

- Specifying the components of PaaS
- Analyzing vendor PaaS provisions
- Selecting an appropriate implementation

Building services with solution stacks

- Evaluating the architecture of vendor-specific platforms
- Becoming familiar with service platform tools

Managing cloud storage

- Controlling unstructured data in the cloud
- Deploying relational databases in the cloud
- Improving data availability

Employing support services

- Testing in the cloud
- Monitoring cloud-based services
- Analyzing portability across platforms

5. Deploying Infrastructure as a Service (IaaS)

Enabling technologies

- Scalable server clusters
- Achieving transparency with platform virtualization
- Elastic storage devices

Accessing IaaS

- Provisioning servers on demand
- Handling dynamic and static IP addresses
- Tools and support for management and monitoring



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Certificate Course/Add on Course/

Value Added Course

2021-22

PARTICIPATION LIST



SRI RAAJA RAAJAN COLLEGE OF ENGINEERING & TECHNOLOGY
AMARAVATHIPUDUR, KARAIKUDI-630 301.

CLOUD COMPUTING TECHNOLOGIES :: 2021-22

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

REGISTRATION DETAILS

S.NO	REGISTER NUMBER	NAME OF THE STUDENT	SIGNATURE
1	912518104001	Aarthi. L	Aarthi
2	912518104002	Aarthi.R	Aarthi. R
3	912518104003	Abirami.M	Abirami
4	912518104004	Abirami. S	Abirami. S
5	912518104005	Akila.A	Akila.A
6	912518104007	Kamalesh	Kamalesh
7	912518104008	Karthick S	Karthick
8	912518104009	Karthickeyan. N	Karthickeyan N
9	912518104010	Kavyasri.K	Kavyasri.K
10	912518104011	Kayalvizhi. P	Kayalvizhi P
11	912518104012	Madhumitha.M	Madhumitha
12	912518104013	Mahalingam.A	Mahalingam.A
13	912518104014	Manisha.U	Manisha
14	912518104016	Mohamed Anas A	Mohamed Anas A
15	912518104017	Muthiah.M	Muthiah.
16	912518104019	Pavithra P	Pavithra
17	912518104020	Raja lakshmi D	Raja lakshmi
18	912518104021	B.Raja Rajeswari Nachiyar	B.Raja Rajeswari Nachiyar
19	912518104022	Saranya.B	Saranya
20	912518104023	Saravanan	Saravanan
21	912518104025	Senthamizhan V	Senthamizhan V
22	912518104026	Shiny Hebzbiba E	Shiny Hebzbiba E
23	912518104027	Shruthi. K	Shruthi
24	912518104028	Solaiselvan. M	Solaiselvan. M

25	912518104029	Stephen raj .T	<i>Stephen raj .T</i>
26	912518104030	Vaigeshwari. K	<i>Vaigeshwari</i>
27	912518104031	Vignesh.c	<i>Vignesh.</i>
28	912518104032	Vinotha.k	<i>Vinotha.k</i>
29	912518104301	kiruthika	<i>Kiruthika</i>
30	912518104302	Rajamanikandan. M	<i>Rajamanikandan</i>



[Signature]

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ATTENDANCE

SRI RAAJA RAAJAN COLLEGE OF ENGINEERING AND TECHNOLOGY

AMARAVATHIPUDUR, KARAIKUDI

Cloud Computing :: 2021-22

[illegible]



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QUESTION PATER - THEORY



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE : CLOUD COMPUTING (2021-22)

Time: 3 Hours

Total marks: 60

SECTION A

I. Answer the following question (10x3=30)

1. Define Cloud Computing.
2. What are three main cloud types?
3. What are the features of cloud computing?
4. What is a cloud?
5. What are the different data types used in cloud computing?
6. Which are the different layers that define cloud architecture?
7. Which platforms are used for a large scale cloud computing?
8. What is on demand functionality? How is it provided in cloud computing?
9. What are the different models for deployment in cloud computing?
10. What are Hybrid clouds?

II. Answer any four of the following question (4x5=20)

1. What is the difference between scalability and elasticity?
2. What are the different layers in cloud computing? Explain working of them.
3. Advantages and Disadvantages of cloud computing.
4. How would you secure data for transport in cloud?
5. What is the difference between cloud computing and mobile computing?

III. Answer any one of the following question (1x10=10)

1. What are five parts of cloud computing? How it is work?
(OR)
2. Explain the cloud computing types.



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**MARK ALLOCATION &
QUESTION PAPER- LAB**



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DEPARMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year ::2021-22

CERTIFICATE COURSE

CLOUD COMPUTING TECHNOLOGIES

Assessment Procedure for Certificate course, Skill Development course and Add-on-course:

For Theory Course:

- Set the multiple-choice question paper (MCQ) or theory questions (3 marks, 5 Marks & 10 Marks) to the prescribed given syllabus.
- Time limit for the examination is depended upon the question paper.
- Secured marks for theory course is added to the practical course marks.

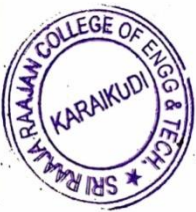
For Practical Course:

- Set the list of experiments in a question paper to the prescribed given syllabus.
- The students to do the experiments to the given schedule.

Finally add both theory and practical marks scored by the student are printed in the grade sheet.

Assessment Outline:

Course type	Paper Title	Theory	Practical	Total
Certificate course	Cloud Computing Technologies	60	40	100




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CERTIFICATE COURSE

CLOUD COMPUTING

PRACTICAL EXAMINATION

Time : 3 hours

Answer any one Question

Total Marks : 40

Aim/Principle/Apparatus required/Procedure	Tabulation/Circuit/ Program/Drawing	Output & Results	Total
10	20	10	40

1.	Install a ubuntu virtual box on a windows Virtual Machine.
2.	Install a C Compiler in Virtual machine and execute a factorial program using C
3.	Install a Google Plugin and create a Google App Engine and Develop a Hello world App using Eclipse IDE
4.	Write a Google App Engine program to generate n even numbers and deploy it to google cloud.
5.	Create a Static Website which consist of book details and host it on Google App Engine
6.	Implement Shortest Job First Task Scheduling Algorithm using Cloud Sim
7.	Create a file in a virtual machine and transfer that file to another Virtual machine
8.	Find the Procedure to run the virtual machine of different configuration and check how many virtual machines can be utilized at particular time




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**ANSWER SCRIPT
THEORY & PRACTICAL**



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AMARAVATHIPUDUR, KARAUKUDI

MODEL EXAM ANSWER BOOKLET

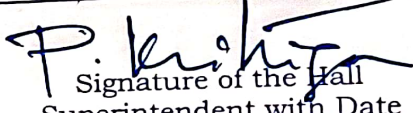
Read the Instructions given overleaf carefully before filling the title page
(To be filled by the candidate)

Register Number	9	1	2	5	1	8	1	0	4	0	0	1
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Signature / Facsimile of the Principal
--

College Code & Name	9	1	2	5	SRRCEET
Degree / Branch	B.E / CSE				
Subject Code	-		Subject Title	cloud computing technologies lab.	

Semester	-
Date & Session	17.07.21 & AN
No. of Pages Used	2

 Signature of the Hall Superintendent with Date
 Name of the Hall Superintendent

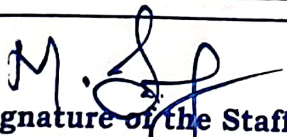
(DO NOT WRITE THE REGISTER NUMBER AND THE COLLEGE CODE/NAME IN ANY OTHER PART OF THE ANSWER BOOK)

Date : 17.07.21 Session : AN
Subject Code / Title : cloud computing technologies lab.

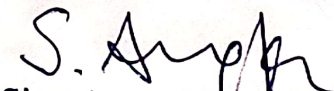
PART - A	
Q.No	Marks
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Total	

PART - B				
Q.No	Marks			Total
	I	II	III	
11 (a)				
11 (b)				
12 (a)				
12 (b)				
13 (a)				
13 (b)				
14 (a)				
14 (b)				
15 (a)				
15 (b)				
Total				

Grand Total (in Words) Thirty Eight Only
Grand Total (in Figure) 38


Signature of the Staff with Date

M. Sindhu
Name of the Staff


Signature of the HOD

Do not write anything on this page

Create a File in Virtual Machine and transfer File

Aim:

to implement file Virtual Machine and transfer it.

Algorithm:

- 1) on VMware, goto VM > Setting > Hardware > USB Controller.
- 2) set USB compatibility
- 3) ok.

On Oracle Virtual Box.

1. Insert USB drive to PC
2. Goto File > Preferences > Extensions + click (Plus)
3. open and install
4. After Install, right click on VM and select settings > USB.
5. Enable all USB Controllers
6. click + (Plus)

Dragging and Drop Files:

1. Drag and Drop Files on top bar
2. Drag Files into course VM.
3. Linux Home - SCS Linux Account.



4. Click Add in Folders Section. The Add Shared Folder wizard opens.

5. Copy your files to USB Stick

6. Safely eject the USB Stick.

7. Make VM1 window inactive

8. connect USB stick. This time the host will detect it automatically.

9. Move the files to the host from the USB Stick.

158
Result:

Thus the cloud computing Files transfer has been implemented.

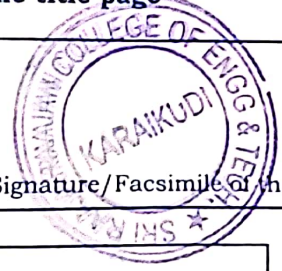


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MODEL EXAM ANSWER BOOKLET

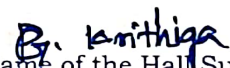
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(To be filled by the candidate)

Register Number	9	1	2	5	1	8	1	0	4	0	0	1
-----------------	---	---	---	---	---	---	---	---	---	---	---	---

 Signature/Facsimile of the Principal

College Code & Name	9	1	2	5	SRR CET
Degree / Branch	B.E / CSE				
Subject Code	-		Subject Title		
		Cloud Computing Technologies.			

Semester	-
Date & Session	17.07.21 & FN
No. of Pages Used	11.

 Signature of the Hall Superintendent with Date
 Name of the Hall Superintendent

(DO NOT WRITE THE REGISTER NUMBER AND THE COLLEGE CODE/NAME IN ANY OTHER PART OF THE ANSWER BOOK)

Date : 17.07.21. Session : FN

Subject Code / Title : Cloud Computing Technologies

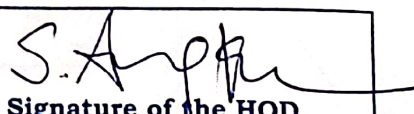
PART - A	
Q.No	Marks
1.	
2.	
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10.	
Total	

PART - B				
Q.No	Marks			Total
	I	II	III	
11 (a)				
11 (b)				
12 (a)				
12 (b)				
13 (a)				
13 (b)				
14 (a)				
14 (b)				
15 (a)				
15 (b)				
Total				

Grand Total (in Words) Forty Four only Grand Total (in Figure) 44
--

 Signature of the Staff with Date

M. Sindhu Name of the Staff

 Signature of the HOD

Do not write anything on this page

Section A:

1)

1.

Learning

Deep Learning.

1. Learning uses alg
to parse data, learn
from that data.

1. Deep Learning is a
subset of Machine
Learning.

2)

2. Make informed
decisions based on
what it has learned.

2. Structures alg in
layers to create AI
network.

2. 3 Main cloud types:

1. cumulus clouds

2. Stratus clouds

3. Cirrus clouds.

3. Features of Cloud Computing

1. Resource Pooling

2. On demand Self Service

3. Easy Maintenance

4. Scalability

5. Economical.



4. Cloud:

- * Term cloud Used to describe a global network of servers, each with unique function.
- * It is not physical entity, but instead of vast network of remote servers

5. Cloud computing data types:

* Cloud computing use different data types

- 1) E-mails
- 2) contracts
- 3) Images
- 4) Blogs
- 5) Text
- 6) Boolean
- 7) Decimal
- 8) locale etc.

6. Cloud Architecture Layers:

1. Application Layer
2. Platform Layer
3. Infrastructure Layer.
4. Data Center Layer.

7. Cloud Computing Platforms for Large Scale:

1. Public cloud
2. Private cloud
3. Hybrid cloud

Large Scale:

1. Google cloud
2. Amazon Web Services
3. Microsoft Azure.

8. Demand Functionality:

→ Delivery Model in which computing resources are made available to the user as needed.

→ On demand functionality is a service where resources are offered as when needed.

9. Different Models of deployment cloud computing:

- 1) Public clouds
- 2) Private clouds
- 3) community clouds
- 4) Hybrid clouds

10. Hybrid cloud:

* Mixed computing environment where applications are run using combination of computing, storage and services in different environments.

Section-B

II)

1. Scalability	Elasticity
1. Ability to add, remove hardware and software resources to handle an increase/decrease Usage	1. It is automatically scaling up/down resource to meet user demands.
2. Scalability share same advantages.	2. Elasticity share same advantages.
3. Cost efficiency have system that need Power.	3. Cost efficiency have system to calculate Power.

4. Faster Implementation

Scale up resources to meet.

4. Elasticity Scale

down resources when low usage.

5. Service availability

quickly scale up/down services

5. Elasticity avoid costly

resources by scale up/down needed

6. Agility can be implemented to help quickly respond to changes in usage

6. Agility companies the flexibility to stay competitive in an ever changing market.

— x — x —

3. Advantages of cloud computing:

→ cloud computing trending technology

- 1) Data Security
- 2) Back up and restore data
- 3) Improved collaboration
- 4) Excellent Accessibility
- 5) Mobility
- 6) Services in Pay-Per-Use
- 7) Unlimited Storage capacity
- 8) Improved Collaboration



Disadvantages of cloud Computing:

- 1) Internet Connectivity
- 2) Vendor lock-in
- 3) Limited control
- 4) Security
- 5) Low Maintenance cost

— x — x —

4. Secure data for transport in cloud: —

- collaborate with internal and external Users
- Access data stored across clouds and data centers
- Move files of any size and volume over any distance fast.
- Protect data with built in security

Benefits:

- 1) Speed
- 2) Built in security
- 3) Reliability
- 4) Ease of use
- 5) Admin Friendly

6. Cost efficiency.

Features :

- 1) Migrate data
- 2) Deliver data
- 3) Automate workflows
- 4) Collaborate
- 5) Sync data.

— x — x —

5. Mobile computing

cloud computing

1. Infrastructure as a Service

1. Mobile communication a Service

2. Software as a Service

2. Platform as a Service

3. Automated Service Provisioning

3. Problems on Operational level

4. Problems on end User level

4. Migration Problem on Virtual Machine

5. Problems on Service level

5. Server Consolidation



6. Security and Privacy Problems

6. Software frameworks

7. Awareness Problem

7. Security of data

8. Problems on data Management

8. Novel cloud computing Architecture

9. Costly, lengthy deployments

9. Reduce deployment Models.

Section - C

III)

2. Cloud Computing types:

→ Cloud Computing way to access information & applications to build, Manage and Maintain them.

Cloud computing work:

- 1) Cloud Service Providers to store data
- 2) User access assets
- 3) Internet Provides and Users across long distances.

1) Public cloud:-

→ 3rd Party cloud vendors own and Manage Public clouds for use by the general public.

→ customers own data and applications that live on cloud.

2) Private cloud:-

→ From corporations to Universities, organizations can host Private clouds for their exclusive use.

3) Hybrid cloud:-

→ Fuse Private clouds with Public clouds for best of both worlds.

→ data and applications often flow automatically between them.

4) Multi cloud:-

→ A Multi cloud exists when org leverage many clouds from several providers.



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MARK STATEMENT



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MARK STATEMENT

S.NO.	REG. NO.	NAME OF THE STUDENT	Theory	Practical	Total
1	912518104001	AARTHI. L	44	38	82
2	912518104002	AARTHI.R	45	37	82
3	912518104003	ABIRAMI.M	47	36	83
4	912518104004	ABIRAMI. S	48	35	83
5	912518104005	AKILA.A	51	34	85
6	912518104007	KAMALESH M	50	33	83
7	912518104008	KARTHICK S	38	35	73
8	912518104009	KARTHICKEYAN. N	39	36	75
9	912518104010	KAVYASRI.K	37	37	74
10	912518104011	KAYALVIZHI. P	37	38	75
11	912518104012	MADHUMITHA.M	44	34	78
12	912518104013	MAHALINGAM.A	51	32	83
13	912518104014	MANISHA.U	35	32	67
14	912518104016	MOHAMED ANAS A	34	31	65
15	912518104017	MUTHIAH.M	36	36	72
16	912518104019	PAVITHRA P	39	34	73
17	912518104020	RAJA LAKSHMI D	38	38	76
18	912518104021	RAJA RAJESWARI NACHIYAR B	38	35	73
19	912518104022	SARANYA.B	41	38	79
20	912518104023	SARAVANAN	42	37	79
21	912518104025	SENTHAMIZHAN V	44	38	82
22	912518104026	SHINY HEBZIBHA E	45	37	82
23	912518104027	SHRUTHI. K	47	36	83
24	912518104028	SOLAISELVAN. M	41	37	78
25	912518104029	STEPHEN RAJ .T	43	36	79
26	912518104030	VAIGESHWARI. K	41	38	79
27	912518104031	VIGNESH C	42	35	77
28	912518104032	VINOTHA K	48	35	83
29	912518104301	KIRUTHIKA S	51	34	85
30	912518104302	RAJAMANIKANDAN. M	50	33	83




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REPORT



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146 /4B1, Amaravathi Village,
Amaravathipuram (Po.),
Karaikudi - 630 001.
Ph : 04565 - 234230, 326132

Fax : 04565 - 234430
Mobile : 73737 11322, 73737 11333
E-mail : street2010@gmail.com
Website : www.raajaraajan.org

REPORT

Department of Computer science & Engineering has organized Certified Course Titled "CLOUD COMPUTING TECHNOLOGIES" on 12.7.2021 to 17.07.2021. This program started with an inauguration function. Final year Ms.B.Raja Rajeswari Nachiyar, B.E, Department of Computer science & Engineering deliver welcome address. Resource person **Mrs.K.MATHARASI** has address a key note about the program. The Principal, **Dr.A.L.Mayilvahanan**, Sri Raaja Raajan college of engineering and Technology, karaikudi and the Head of Department, **Mr. S.AANJANKMAR** of Sri Raaja Raajan college of engineering and Technology, Karaikudi has consented felicitation address. The students learnt basics of cloud computing and their install and configure the systems virtualization. The program was successfully completed on 17.07.2021 with a valedictory function. Resource person **Mrs.K.MATHARASI** and students of Department of Computer science & Engineering express feedback about the program and participation certificates are distributed to all the participants. The program valedictory with an vote of thanks by the student Ms.Abirami.M Final year, Department of Computer science & Engineering and national anthem.

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Sri Raaja Raajan College of Engg. & Tech
Amaravathipuram, Karaikudi - 630 001
Sivagangai Dist. Tamil Nadu

Trust Office : No. 1, S.K.M. Building, T.T. Nagar Ist Street, Karaikudi - 630 001.

Ph : 04565 - 234230, Mobile : 73737 11331, 73737 11338



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(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)

146/14B1, Amaravathi Village, Amaravathiputhur Post,

Karaikudi – 630 301, SivagangaiDt, Tamil Nadu

Website : www.srirajaraajan.in, E-mail : srrcet2010@gmail.com, Ph: 04565-234230

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Certificate Course/Add on Course/

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2021-22

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CERTIFICATE OF COMPLETION

*This is to certify that Mr./Ms. **K. VAIGESHWARI**
of Computer Science and Engineering Department has successfully completed a course
titled "Cloud Computing" at the Duration 12.07.2021 to 17.07.2021.*

*S. Sripur
HoD*

Principal



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*This is to certify that Mr./Ms. A. MOHAMED ANAS.....
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S. Anilkumar
HoD

[Signature]
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*This is to certify that Mr./Ms..... L. AARTHI.....
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S. Anjan
HoD

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*This is to certify that Mr./Ms. S. KARTHICK
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S. Anpku
HoD

[Signature]
Principal