



# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY (AUTONOMOUS)

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2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

S.No	Content	Page No
<b>1.Experiential Learning</b>		
1.1	Industrial Visit	4
1.2	Internship	17
1.3	Laboratory courses	73
<b>2.Participative Learning</b>		
2.1	Club activities	168
2.2	Seminars	186
2.3	Workshop	192
<b>3.Problem Solving techniques</b>		
3.1	Final Year Project	200
3.2	Mini Project	206
3.3	Case Studies	220

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# ACADEMIC YEAR 2023-24

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# 1. EXPERIENTIAL LEARNING

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# 1.1 INDUSTRIAL VISIT

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## INDUSTRIAL VISIT

### DEPARTMENT WISE STUDENT PARTICIPATED LIST

S.NO	DEPT	YEAR	NAME OF THE COMPANY	DATE
1.	EEE	II,III,IV	KUDANKULAM NUCLEAR POINT,(KKNPP)	16.08.2023

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## 2.3.1: EXPERIENTIAL LEARNING: 2023-24

### INDUSTRIAL VISIT

### DEPARTMENT OF ELECTRICAL & COMMUNICATION ENGINEERING

### VISITOR DETAILS

S.NO.	NAME OF THE VISITOR	AGE	GENDER	ID PROOF AADHAR CARD/COLLEGE ID CARD	ID PROOF NO
1	AKILA .M	19	Female	Aadhar Card	865529883974
2	DEVI M	20	Female	Aadhar Card	997628410430
3	DHAYANITHI M	19	Male	Aadhar Card	776585143445
4	HARIHARAN S	19	Male	Aadhar Card	880263102056
5	KARTHICK M	19	Male	Aadhar Card	828539689052
6	ROJA S	19	Female	Aadhar Card	810206944261
7	SANJAY M V	20	Male	Aadhar Card	303137469982
8	SANTHOSH M	19	Male	Aadhar Card	732883938132
9	SARANKUMAR A	20	Male	Aadhar Card	413370653852
10	SATHISH P	18	Male	Aadhar Card	714900333066
11	VENGADESHWARAN J	19	Male	Aadhar Card	979817756061
12	AGIMISH K G	25	Male	Aadhar Card	555736107283
13	KARTHICK C	23	Male	Aadhar Card	836576843459
14	TAMILSELVAN T	21	Male	Aadhar Card	931560429605
15	DHINESH.P	20	Male	Aadhar Card	4182 3322 7021
16	ISAKKIRAJA.P	21	Male	Aadhar Card	244288290929
17	MUKESH.S	20	Male	Aadhar Card	342771613941
18	NAVEENKUMAR.G	20	Male	Aadhar Card	8972 2012 7259
19	ROHAN.R	20	Male	Aadhar Card	811543416000
20	SIVAGIRI.K	20	Male	Aadhar Card	971358992575
21	THIRUMARAN DILEEBAN.S	21	Male	Aadhar Card	5746 7383 4347
22	MAHESWARI.P	21	Female	Aadhar Card	708714998136



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23	SARAVANAN A	19	Male	Aadhar Card	608631063061
24	RANJITHA N	20	Female	Aadhar Card	906403034600
25	JOTHIS	19	Female	Aadhar Card	755116245709

### STAFF NAME DETAILS

26	G.PALANISAMY, AP/EEE,IV I/C	33	Male	Aadhar Card	844605557602
27	J.GURUPRASATH, AP/EEE	34	Male	Aadhar Card	554660217740
28	M.MOHANAMBIKA, AP/EEE	30	Female	Aadhar Card	854221794334

### VEHICLE AND DRIVER DETAILS

S.NO.	Vehicle Number	Name of the Driver	Age	ID Proof	ID Proof No
1	TN 33 AP 9193	SILAMBARASAN.R	27	DRIVING LICENCE	TN36 20150004919

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## PHOTO OF ACCEPTANCE MAIL FROM KKNPP

### INDUSTRIAL VISIT REPORT

Industrial visit in Kudankulam Nuclear Power Plant (KKNPP), Tirunelveli District. EEE Department students and Faculty members went for Industrial visit:

1. Mr. G. Palanisamy, Assistant Professor/EEE
2. Mr. J.Guruprasath, Assistant Professor/EEE
3. Ms. M.Mohanambika, Assistant Professor/EEE

### **DETAILS OF JOURNEY:**

- Students of JKKMCT undertook visit at Kudankulam Nuclear Power Plant (KKNPP), Tirunelveli District, on August 16th 2023 under the guidance of Mr. G. Palanisamy, Mr. J.Guruprasath, Ms.

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M.Mohanambika.

- Guided by Mr. M.K.Asokan (Senior Scientist ) for company tour and learned about functions of nuclear reactor, simulators, and protection systems
- It took around Six hour for complete the visit and at the end we get chance to discuss on The Nuclear Power Corporation of India Limited with senior scientist Mr.M.K.Asokan.
- We exchange gratitude and Token of Love and returned.

## OBJECTIVE:

- As the subject title 'Power Plant Engineering' in Electrical and Electronics Engineering, we feel it will be fruitful that the students have a sight of the Nuclear Power Plant to have a better appreciation of practical applications of theory.

## COMPANY PROFILE:

**Company Name:** Kudankulam Nuclear Power Plant (KKNPP)

**Location:** Tirunelveli District, Tamil Nadu, India

**Ownership:** Joint venture between the Nuclear Power Corporation of India Limited (NPCIL) and Atomstroyexport, a subsidiary of Rosatom State Atomic Energy Corporation (Russia)

**Partnership:** KKNPP is a joint venture between the Nuclear Power Corporation of India Limited (NPCIL) and Atomstroyexport, a subsidiary of Russia's state-owned Rosatom. This partnership combines the expertise of both countries in nuclear technology.

**Reactors:** The plant consists of multiple VVER (Water-Water Energetic Reactor) pressurized water reactors. These reactors are designed to generate electricity through controlled nuclear fission reactions.

**Capacity:** Unit 1 & 2 each unit produce 1000 MW, Unit 3,4,5,6 are under construction.

## INSIDE THE COMPANY THE STUDENT PERMITTED TO VISIT THE FOLLOWING UNIT

1. Fish Protection System
2. The Desalination Plant
3. Simulation Unit

  
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## PROCESS OBSERVED:

- At first we had started from a small conference which was led by Mr.N.K. ASOKAN, Senior Scientist. He explained us the overall outline of the power plant clearly.
- The project consists of two 1000 MW capacity water Cooled Moderated Energy Reactors (WCMER), which falls under the category of Pressurized Water Reactor (PWR) and is the first of its kind in INDIA.
- This type of reactor uses about 4.4 enriched Uranium as fuel. The design of the plant and supply of all the major equipment is in the scope of the Russian Federation while development of infrastructure and project construction is in Indian Style.
- The style includes complete civil and structural works of the two reactor buildings along with the reactor auxiliary and control room buildings.
- The Hydro technical structures at KKNPP provide necessary cooling water required for the nuclear plant operation as well as its discharge after cooling the plant loads. To avoid silt, the sea water is drawn at a distance of 1.2 km away from the shore at 9.05-meter depth below the sea level from a caisson structure placed at the south tip of two breakwater dykes.

The intermediate structures consist of sea water intake structure with a fish protection system, three tunnels each for carrying the sea water to two pump houses from where the water is pumped to condensers in the turbine building through pressure pipelines. Four Caissons are placed at the southern tip of breakwater dykes for sea water intake. Out of these, two are used as water passage and two are adjoining units.

The power plant stands tall at the safety measures. The reactors deploy 4 stage safety features, namely the Passive Decay Heat Removal System, additional system for Core Passive Flooding, Passive Filtering Systems, etc. However, to enhance further the safety level, the task force suggested 17 recommendations, all of which have been implemented. Unit 1 of the plant was synchronized with the southern power grid in 2013 and is generating electricity to its limit of 1000 MW. Unit 2 with capacity 1,000 MW had achieved first criticality in July 2016. It was grid-

  
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connected in August 2016 and its commercial operation started its commercial operation started in 2016.

The ground-breaking ceremony for construction of units 3 & 4 was performed in February 2016. The power generated from the plant will provide electricity to Tamil Nadu, Puducherry, Kerala, Andhrapradesh and Karnataka.

The visit to the Kudankulam Nuclear Power Plant was such a great one for us as we gained worthy knowledge on power plant sectors and how the mechanical engineering methods are implemented there. In this the students able to gather the overall view about the company.

## FISH PROTECTION SYSTEM

The Fish Protection System at Kudankulam Nuclear Power Plant is a comprehensive mechanism designed to mitigate the potential impact of the plant's cooling water intake on local fish populations and aquatic life. When nuclear power plants generate electricity, they require cooling systems to maintain optimal operating temperatures. Water from nearby water bodies, such as the Gulf of Mannar, is drawn into the cooling systems, and subsequently returned to the environment after being used to cool the reactor.

### Components and Functionality:

- 1. Fish Screens:** The heart of the Fish Protection System lies in the fish screens installed at the cooling water intake. These screens are designed with specific mesh sizes to prevent larger aquatic organisms, including fish, from being drawn into the cooling system.
- 2. Behavioral Barriers:** In addition to physical barriers, certain systems are designed to deter fish from entering the intake area. These may include acoustic devices or light systems that create unfavorable conditions for fish to approach the intake.
- 3. Fish Return Systems:** Fish that might accidentally get pulled into the cooling water system are often returned safely to the environment through dedicated return systems. These systems are redesigned to minimize any harm caused to the fish during the process.
- 4. Monitoring and Research:** Continuous monitoring and research programs are typically in place to assess the efficiency of the Fish Protection System. Regular studies help gauge the system's effectiveness in preventing fish ingress and minimizing environmental impact.



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## ENVIRONMENTAL IMPACT AND SAFETY:

The implementation of a robust Fish Protection System at Kudankulam Nuclear Power Plant demonstrates the commitment to environmental stewardship and sustainability. By reducing the impact on local fish populations, the plant aims to maintain the balance of the aquatic ecosystem and protect biodiversity in the region.

## THE DESALINATION PLANT

The Desalination Plant at Kudankulam Nuclear Power Plant is a facility designed to convert seawater into fresh water suitable for various operational needs, including cooling and other processes. Water scarcity is a significant challenge in many regions, and nuclear power plants require substantial amounts of water for cooling purposes. By implementing a desalination plant, KKNPP demonstrates its commitment to both responsible water usage and environmental conservation.

### Functionality and Key Components:

- 1. Reverse Osmosis Technology:** The Desalination Plant typically employs reverse osmosis technology, a process that involves forcing seawater through a semi-permeable membrane to remove impurities, salts, and other contaminants. This process results in the production of fresh water that can be used for various purposes within the power plant.
- 2. Pre-Treatment:** Before the reverse osmosis process, seawater undergoes pre-treatment to remove larger particles, debris, and sediments. This step ensures the efficiency and longevity of the membranes in the reverse osmosis system.
- 3. Post-Treatment:** The fresh water produced through reverse osmosis may undergo further post-treatment to adjust its chemical composition, pH levels, and other parameters to meet the specific requirements of the power plant's processes.

## IMPORTANCE AND BENEFITS:

- 1. Water Security:** The Desalination Plant provides Kudankulam Nuclear Power Plant with a reliable and sustainable source of fresh water, reducing the reliance on local freshwater resources. This is especially crucial in regions where water scarcity is a pressing concern.
- 2. Environmental Conservation:** By utilizing seawater for cooling and other processes, the plant helps preserve local freshwater ecosystems and reduces the impact on local water bodies.

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3. **Operational Efficiency:** The availability of a consistent water supply through the Desalination Plant ensures uninterrupted operation of the nuclear reactors and other systems, contributing to stable electricity generation.

4. **Community Impact:** In some cases, excess fresh water produced by the Desalination Plant might be shared with neighbouring communities, thus contributing to local water availability.

## SIMULATION UNIT

The Simulation Unit at Kudankulam Nuclear Power Plant is a sophisticated facility designed to replicate the operation of nuclear reactors, control systems, and various plant processes in a virtual environment. This virtual simulation offers operators, engineers, and personnel a realistic and risk-free platform to understand, practice, and improve their skills before implementing changes or responding to complex scenarios within the actual plant.

### Functionality and Key Features:

1. **Dynamic Scenario Replication:** The Simulation Unit accurately mimics the behavior of the nuclear reactors and associated systems under different conditions, such as start-up, normal operation, shutdown, and emergencies. This dynamic replication enables operators to test and improve their responses to a wide range of situations.

**Training and Skill Enhancement:** Operators and technical staff can undergo training exercises using the simulation, allowing them to practice routine operations, emergency procedures, and troubleshooting without affecting the actual plant. This significantly enhances their proficiency and preparedness.

2. **Risk Mitigation:** The Simulation Unit aids in identifying potential issues, vulnerabilities, and bottlenecks within the plant's systems. By simulating various scenarios, operators can proactively address challenges and refine strategies to prevent accidents and optimize plant performance.

3. **Scenario Testing:** New strategies, procedures, and modifications to plant systems can be tested in the simulation environment before implementation in the actual plant. This minimizes the risk of errors and ensures that changes are thoroughly evaluated.

### BENEFITS AND IMPACT:

1. **Safety Enhancement:** The Simulation Unit contributes to enhanced safety by allowing operators to practice emergency responses, ensuring they are well-prepared to handle critical situations.

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2. **Operational Excellence:** By simulating various operational scenarios, the plant can identify opportunities for efficiency improvements, leading to optimized resource utilization and energy generation.

3. **Knowledge Transfer:** The Simulation Unit serves as a valuable tool for knowledge transfer and skill development among new operators and personnel, ensuring a consistent level of expertise.

4. **Reduced Downtime:** Through simulation-based testing of modifications and maintenance procedures, the plant can minimize downtime and disruptions to its operation.

## EXPERIENCE GAINED FROM KUDANKULAM NUCLEAR POWER PLANT (KKNPP) INDUSTRIAL VISIT – OUTCOME REPORT:

An industrial visit to the Kudankulam Nuclear Power Plant can be an enlightening and educational experience, offering participants insights into nuclear energy generation, safety protocols, and the advanced technology that powers the plant. Here are some of the valuable experiences and lessons that visitors might gain from such a visit:

- Visitors can gain a comprehensive understanding of how nuclear energy is generated through controlled fission reactions within the reactors.
- The visit provides an opportunity to witness the scale and complexity of the processes involved in harnessing nuclear power. KKNPP places a high emphasis on safety. Visitors can observe the rigorous safety protocols, redundancies, and multiple layers of protection in place to ensure the secure operation of the nuclear reactors and prevent any potential hazards.
- The industrial visit exposes participants to cutting-edge technology used in nuclear power plants. This includes reactor designs, control systems, instrumentation, and the use of automation to monitor and manage various plant operations. Visitors can learn about the measures taken to minimize the environmental impact of the power plant, such as the Fish Protection System and Desalination Plant.
- This experience highlights the plant's commitment to responsible energy production and environmental sustainability. Participants can gain insights into the challenges faced during the operation of a nuclear power plant, including maintaining consistent power output, managing cooling systems, and ensuring the reliability of critical components.



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- An industrial visit can shed light on the importance of a skilled and well-trained workforce to manage nuclear operations. Visitors might learn about the training programs, expertise, and roles of professionals working at the plant. The visit might include information about emergency response plans and how the plant is equipped to handle various emergency scenarios.
- This aspect underscores the plant's focus on safety and preparedness. Visitors might gain insights into how KKNPP engages with the local community and addresses public concerns regarding nuclear energy.
- This can provide valuable lessons on effective communication and building public trust. Understanding the role of nuclear power in India's energy mix and the efforts to enhance energy security can offer participants a broader perspective on the nation's energy strategy.

Overall, a visit to Kudankulam Nuclear Power Plant can be an eye-opening experience, offering participants the chance to witness first-hand the intricate balance between technological advancement, environmental stewardship, and responsible energy generation in the context of a nuclear power facility.

It is important to approach the visit with curiosity, an open mind, and a commitment to learning about nuclear energy and its implications. The industrial visit to the Kudankulam Nuclear Power Plant has been a remarkable journey of exploration and learning, unveiling the intricate world of nuclear energy generation, safety protocols, advanced technology, and environmental stewardship.

This experience has provided us with a deep understanding of the complexities and responsibilities associated with operating a nuclear power facility. For students and young professionals, this visit has opened our eyes to potential career paths in nuclear science, engineering, safety, and management.

The visit has inspired us to consider contributing to the advancement of clean and sustainable energy solutions.

In conclusion, our industrial visit to the Kudankulam Nuclear Power Plant has been an enlightening journey that has broadened our horizons and deepened our appreciation for the intricate balance between technological progress, environmental responsibility, safety, and energy generation.

We leave with a renewed sense of curiosity, a commitment to responsible energy solutions, and a profound respect for the dedicated professionals who operate and ensure the success of facilities like



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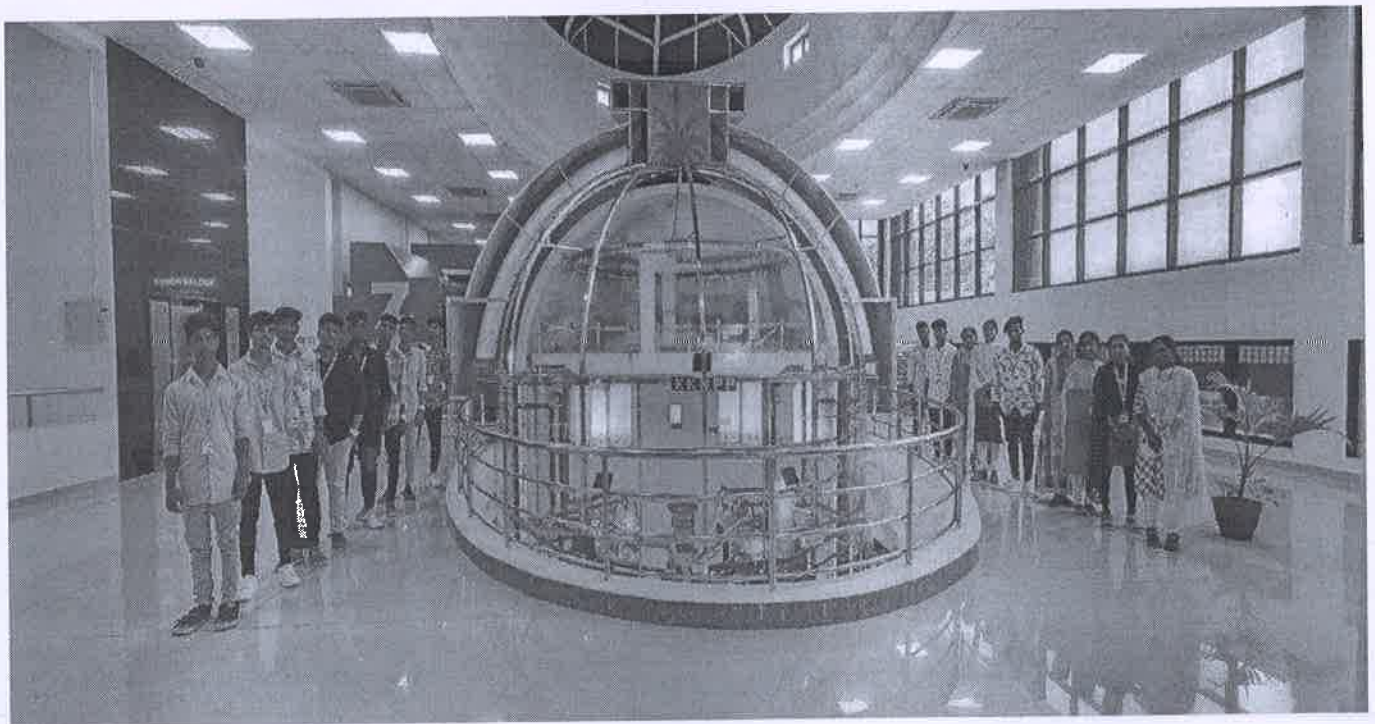
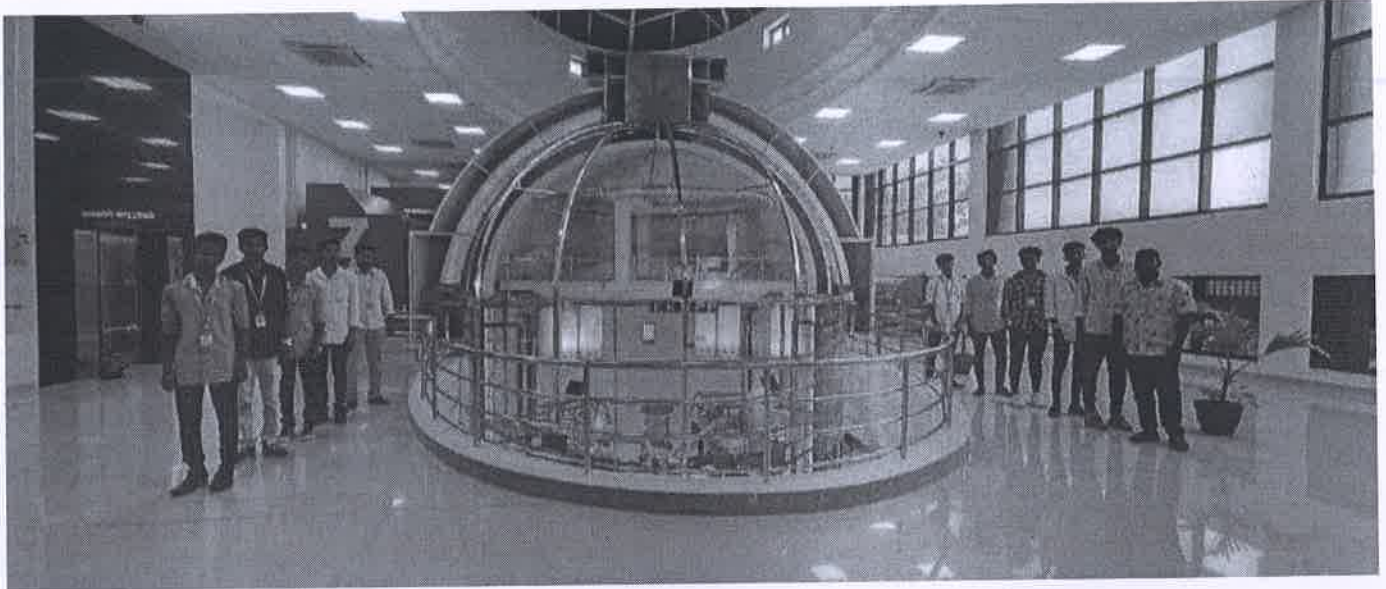
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KKNPP. We want to thank our department staff for their guidance and JKKMCT for support. At around 4 pm visit was over.

## PHOTO GALLERY



**GROUP PHOTO OF OUR STUDENTS AT KUDANKULAM NUCLEAR POWER PLANT**

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## 1.2 INTERNSHIP

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## INTERNSHIP UNDERGONE BY STUDENTS

### INTERNSHIP

### DEPARTMENT WISE STUDENT PARTICIPATED LIST

S.NO	DEPT	NAME OF THE STUDENT	NAME OF THE COMPANY	DURATION
1.	CIVIL	DIVAKARR SUSITHRA S ANANDHAN B MADHESHWARANS	VIJAY BUILDER	18.03.2024 to 13.04.2024
2.	CSE	ABINAYA G BOOPALAN.M DHAMODARAN .G BALUR DEEPIKA.S DHARANISELV I. M JAGATHESWA RAN.P KARUNYAA.M KATHIRESAN. K RAMYA.S SUNDARAGAN ESANK VINISHA.T VINITHA.A VINOTHKUMA R.R	IROHUB INFOTECH	

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3	ECE	BALU.R CHARLES MILLIAM DEEPAK S DEEPIKA S JAGATHESWA RAN P KAVIN M NIRMALRAJ S ROHITH VINITHA A VINISHA T		
		KUDIYARASU.P MUTHUKUMAR.P SUGUNA DEVI.M VIKRAM.V  NARMATHA.M RANJITH.B SAKTHISIVAN.K SANTHIYA.Y SATHASIVAN.R SHARMILA.V SUBASH.K VENESWARI	SAMCORE SOLUTIONS, TRICHY  INNO MEKTRONICS, COIMBATORE	03.07.2023 to 12.07.2023  17.07.2023 TO 21/07.2023



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	ARTHI.V SHARMILA V SOWNDARYA.S	BHARAT SANCHAR NIGAM LIMITED,SALEM	17.07.2023 TO 21/07.2023
	ABISHEK.A BALAJI.S DINESH.S HARIHARAN.B INDRAJITH.A MAGENDHRA.K NARMADHA.N PAVADHARANL.K PRASANTH.P ROGAN.B VIGNESH.V VAISHNAVI.A	ODUGAATECH PRIVATE LTD, SALEM	04.3.2024 TO 08.03.2024
	NIBILASRI.P KAVIYARASU.S SIVARANJANL.G	NXT LOGIC SOFTWARE LIMITED	27/02/2024 TO 12/03/2024
	DEVI.U DHARANL.K.S HARINI.S LAVANYA.M RIYAS MOHAMMED.M	SALZER ELECTRONICS PRIVATE LIMITED, COIMBATORE	27/02/2024 TO 12/03/2024
	AADHITHYA T ABINAYA S AJAY G AKASH.R AKHILA	GALAXYKNITS APPARELS	30-01-2023 to 17-02-2023
	ARUNAGIRI DEEPA K DESIKA S	AISHWARYA ENTERPRICES,COIMB ATORE	30-01-2023 to 17-02-2023

  
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	ELAKIYA GANDHI H DINESH A GOPIKA G	SHESASAYEE PAPERS & BOARDS	30-01-2023 to 17-02-2023
	HALISHA B HARIPRIYA S JOSHUA E KALAISELVAN M KARANRAJ R	VARALAXMI STARCH INDUSTRIES	30-01-2023 to 17-02-2023
	KAVINKUMAR K KISHORE S MANOJKUMAR S MEGALA S MEGAVANNAN R	SRITEX HI-TECH SOLUTIONS	30-01-2023 to 17-02-2023
	MOHAMMSANOOB MOHANRAJ K MYTHILI K NAGAKARNAN M NAGARAJ S NOUSHIBA	HOTEL PREETHI CLASSIC TOWERS,OOTY	30-01-2023 to 17-02-2023

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## CIVIL ENGINEERING

- DIVAKAR R of civil engineering undergone internship at —VIJAI BUILDER, Bhavani from 18.03.24 to 13.04.24
- SUSITHRA .S of civil engineering undergone internship at —VIJAI BUILDER, Bhavani from 18.03.24 to 13.04.24
- ANANDHAN .B of civil engineering undergone internship at —VIJAI BUILDER, Bhavani from 18.03.24 to 13.04.24
- MADHESHWARAN.S of civil engineering undergone internship at VIJAI BUILDER, Bhavani from 18.03.24 to 13.04.24

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சொல்லு. கைச்சாலை :

Date : 13.04.2024

### INTERNSHIP CERTIFICATE

This is to certify that **DIVAKAR R** Final year in Civil Engineering Register no. 731219103001 student of J.K.K Munirajah College of Technology at T.N Palayam, Gobi(T.K), Erode (Dt) – 638506 has undergone the inplant training in our concern, work site From 18.03.2024 TO 13.04.2024  
His conduct and character was good during the training period.

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*S. S. Srinivasan*  
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நெடூர், கரையூர்



Date : 13.04.2024

## INTERNSHIP CERTIFICATE

This is to certify that SUSITHRAS Third year in Civil Engineering Register no. 731220103301 student of J.K.K Munirajah College of Technology at T.N Palayam, Gobi(T.K), Erode (Dt) – 638506 has undergone the inplant training in our concern, work site From 18.03.2024 TO 13.04.2024 His conduct and character was good during the training period.

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செயலாளர்



Date : 13.04.2024

## INTERNSHIP CERTIFICATE

This is to certify that ANANDHAN B Second year in Civil Engineering Register no. 731221103001 student of J.K.K Munirajah College of Technology at T.N Palayam, Gobi(T.K), Erode (Dt) – 638506 has undergone the inplant training in our concern, work site From 18.03.2024 TO 13.04.2024 His conduct and character was good during the training period.

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Date : 13.04.2024

## INTERNSHIP CERTIFICATE

This is to certify that MADHESHWARAN S Second year in Civil Engineering Register no. 731221103301 student of J.K.K Munirajah College of Technology at T.N Palayam, Gobi(T.K), Erode (Dt) – 638506 has undergone the inplant training in our concern, work site From 18.03.2024 TO 13.04.2024  
His conduct and character was good during the training period.

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## COMPUTER SCIENCE AND ENGINEERING

- **ABINAYA. G** of computer science and engineering Undergone internship at —IROHUB INFO TECH||, kochi from 25.1.24 to 29.1.24
- **BOOBALAN.**computer science and engineering undergone internship at —IROHUB INFO TECH|| kochi from 25.1.24 to 29.1.24
- **DHAMODARAN.G** of computer science and engineering undergone internship at —IROHUB INFO TECH|| kochi from 25.1.24 to 29.1.24
- **BALU.R** of computer science and engineering undergone internship a IROHUB INFO TECH|| kochi from 25.1.24 to 29.1.24
- **DEEPIKA. S** of computer science and engineering undergone internship at —IROHUB INFO TECH kochi from 25.1.24 to 29.1.24
- **DHARANIVEL.I.M** of computer science and engineering undergone internship at IROHUB INFO TECH|| kochi from 25.1.24 to 29.1.24
- **KARUNYA** of computer science and engineering undergone internship at —IROHUB INFO TECH|| kochi from 25.1.24 to 29.1.24
- **KATHIRESAN** of computer science and engineering undergone internship at IROHUB INFO TECH|| kochi from 25.1.24 to 29.1.24
- **RAMYA .S** of computer science and engineering undergone internship at IROHUB INFO TECH|| kochi from 25.1.24 to 29.1.24
- **BALU.R, CHARLES WILLIAM.L, DEEPAK.S, DEEPIKA.S, JAGATHESWARAN.P, KAVIN.M, NIRMALRAJ.S, ROHITH.R, VINISHA.T,VINITHA.A** of Computer Science and Engineering undergone internship at ENSEMBLE NEXGEN|| erode from 25.1.24 to 29.1.24




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Date: 26.01.2024

**INTERNSHIP TRAINING COMPLETION CERTIFICATE**

This is to certify that the internship training entitled Web development submitted by Mr. M. Vignesh (731220104028) Studying B.E (Computer Science) at, J.K.K Munirajah College of Technology has undergone internship training at our Anjana Infotech Private Limited Rajapalayam, as a collaborative activity from 22.01.2024 to 26.01.2024. He has successfully Completed his Internship under my Guidance and is worthy of consideration for the same.


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## CERTIFICATE

This is to certify that Mr / Ms NIRMALRATS (B.E.-CSE) of  
J.K.K. Munirajah College of Technology has completed our  
Internship training in MERN STACK DEVELOPMENT  
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Near Hotel

Managing Director  
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This is to certify that Mr / Ms VINISHA.T.(BE.CSE).....of  
Jkk Munirajah College of Technology.....has completed our  
Internship training in MERN STACK DEVELOPMENT  
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*[Signature]*  
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Ensemble nexgen

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This is to certify that Mr / Ms ROHITH (BE-CSE).....of  
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Managing Director  
**Ensemble nexgen**

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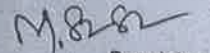
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This is to certify that the internship training entitled Web development submitted by Mr. K. Kathirasan (731220104011) Studying B.E (Computer Science) at, J.K.K Munirajah College of Technology has undergone internship training at our Anjana Infotech Private Limited Rajapalayam, as a collaborative activity from 22.01.2024 to 26.01.2024. He has successfully Completed his Internship under my Guidance and is worthy of consideration for the same.

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For  Anjana Infotech

  
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*[Signature]*  
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Faculty  
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Managing Director  
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Managing Director  
Ensemble nexgen

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from *25/1/24* to *29/1/24* conducted by **Ensemble nexgen Erode.**

*[Signature]*  
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Faculty  
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Veerabhadra Chettyar Road,  
Near Hotel Oxford,  
ERODE - 638 003

*[Signature]*  
Managing Director  
**Ensemble nexgen**

*[Signature]*  
**Principal**

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- **AADHITHYA.T, ABINAYA.S, AJAY.G, AKASH R, AKILA A** of MBA department Undergone internship at —GALAXY KNITS APPARELS, from 30.1.2023 TO 17.2.2024
- ARUNAGIRI, DEEPA.K DESIKA S** of MBA department undergone internship at AISHWARYA ENTERPRICES, Chennai from 05.07.2023 to 11.07.2023.
- **GANDHI, DINESH A, GOPIKA.G** of MBA department undergone internship at —AISHWARYA ENTERPRICES, Chennai, from 19.07.2023 to 25.07.2023.
- **HAISHA B, HARIPRIYA.S, JOSUA E, KALAISELVAN M, KARANRAJ.R** of MBA department undergone internship at —VARALAXMI STARCH INDUSTRIES, Chennai, from 9.07.2023 to 15.07.2023.
- **KAVINKUMAR K, KISHORE S, MANOJKUMAR.S, MEGALA S, MEGAVANNAN R** of MBA department undergone internship at —SRITEX HI-TECH SOLUTIONS Erode, from 03.07.2023 to 19.07.2023.
- **MOHAMMADSANOOB, MOHANRAJ.K, MYTHILIK, NAGAKARNANM, NAGARAJ S, NOUSIBA A** of MBA department undergone internship at —HOTEL PREEETHI CLASSIC TOWERS, OOTY from 03.07.2023 to 19.07.2023.

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DATE: 27/10/2023

  
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OOTY, TAMIL NADU 643001 - Phone: 0423 2223666 -69  
E-mail: preethiclassic@gmail.com

**Date: 21:02:2023**

## **CERTIFICATE OF COMPLETION**

This is to certify that MOHAMMED SANOOB I MBA of J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY has done internship from 30/01/2023 to 17/02/2023. During the course period the performance of the trainee was found to be good.

OFFICE EXECUTIVE

Principal  
J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.

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During the course period the performance of the trainee was found to be good.

*Rajeshkumar*

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## LIST OF LABORATORY COURSES ACADEMIC YEAR 2022-23

### DEPARTMENT OF CIVIL ENGINEERING

S.NO	SEMESTER	COURSE CODE	SUBJECT CODE	SUBJECT NAME
1	I	C106	GE3171	Problem Solving and Python Programming Laboratory
2		C107	BS3171	Physics and Chemistry Laboratory
3	II	C113	GE3271	Engineering Practices Laboratory
4		C114	BE3272	Basic Electrical, Electronics and Instrumentation Engineering Laboratory
5	III	C207	CE3361	Surveying and Levelling Laboratory
6		C208	CE3311	Water and waste water analysis Laboratory
7		C209	GE3361	Professional Development
8	IV	C216	CE3411	Hydraulic Engineering Laboratory
9		C217	CE3412	Materials Testing Laboratory
10		C218	CE3413	Soil Mechanics Laboratory
11	V	C307	CE8511	Soil Mechanics Laboratory
12		C308	CE8512	Water And Waste Water Analysis Laboratory
13		C309	CE8513	Survey Camp
14	VI	C316	CE8611	Highway Engineering Laboratory
15		C317	CE8612	Irrigation & Environmental Engineering Drawing
16		C318	HS8581	Professional Communication
17	VII	C406	CE8711	Creative and innovative project (Activity Based-Subject Related)
18		C407	CE8712	Industrial Training (4 weeks during VI Semester –Summer)
19	VIII	C410	CE8811	Project Work



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## DEPARTMENT OF CIVIL ENGINEERING

S. No	LAB NAME	LIST OF EXPERIMENTS	BATCH SIZE (STUDENTS)	REMARKS
1	<b>PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY</b>	1. Identification and solving of simple real life or scientific or technical problems, and developing flow charts for the same. (Electricity Billing, Retail shop billing, Sin series, weight of a motorbike Weight of a steel bar, compute Electrical Current in Three Phase AC Circuit, etc.) 2. Python programming using simple statements and expressions (exchange the values of two variables, circulate the values of n variables, distance between two points). 3. Scientific problems using Conditional and Iterative loops. (Number series Number Patterns, pyramid pattern) 4. Implementing real-time/technical applications using Lists, Tuples. (Item present in a library/Components of a car Materials required for construction of a building –operations of list & tuples) 5. Implementing real-time/technical applications using Sets, Dictionaries (Language, components of an automobile, Elements of a civil structure etc.- operations of Sets & Dictionaries) 6. Implementing programs using Functions. (Factorial, largest number in a list, area of shape) 7. Implementing programs using String (reverse, palindrome, character count replacing characters) 8. Implementing programs using written modules and Python Standard Libraries (pandas, numpy, Matplotlib, scipy) 9. Implementing real-time/technical applications using File handling. (copy from one file to another, word count longest word) 10. Implementing real-time/technical applications using Exception handling (divide by zero error, voter's age validity student mark range validation) 11. Exploring Pygame tool.	3 BATCHES (35 STUDENTS PER BATCH)& 3 CYCLES	

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		12. Developing a game activity using Pygame like bouncing ball, car race etc.		
2.	<b>PHYSICS AND CHEMISTRY LABORATORY</b>	<p>1. Torsional pendulum - Determination of rigidity modulus of wire and moment of inertia of regular and irregular objects.</p> <p>2. Simple harmonic oscillations of cantilever.</p> <p>3. Non-uniform bending - Determination of Young's modulus</p> <p>4. Uniform bending – Determination of Young's modulus</p> <p>5. Laser- Determination of the wavelength of the laser using grating</p> <p>6. Air wedge - Determination of thickness of a thin sheet/wire</p> <p>7. a) Optical fibre -Determination of Numerical Aperture and acceptance angle</p> <p>b) Compact disc- Determination of width of the groove using laser.</p> <p>8. Acoustic grating- Determination of velocity of ultrasonic waves in liquids.</p> <p>9. Ultrasonic interferometer -determination of the velocity of sound and compressibility of liquids</p> <p>10. Post office box -Determination of Band gap of a semiconductor.</p> <p>11. Photoelectric effect</p> <p>12. Michelson Interferometer.</p> <p>13. Melde's string experiment</p> <p>14. Experiment with lattice dynamics kit.</p>	3 BATCHES (35 STUDENTS PER BATCH)& 3 CYCLES	

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3.	<b>ENGINEERING PRACTICES LABORATORY</b>	<p><b>GROUP – A (CIVIL &amp; ELECTRICAL)</b> <b>PART I CIVIL ENGINEERING PRACTICES 15</b> <b>PLUMBING WORK:</b> a) Connecting various basic pipe fittings like valves, taps, coupling, unions, reducers, elbows and other components which are commonly used in household. b) Preparing plumbing line sketches. c) Laying pipe connection to the suction side of a pump d) Laying pipe connection to the delivery side of a pump. e) Connecting pipes of different materials: Metal, plastic and flexible pipes used in household appliances.</p> <p><b>WOOD WORK:</b> a) Sawing, b) Planing and c) Making joints like T-Joint, Mortise joint and Tenon joint and Dovetail joint.</p> <p>Wood Work Study: a) Studying joints in door panels and wooden furniture b) Studying common industrial trusses using models.</p> <p><b>PART II ELECTRICAL ENGINEERING PRACTICES 15</b> a) Introduction to switches, fuses, indicators and lamps - Basic switch board wiring with lamp, fan and three pin socket b) Staircase wiring c) Fluorescent Lamp wiring with introduction to CFL and LED types. d) Energy meter wiring and related calculations/ calibration e) Study of Iron Box wiring and assembly f) Study of Fan Regulator (Resistor type and Electronic type using Diac/Triac/quadrac) g) Study of emergency lamp wiring/Water heater</p>	3 BATCHES (35 STUDENTS PER BATCH)& 3 CYCLES
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4.	<b>BASIC ELECTRICAL, ELECTRONICS AND INSTRUMENTATION ENGINEERING LABORATORY</b>	<ol style="list-style-type: none"> <li>1. Verification of ohms and Kirchoff's Laws.</li> <li>2. Three Phase Power Measurement</li> <li>3. Load test on DC Shunt Motor.</li> <li>4. Load test on Self Excited DC Generator</li> <li>5. Load test on Single phase Transformer</li> <li>6. Load Test on Induction Motor</li> <li>7. Characteristics of PN and Zener Diodes</li> <li>8. Characteristics of BJT, SCR and MOSFET</li> <li>9. Design and analysis of Half wave and Full Wave rectifiers</li> <li>10. Measurement of displacement of LVDT</li> </ol>	3 BATCHES (35 STUDENTS PER BATCH)& 3 CYCLES	
5.	<b>SURVEYING AND LEVELLING LABORATORY</b>	<p><b>LIST OF EXPERIMENTS:</b></p> <p><b>Chain Survey</b></p> <ol style="list-style-type: none"> <li>1. Study of chains and its accessories, Aligning, Ranging, Chaining and Marking Perpendicular offset</li> <li>2. Setting out works – Foundation marking using tapes single Room and Double Room</li> </ol> <p><b>Compass Survey</b></p> <ol style="list-style-type: none"> <li>3. Compass Traversing – Measuring Bearings &amp; arriving included angles</li> </ol> <p><b>Levelling - Study of levels and levelling staff</b></p> <ol style="list-style-type: none"> <li>4. Fly levelling using Dumpy level &amp; Tilting level</li> <li>5. Check levelling</li> </ol> <p><b>Theodolite - Study of Theodolite</b></p> <ol style="list-style-type: none"> <li>6. Measurements of horizontal angles by reiteration and repetition and vertical angles</li> <li>7. Determination of elevation of an object using single plane method when base is Accessible/inaccessible.</li> </ol> <p><b>Tacheometry – Tangential system – Stadia system</b></p> <ol style="list-style-type: none"> <li>8. Determination of Tacheometric Constants</li> <li>9. Heights and distances by stadia Tacheometry</li> <li>10. Heights and distances by Tangential Tacheometry</li> </ol>	1 BATCH (1 STUDENT PER BATCH) & 2 CYCLES	

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		<p><b>Total Station - Study of Total Station, Measuring Horizontal and vertical angles</b> 11. Traverse using Total station and Area of Traverse 12. Determination of distance and difference in elevation between two inaccessible points using Total station</p>		
6.	<p align="center"><b>WATER AND WASTEWATER ANALYSIS LABORATORY</b></p>	<p><b>LIST OF EXPERIMENTS:</b> <b>ANALYSIS OF WATER SAMPLE</b> 1. Sampling and preservation methods for water and wastewater (Demonstration only) 2. Measurement of Electrical conductivity and turbidity 3. Determination of fluoride in water by spectrophotometric method /ISE 4. Determination of iron in water (Demo) 5. Determination of Sulphate in water 6. Determination of Optimum Coagulant Dosage by Jar test apparatus 7. Determination of available Chlorine in Bleaching powder and residual chlorine in water <b>ANALYSIS OF WASTE WATER SAMPLE</b> 8. Estimation of suspended, volatile and fixed solids 9. Determination of Sludge Volume Index in waste water 10. Determination of Dissolved Oxygen 11. Estimation of B.O.D. 12. Estimation of C.O.D. 13. Determination of TKN and Ammonia Nitrogen in wastewater 14. Determination of total and faecal coliform (Demonstration only)</p>	<p>1 BATCH (1 STUDENT PER BATCH) &amp; 2 CYCLES</p>	
7.	<p align="center"><b>PROFESSIONAL DEVELOPMENT</b></p>	<p><b>MS WORD: 10 Hours</b> Create and format a document Working with tables Working with Bullets and Lists Working with styles, shapes, smart art, charts Inserting objects, charts and importing objects from other office tools Creating and Using document templates Inserting equations, symbols and special</p>	<p>1 BATCH (1 STUDENT PER BATCH) &amp; 2 CYCLES</p>	

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	<p>characters</p> <p>Working with Table of contents and References, citations</p> <p>Insert and review comments</p> <p>Create bookmarks, hyperlinks, endnotes footnote</p> <p>Viewing document in different modes</p> <p>Working with document protection and security</p> <p>Inspect document for accessibility</p> <p><b>MS EXCEL: 10 Hours</b></p> <p>Create worksheets, insert and format data</p> <p>Work with different types of data: text, currency, date, numeric etc.</p> <p>Split, validate, consolidate, Convert data</p> <p>Sort and filter data</p> <p>Perform calculations and use functions (Statistical, Logical, Mathematical, date, Time etc.,)</p> <p>Work with Lookup and reference formulae</p> <p>Create and Work with different types of charts</p> <p>Use pivot tables to summarize and analyse data</p> <p>Perform data analysis using own formulae and functions</p> <p>Combine data from multiple worksheet using own formulae and built-in functions to generate results</p> <p>Export data and sheets to other file formats</p> <p>Working with macros</p> <p>Protecting data and Securing the workbook</p> <p><b>MS POWERPOINT: 10 Hours</b></p> <p>Select slide templates, layout and theme</p> <p>Formatting slide content and using bullets and numbering</p> <p>Insert and format images, smart art tables, charts</p> <p>Using Slide master, notes and handout master</p> <p>Working with animation and transitions</p> <p>Organize and Group slides</p> <p>Import or create and use media objects: audio, video, animation</p> <p>Perform slideshow recording and Record narration and create presentable videos</p>		
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8.	<b>HYDRAULIC ENGINEERING LABORATORY</b>	<p><b>LIST OF EXPERIMENTS (Any 10 of the following)</b></p> <p><b>A. FLOW MEASUREMENT</b></p> <ol style="list-style-type: none"> <li>1. Calibration of Rotameter</li> <li>2. Flow through Orifice meter/mouthpiece, Venturimeter and Notches</li> <li>3. Bernoulli's Experiment</li> </ol> <p><b>B. LOSSES IN PIPES</b></p> <ol style="list-style-type: none"> <li>4. Determination of friction factor in pipes.</li> <li>5. Determination of minor losses</li> </ol> <p><b>C. PUMPS</b></p> <ol style="list-style-type: none"> <li>6. Characteristics of Centrifugal pumps</li> <li>7. Characteristics of Gear pump</li> <li>8. Characteristics of Submersible pump</li> <li>9. Characteristics of Reciprocating pump</li> </ol> <p><b>D. TURBINES</b></p> <ol style="list-style-type: none"> <li>10. Characteristics of Pelton wheel turbine</li> <li>11. Characteristics of Francis turbine</li> </ol> <p><b>E. DETERMINATION OF METACENTRIC HEIGHT</b></p> <ol style="list-style-type: none"> <li>12. Determination of metacentric height of floating bodies.</li> </ol>	1 BATCH (1 STUDENT PER BATCH) 2 CYCLES	
9.	<b>MATERIALS TESTING LABORATORY</b>	<p><b>I. TESTS ON METALS</b></p> <ol style="list-style-type: none"> <li>a. Tension test on steel rod</li> <li>b. Torsion test on mild steel rod</li> <li>c. Deflection test on metal beam</li> <li>d. Double shear test on metal</li> <li>e. Impact test on metal specimen (Izod and Charpy)</li> <li>f. Hardness test on metals (Rockwell and Brinell Hardness Tests)</li> <li>g. Compression test on helical spring</li> <li>h. Deflection test on carriage spring</li> </ol> <p><b>II. TESTS ON CEMENT</b></p> <ol style="list-style-type: none"> <li>a. Determination of fineness of cement</li> <li>b. Determination of consistency of cement</li> <li>c. Determination of specific gravity of cement</li> <li>d. Determination of initial and final setting time of cement</li> </ol> <p><b>III. TESTS ON FINE AGGREGATE</b></p> <ol style="list-style-type: none"> <li>a. Determination of specific gravity and</li> </ol>	1 BATCH (1 STUDENT PER BATCH) 2 CYCLES	 Principal



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		<p>water absorption of fine aggregate b. Determination of grading of fine aggregate c. Determination of water absorption for fine aggregate</p> <p><b>IV. TESTS ON COARSE AGGREGATE</b> a. Determination of compacted and loose bulk density of coarse aggregate b. Determination of impact value of coarse aggregate c. Determination of elongation index of coarse aggregate d. Determination of flakiness index of coarse aggregate e. Determination of aggregate crushing value of coarse aggregate f. Determination of specific gravity and water absorption of coarse aggregate</p> <p><b>V. TESTS ON BRICKS</b> a. Determination of compressive strength of bricks b. Determination of water absorption of bricks c. Determination of efflorescence of bricks</p> <p><b>VI. TESTS ON CONCRETE</b> a. Determination of slump of concrete b. Determination of compressive strength of concrete c. Determination of flowability of self-compacting concrete (Demo only)</p> <p><b>VII. TEST ON WOOD</b> a. Determination of Compression test on wood</p>		
10.	<b>SOILMECHANICS LABORATORY</b>	<p><b>1. DETERMINATION OF INDEX PROPERTIES</b> Specific gravity of soil solids a. Grain size distribution – Sieve analysis b. Grain size distribution - Hydrometer analysis c. Liquid limit and Plastic limit tests d. Shrinkage limit and Differential free</p>	<p>1 BATCH (1 STUDENT PER BATCH) 2 CYCLES</p>	

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		<p>swell tests</p> <p><b>2. DETERMINATION OF INSITU DENSITY AND COMPACTION CHARACTERISTICS</b></p> <p>a. Field density Test ( Sand replacement method)</p> <p>b. Determination of moisture – density relationship using standard proctor compaction test.</p> <p><b>3. DETERMINATION OF ENGINEERING PROPERTIES</b></p> <p>a. Permeability determination (constant head and falling head methods)</p> <p>b. One dimensional consolidation test (Determination of co-efficient of consolidation only)</p> <p>c. Direct shear test in cohesion less soil</p> <p>d. Unconfined compression test in cohesive soil</p> <p>e. Laboratory vane shear test in cohesive soil</p> <p>f. Tri-axial compression test in cohesion less soil (Demonstration only)</p> <p>g. California Bearing Ratio Test</p> <p>87</p> <p><b>4. TEST ON GEOSYNTHETICS (Demonstration only)</b> Determination of tensile strength and interfacial friction angle.</p> <p>a. Determination of apparent opening sizes and permeability.</p>		
11.	SOILMECHANICS LABORATORY	<p><b>1. DETERMINATION OF INDEX PROPERTIES</b></p> <p>a. Specific gravity of soil solids</p> <p>b. Grain size distribution – Sieveanalysis</p> <p>c. Grain size distribution -</p>	1 BATCH (1 STUDENT PER BATCH)	

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		<p>Hydrometer analysis</p> <p>d. Liquid limit and Plastic limit tests Shrinkage limit and Differential free swell tests</p> <p><b>2. DETERMINATION OF INSITU DENSITY AND COMPACTION CHARACTERISTICS</b></p> <p>a. Field density Test ( Sand replacement method and corecutter method)</p> <p>b. Determination of moisture –density relationship using standard Proctor compaction test.</p> <p>c. Determination of relative density (Demonstration only)</p> <p><b>3. DETERMINATION OF ENGINEERING PROPERTIES</b></p> <p>a. Permeability determination (constant head and falling head methods)</p> <p>b. One dimensional consolidation test</p>		
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		<p>(Determination of Co-efficient of consolidation only)</p> <p>c. Direct shear test in cohesionless soil</p> <p>d. Unconfined compression test in cohesive soil</p> <p>e. Laboratory vane shear test in cohesive soil</p> <p>f. Tri-axial compression test in cohesionless soil (Demonstration only)</p> <p>g. California Bearing Ratio Test.</p>		
12.	<b>WATER AND WASTE WATER ANALYSIS LABORATORY</b>	<ol style="list-style-type: none"><li>1. Determination of pH, Turbidity and conductivity</li><li>2. Determination of Hardness</li><li>3. Determination of Alkalinity and Acidity</li><li>4. Determination of Chlorides</li><li>5. Determination of Phosphates and Sulphates</li><li>6. Determination of iron and fluoride</li><li>7. Determination of Optimum Coagulant dosage</li><li>8. Determination of residual chlorine and available</li></ol>	1 BATCH (1 STUDENT PER BATCH)	

  
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		<p>chlorine in bleaching powder</p> <p>9. Determination of Oil, and Grease</p> <p>10. Determination of suspended, settleable, volatile and fixed solids</p> <p>11. Determination of Dissolved Oxygen and BOD for the given sample</p> <p>12. Determination of COD for given sample</p> <p>13. Determination of SVI of Biological sludge and microscopic examination</p> <p>14. Determination of MPN index of given water sample</p> <p>15. Determination of pH, Turbidity and conductivity</p> <p>16. Determination of Hardness</p> <p>17. Determination of Alkalinity and Acidity</p> <p>18. Determination of Chlorides</p> <p>19. Determination of Phosphates and Sulphates</p> <p>20. Determination of iron and fluoride</p>		
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		<p>21. Determination of Optimum Coagulant dosage</p> <p>22. Determination of residual chlorine and available chlorine in bleaching powder</p> <p>23. Determination of Oil, and Grease</p> <p>24. Determination of suspended, settleable, volatile and fixed solids</p> <p>25. Determination of Dissolved Oxygen and BOD for the given sample</p> <p>26. Determination of COD for given sample</p> <p>27. Determination of SVI of Biological sludge and microscopic examination</p> <p>28. Determination of MPN index of given water sample</p>		
13.	<b>HIGHWAY ENGINEERING LABORATORY</b>	<b>I TEST ON AGGREGATES</b> a) Specific Gravity b) Los Angeles Abrasion Test	1 BATCH (1 STUDENT PER BATCH)	 <b>Principal</b>



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		<p>c) Water Absorption of Aggregates</p> <p><b>II TEST ON BITUMEN</b></p> <p>a) Specific Gravity of Bitumen</p> <p>b) Penetration Test</p> <p>c) Viscosity Test</p> <p>d) Softening Point Test</p> <p>e) Ductility Test</p> <p><b>III TESTS ON BITUMINOUS MIXES</b></p> <p>f) Stripping Test</p> <p>g) Determination of Binder Content</p> <p>h) Marshall Stability and Flow Values</p> <p><b>IV DEMONSTRATION OF ANY ONE FIELD TESTING EQUIPMENT LIKE SKID RESISTANCE TESTER/BENKELMAN BEAM</b></p>		
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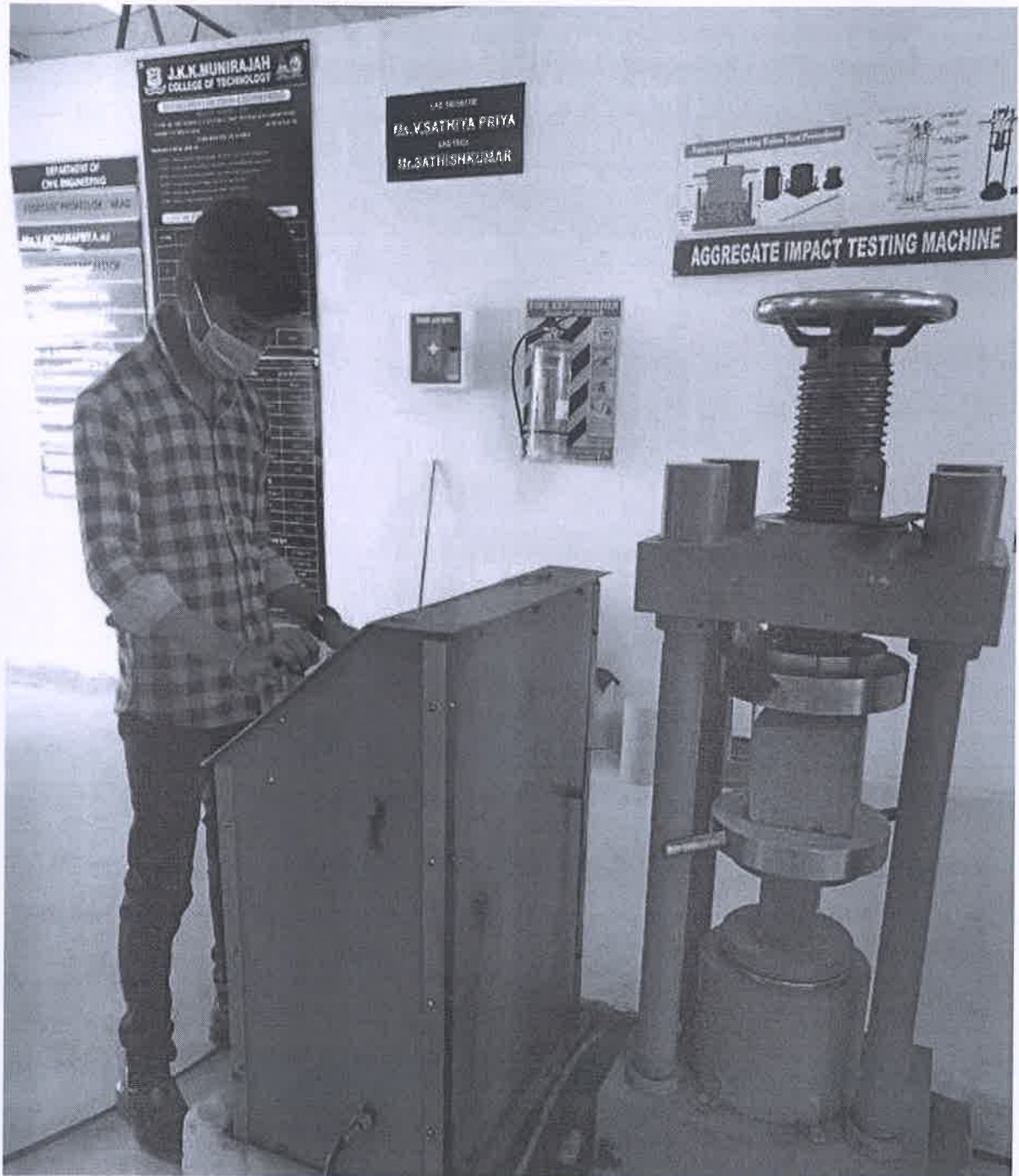


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## PHOTO GALLERY



**MATERIALS TESTING LABORATORY**

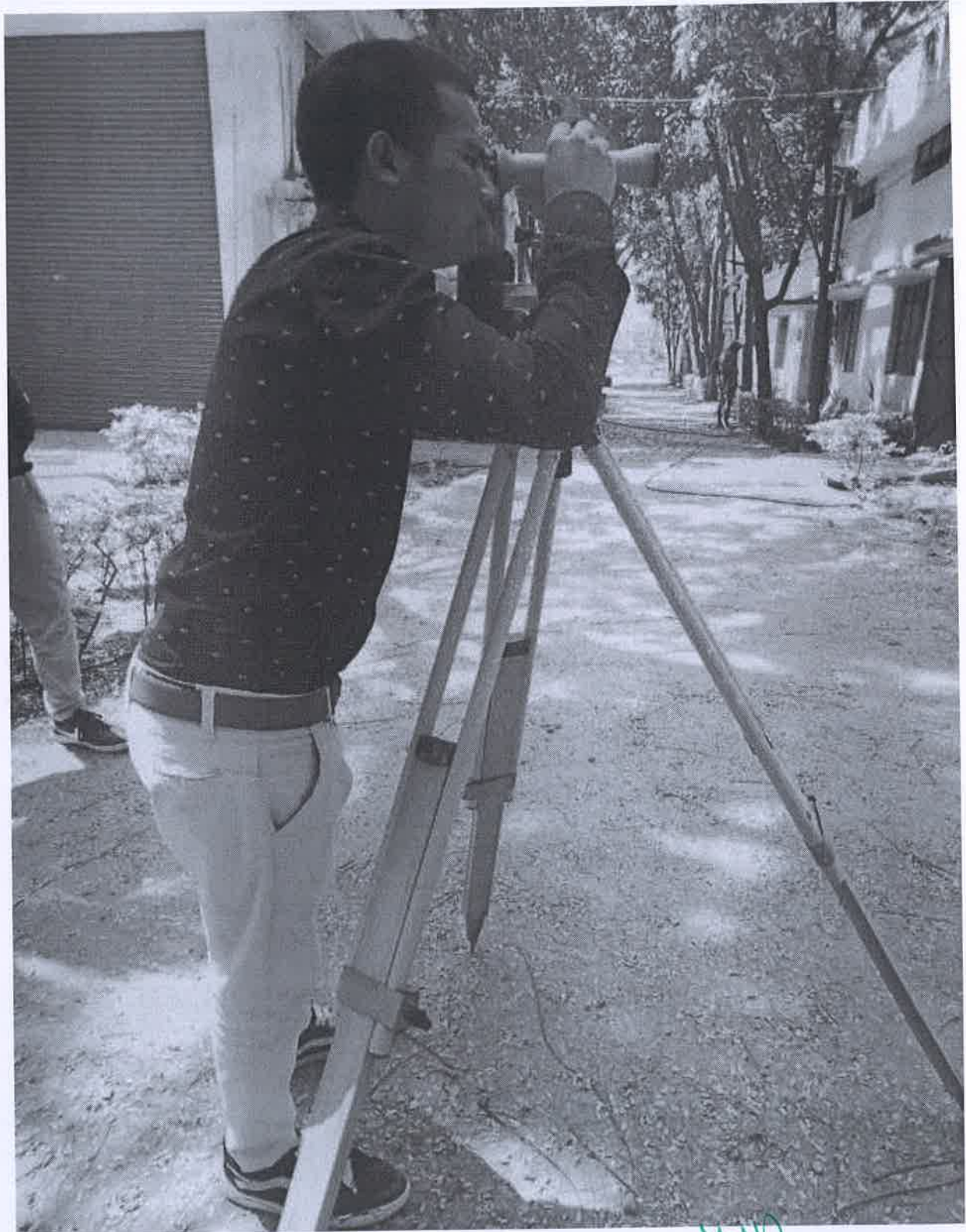
*K. S. Srinivasan*  
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SURVEYING LABORATORY

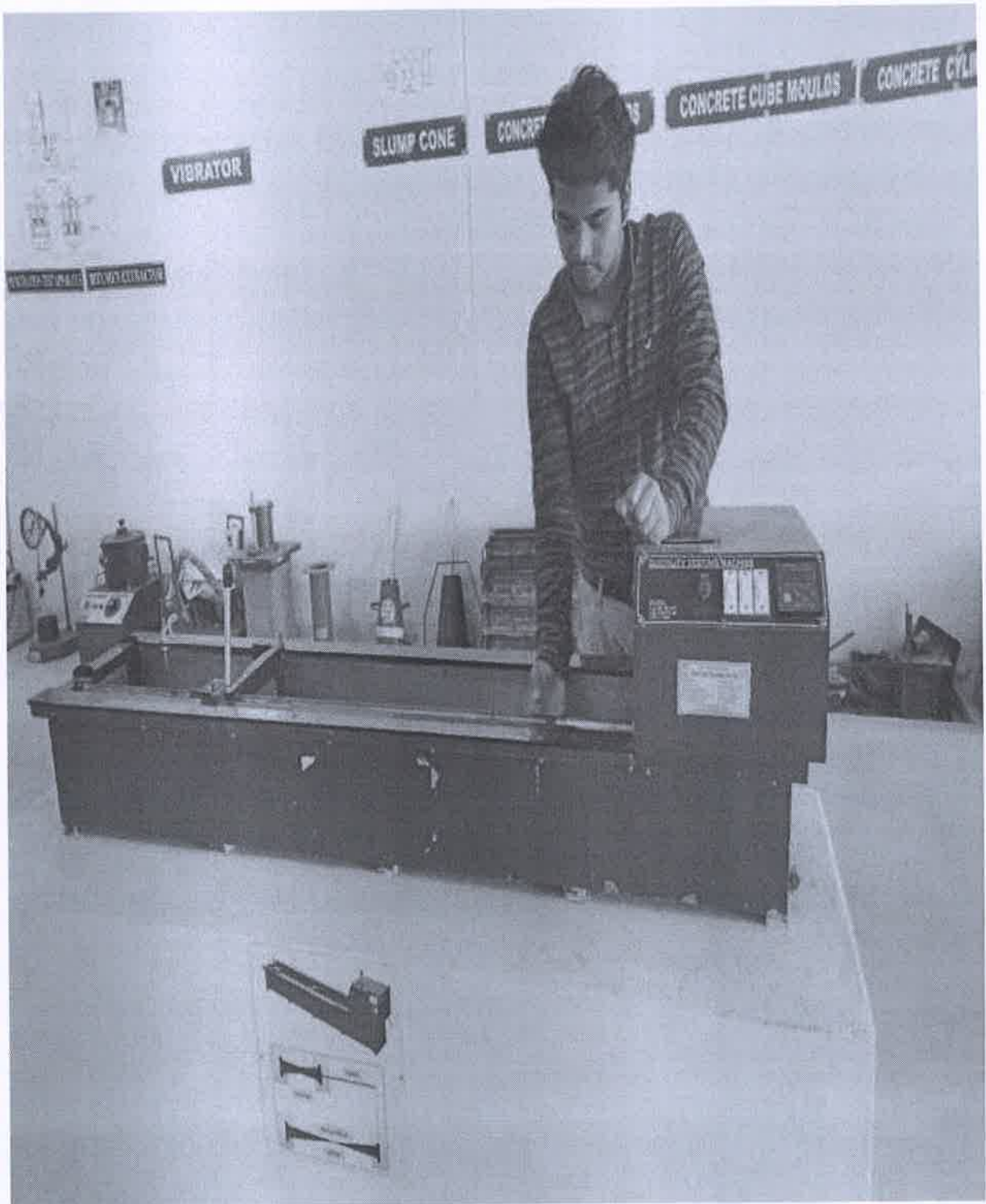
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HIGHWAY ENGINEERING LABORATORY

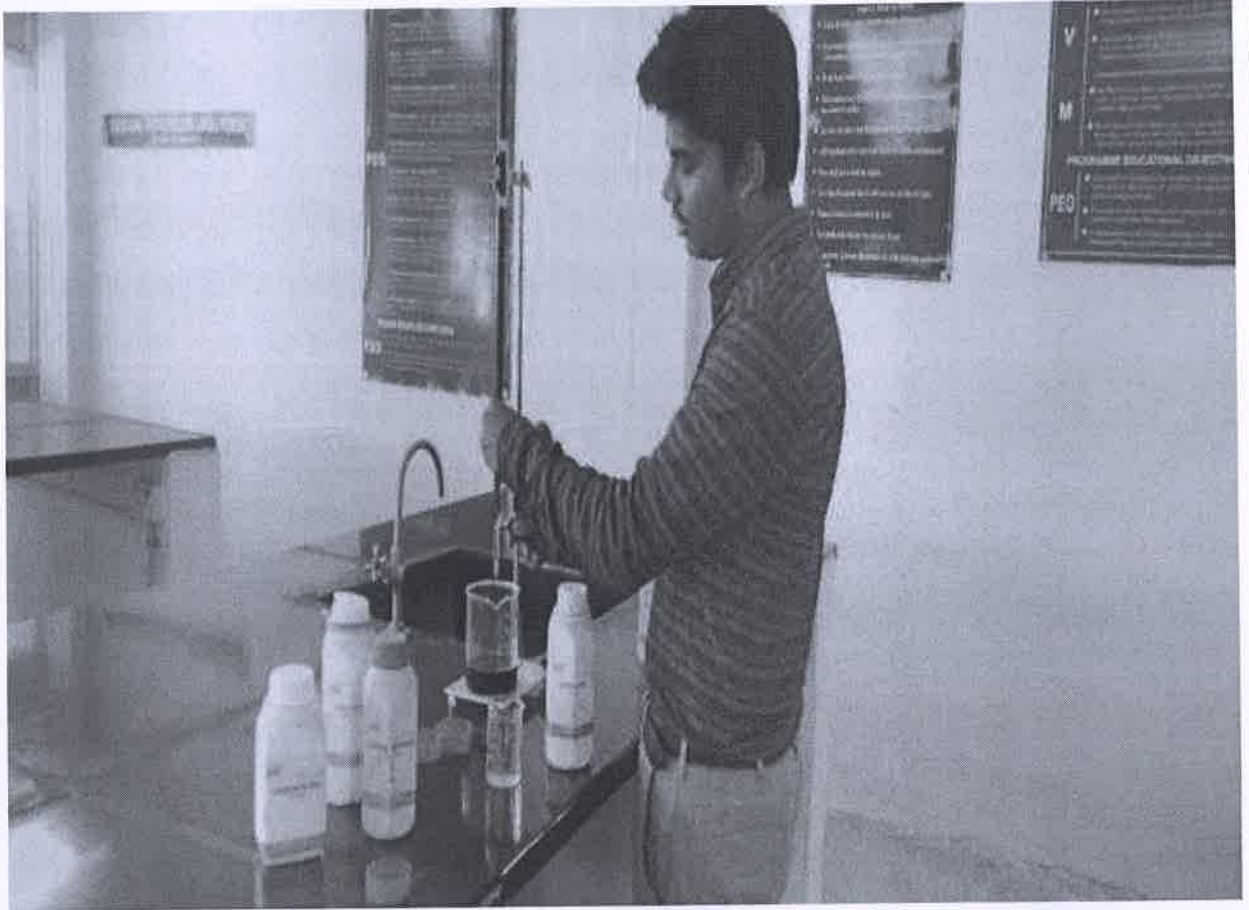
*[Signature]*  
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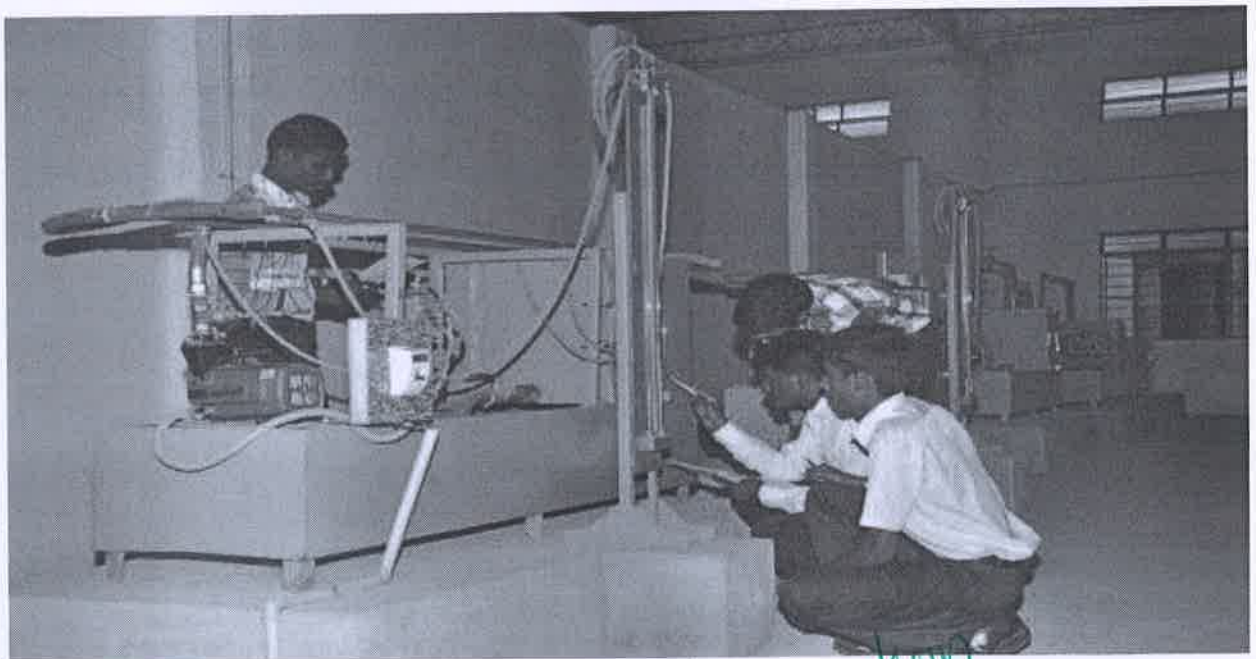
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WATER AND WASTE WATER ANALYSIS LABORATORY



HYDRAULIC ENGINEERING LABORATORY

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## DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

S.NO	SEMESTER	COURSE CODE	SUBJECT CODE	SUBJECT NAME
1	I	C106	GE3151	Problem Solving and Python Programming Laboratory
2	II	C206	CS3251	Programming in C Laboratory
3	III	C306	CS3311	Data Structures Laboratory
4		C307	CS3381	Object Oriented Programming Laboratory
5		C308	CS3361	Data Science Laboratory
6		C309	GE3361	Professional Development
7	IV	C408	CS3461	Operating Systems Laboratory
8		C409	CS3481	Database Management Systems Laboratory
9	V	C507	EC8681	Microprocessors and Microcontrollers Laboratory
10		C508	CS8582	Object Oriented Analysis and Design Laboratory
11		C509	CS8581	Networks Laboratory
12	VI	C606	CS8661	Internet Programming Laboratory
13		C607	CS8662	Mobile Application Development Laboratory
14	VII	C706	CS8711	Cloud Computing Laboratory
15		C707	IT8761	Security Laboratory

  
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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

S.No	LAB NAME	LIST OF EXPERIMENTS	BATCH SIZE (STUDENTS)	REMARKS
1	<b>Data Structures Laboratory</b>	1. Array implementation of Stack, Queue and Circular Queue ADTs 2. Implementation of Singly Linked List 3. Linked list implementation of Stack and Linear Queue ADTs 4. Implementation of Polynomial Manipulation using Linked list 5. Implementation of Evaluating Postfix Expressions, Infix to Postfix conversion 6. Implementation of Binary Search Trees 7. Implementation of AVL Trees 8. Implementation of Heaps using Priority Queues 9. Implementation of Dijkstra's Algorithm 10. Implementation of Prim's Algorithm 11. Implementation of Linear Search and Binary Search 12. Implementation of Insertion Sort and Selection Sort 13. Implementation of Merge Sort 14. Implementation of Open Addressing (Linear Probing and Quadratic Probing)	7 BATCH (6 STUDENTS/ BATCH) & 2 CYCLES	

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2	<b>Object Oriented Programming Laboratory</b>	<p>1. Solve problems by using sequential search, binary search, and quadratic sorting algorithms (selection, insertion)</p> <p>2. Develop stack and queue data structures using classes and objects.</p> <p>3. Develop a java application with an Employee class with Emp_name, Emp_id, Address, Mail_id, Mobile_no as members. Inherit the classes, Programmer, Assistant Professor, Associate Professor and Professor from employee class. Add Basic Pay (BP) as the member of all the inherited classes with 97% of BP as DA, 10 % of BP as HRA, 12% of BP as PF, 0.1% of BP for staff club funds. Generate pay slips for the employees with their gross and net salary.</p> <p>4. Write a Java Program to create an abstract class named Shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape.</p>	7 BATCH (6 STUDENTS/ BATCH) & 2 CYCLES	
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Each one of the classes contains only the method `printArea()` that prints the area of the given shape.

5. Solve the above problem using an interface.

6. Implement exception handling and creation of user defined exceptions.

7. Write a java program that implements a multi-threaded application that has three threads. First thread generates a random integer every 1 second and if the value is even, the second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of the cube of the number.

8. Write a program to perform file operations.

9. Develop applications to demonstrate the features of generics classes.

10. Develop applications using JavaFX controls, layouts and menus.

11. Develop a mini project for any application using Java concepts.

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3	<b>DATA SCIENCE LABORATORY</b>	<p>1.Download, install and explore the features of NumPy, SciPy, Jupyter, Statsmodels and Pandas packages.</p> <p>2.Working with Numpy arrays</p> <p>3.Working with Pandas data frames</p> <p>4.Reading data from text files, Excel and the web and exploring various commands for doing descriptive analytics on the Iris data set.</p> <p>5. Use the diabetes data set from UCI and Pima Indians Diabetes data set for performing the following:</p> <p>a. Univariate analysis: Frequency, Mean, Median, Mode, Variance, Standard Deviation, Skewness and Kurtosis.</p> <p>b. Bivariate analysis: Linear and logistic regression modeling</p> <p>c. Multiple Regression analysis</p> <p>d. Also compare the results of the above analysis for the two data sets.</p> <p>6. Apply and explore various plotting functions on UCI data sets.</p> <p>a. Normal curves</p> <p>b. Density and contour plots</p> <p>c. Correlation and scatter plots</p> <p>d. Histograms</p> <p>e. Three dimensional plotting</p> <p>7. Visualizing Geographic Data with Basemap</p>	7 BATCH (6STUDENT S/ BATCH) & 2 CYCLES	
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4	Professional Development	<p>MS WORD: Create and format a document Working with tables Working with Bullets and Lists Working with styles, shapes, smart art, charts Inserting objects, charts and importing objects from other office tools Creating and Using document templates Inserting equations, symbols and special characters Working with Table of contents and References, citations Insert and review comments Create bookmarks, hyperlinks, endnotes footnote Viewing document in different modes Working with document protection and security Inspect document for accessibility</p> <p>MSEXCEL: Create worksheets, insert and format data Work with different types of data: text, currency, date, numeric etc. Split, validate, consolidate, Convert data Sort and filter data Perform calculations and use functions: (Statistical, Logical, Mathematical, date, Time etc.,) Work with Lookup and reference formulae Create and Work with different types of charts Use pivot tables to summarize and analyse data Perform data analysis using own formulae and functions Combine data from multiple worksheets using own formulae and built-in functions to</p>	7 BATCH (6STUDENT S/ BATCH) & 2 CYCLES	
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		<p>generate results Export data and sheets to other file formats Working with macros Protecting data and Securing the workbook MS POWERPOINT: Select slide templates, layout and themes Formatting slide content and using bullets and numbering Insert and format images, smart art, tables, charts Using Slide master, notes and handout master Working with animation and transitions Organize and Group slides Import or create and use media objects: audio, video, animation Perform slideshow recording and Record narration and create presentable videos</p>		
5	<p style="text-align: center;"><b>Operating Systems Laboratory</b></p>	<p>1. Installation of windows operating system 2. Illustrate UNIX commands and Shell Programming 3. Process Management using System Calls : Fork, Exit, Getpid, Wait, Close. 4. Write C programs to implement the various CPU Scheduling Algorithms 5. Illustrate the inter process communication strategy 6. Implement mutual exclusion by Semaphore 7. Write C programs to avoid Deadlock using Banker's Algorithm 8. Write a C program to</p>	<p>7 BATCH (6STUDENT S/ BATCH) &amp; 2 CYCLES</p>	<p style="text-align: right;"><i>[Signature]</i> <b>Principal</b> J.K.K. Munirajah College of Technology (Autonomous) T.N. Palayam, Gobi (Tk), Erode (Dt) - 638 506.</p>




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		<p>Implement Deadlock Detection Algorithm</p> <p>9. Write C program to implement Threading</p> <p>10. Implement the paging Technique using C program</p> <p>11. Write C programs to implement the following Memory Allocation Methods First Fit      b. Worst Fit      c. Best Fit</p> <p>12. Write C programs to implement the various Page Replacement Algorithms</p> <p>13. Write C programs to Implement the various File Organization Techniques</p> <p>14. Implement the following File Allocation Strategies using C programs a. Sequential      b. Indexed c. Linked</p> <p>15. Write C programs for the implementation of various disk scheduling algorithms</p> <p>16. Install any guest operating system like Linux using VMware.</p>		
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6	<p align="center"><b>DATABASE MANAGEMENT SYSTEMS LABORATORY</b></p>	<ol style="list-style-type: none"> <li>1. Create a database table, add constraints (primary key, unique, check, Not null), insert rows, update and delete rows using SQL DDL and DML commands.</li> <li>2. Create a set of tables, add foreign key constraints and incorporate referential integrity.</li> <li>3. Query the database tables using different 'where' clause conditions and also implement aggregate functions.</li> <li>4. Query the database tables and explore sub queries and simple join operations.</li> <li>5. Query the database tables and explore natural, equi and outer joins.</li> <li>6. Write user defined functions and stored procedures in SQL.</li> <li>7. Execute complex transactions and realize DCL and TCL commands.</li> <li>8. Write SQL Triggers for insert, delete, and update operations in a database table.</li> <li>9. Create View and index for database tables with a large number of records.</li> <li>10. Create an XML database and validate it using XML schema.</li> <li>11. Create Document, column and graph based data using NOSQL database tools.</li> <li>12. Develop a simple GUI based database application and incorporate all the above-mentioned features</li> <li>13. Case Study using any of the real life database applications from the following list             <ol style="list-style-type: none"> <li>a) Inventory Management for a EMart Grocery Shop</li> <li>b) Society Financial</li> </ol> </li> </ol>	<p>6 BATCH (6STUDENT S/ BATCH) &amp; 2 CYCLES</p>	<p align="right"><i>Xoem</i> <b>Principal</b></p>
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		<p>Management</p> <p>c) Cop Friendly App – Eseva</p> <p>d) Property Management – eMall</p> <p>e) Star Small and Medium Banking and Finance</p> <ul style="list-style-type: none"> <li>● Build Entity Model diagram. The diagram should align with the business and functional goals stated in the application.</li> <li>● Apply Normalization rules in designing the tables in scope.</li> <li>● Prepared applicable views, triggers (for auditing purposes), functions for enabling enterprise grade features.</li> <li>● Build PL SQL / Stored Procedures for Complex Functionalities, ex EOD Batch Processing for calculating the EMI for Gold Loan for each eligible Customer.</li> </ul>		
7	Microprocessors and Microcontrollers Laboratory	<p><b>8086 Programs using kits and MASM</b></p> <ol style="list-style-type: none"> <li>1.Basic arithmetic and Logical operations</li> <li>2.Move a data block without overlap</li> <li>3.Code conversion, decimal arithmetic and Matrix operations.</li> <li>4.Floating point operations, string manipulations, sorting and searching</li> <li>5.Password checking, Print RAM size and system date</li> <li>6.Counters and Time Delay</li> </ol> <p><b>Peripherals and Interfacing Experiments</b></p> <ol style="list-style-type: none"> <li>7.Traffic light controller</li> <li>8.Stepper motor control</li> </ol>	5 BATCH (5STUDENTS/ BATCH) & 2 CYCLES	

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		<p>9. Digital clock 10. Key board and Display 11. Printer status 12. Serial interface and Parallel interface 13. A/D and D/A interface and Waveform Generation</p> <p><b>8051 Experiments using kits and MASM</b></p> <p>14. Basic arithmetic and Logical operations 15. Square and Cube program, Find 2's complement of a number 16. Unpacked BCD to ASCII</p>		
8	OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY	<p>1. Identify a software system that needs to be developed.</p> <p>2. Document the Software Requirements Specification (SRS) for the identified system.</p> <p>3. Identify use cases and develop the Use Case model.</p> <p>4. Identify the conceptual classes and develop a Domain Model and also derive a Class Diagram from that.</p> <p>5. Using the identified scenarios, find the interaction between objects and represent them using UML Sequence and Collaboration Diagrams</p> <p>6. Draw relevant State Chart and Activity Diagrams for the same system.</p> <p>7. Implement the system as per the detailed design</p> <p>8. Test the software system for all the scenarios identified as per the usecase diagram</p>	5 BATCH (5STUDENTS/ BATCH) & 2 CYCLES	 Principal



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		<p>9.Improve the reusability and maintainability of the software system by applying appropriate design patterns.</p> <p>10.Implement the modified system and test it for various scenarios.</p>		
9	NETWORKS LABORATORY	<p>1.Learn to use commands like tcpdump, netstat, ifconfig, nslookup and traceroute. Capture ping and traceroute PDUs using a network protocol analyzer and examine.</p> <p>2.Write a HTTP web client program to download a web page using TCP sockets.</p> <p>3.Applications using TCP sockets like:</p> <ul style="list-style-type: none"> <li>•Echo client and echo server</li> <li>•Chat</li> <li>•File Transfer</li> </ul> <p>4.Simulation of DNS using UDP sockets.</p> <p>5.Write a code simulating ARP /RARP protocols.</p> <p>6.Study of Network simulator (NS) and Simulation of Congestion Control Algorithms using NS.</p> <p>7.Study of TCP/UDP performance using Simulation tool.</p> <p>8.Simulation of Distance Vector/ Link State Routing algorithm.</p> <p>9.Performance evaluation of Routing protocols using Simulation tool.</p>	5 BATCH (5STUDENTS/ BATCH) & 2 CYCLES	

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		10.Simulation of error correction code (like CRC).		
10	Internet Programming Laboratory	<p>1.Create a web page with the following using HTML</p> <ol style="list-style-type: none"><li>To embed a map in a web page</li><li>To fix the hot spots in that map</li><li>Show all the related information when the hot spots are clicked.</li></ol> <p>2.Create a web page with the following.</p> <ol style="list-style-type: none"><li>Cascading style sheets.</li><li>Embedded style sheets.</li><li>Inline style sheets. Use our college information for the web pages.</li></ol> <p>3. Validate the Registration, user login, user profile and payment by credit card pages using JavaScript.</p> <p>4. Write programs in Java using Servlets:</p> <ol style="list-style-type: none"><li>To invoke servlets from HTML forms</li><li>Session tracking using hidden form fields and Session tracking for a hit count</li></ol> <p>5. Write programs in Java to create three-tier applications using servlets for conducting on- line examination for displaying student mark list. Assume that student information is available in a database which has been stored in a database server.</p> <p>6. Install TOMCAT web server. Convert the static web pages of programs into dynamic web pages using servlets (or JSP)</p>	5 BATCH (5STUDENTS/ BATCH) & 2 CYCLES	

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		<p>and cookies. Hint: Users information (user id, password, credit card number) would be stored in web.xml. Each user should have a separate Shopping Cart.</p> <p>7.Redo the previous task using JSP by converting the static web pages into dynamic web pages. Create a database with user information and books information. The books catalogue should be dynamically loaded from the database.</p> <p>8.Create and save an XML document at the server, which contains 10 users Information. Write a Program, which takes user Id as an input and returns the User details by taking the user information from the XML document</p> <p>9.i.Validate the form using PHP regular expression. ii.PHP stores a form data into database.</p> <p>10.Write a web service for finding what people think by asking 500 people_s opinion for any consumer product.</p>		
11	MOBILE APPLICATION DEVELOPMENT LABORATORY	<p>1.Develop an application that uses GUI components, Font and Colours</p> <p>2.Develop an application that uses Layout Managers and event listeners.</p> <p>3. Write an application that draws basic graphical primitives on the screen.</p> <p>4.Develop an application that makes use of databases.</p> <p>5.Develop an application that makes use of Notification Manager</p> <p>6.Implement an application that uses Multi-threading</p> <p>7.Develop a native application</p>	5 BATCH (SSTUDENTS/ BATCH) & 2 CYCLES	<p align="right"><i>[Signature]</i> <b>Principal</b></p>



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		<p>that uses GPS location information</p> <p>8. Implement an application that writes data to the SD card.</p> <p>9. Implement an application that creates an alert upon receiving a message</p> <p>10. Write a mobile application that makes use of RSS feed</p> <p>11. Develop a mobile application to send an email.</p> <p>12. Develop a Mobile application for simple needs (Mini Project)</p>		
12	PROFESSIONAL COMMUNICATION	<p><b>UNIT I</b> Introduction to Soft Skills-- Hard skills &amp; soft skills - employability and career Skills—Grooming as a professional with values—Time Management—General awareness of Current Affairs</p> <p><b>UNIT II</b> Self-Introduction-organizing the material - Introducing oneself to the audience – introducing the topic – answering questions – individual presentation practice— presenting the visuals effectively – 5 minute presentations</p> <p><b>UNIT III</b> Introduction to Group Discussion— Participating in group discussions – understanding group dynamics - brainstorming the topic -- questioning and clarifying –GD strategies- activities to improve GD skills</p> <p><b>UNIT IV</b> Interview etiquette – dress code – body language – attending job interviews– telephone/skype interview -one to one interview &amp;panel interview – FAQs related to job interviews</p> <p><b>UNIT V</b></p>	5 BATCH (5STUDENTS/ BATCH) & 2 CYCLES	<p style="text-align: center;"> <b>Principal</b></p> <p style="text-align: center;"><b>J.K.K.Munirajah College of Technology</b> (Autonomous) T.N. Palayam, Gobi (Tk), Erode (Dt) - 638 506.</p>



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		Recognizing differences between groups and teams-managing time-managing stress-networking professionally-respecting social protocols-understanding career management-developing a long-term career plan-making career changes		
13	Cloud Computing Laboratory	<ol style="list-style-type: none"> <li>1. Install Virtualbox/VMware Workstation with different flavours of linux or windows OS on top of windows7 or 8.</li> <li>2. Install a C compiler in the virtual machine created using virtual box and execute Simple Programs</li> <li>3. Install Google App Engine. Create hello world app and other simple web applications using python/java.</li> <li>4. Use GAE launcher to launch the web applications.</li> <li>5. Simulate a cloud scenario using CloudSim and run a scheduling algorithm that is not present in CloudSim.</li> <li>6. Find a procedure to transfer the files from one virtual machine to another virtual machine.</li> <li>7. Find a procedure to launch virtual machine using trystack (Online Openstack Demo Version)</li> <li>8. Install Hadoop single node cluster and run simple applications like wordcount.</li> </ol>	5 BATCH (4 STUDENTS/BATCH) & 2 CYCLES	
14	SECURITY LABORATORY	<ol style="list-style-type: none"> <li>1. Perform encryption, decryption using the following substitution techniques (i) Ceaser cipher, (ii) playfair cipher (iii) Hill Cipher (iv) Vigenere cipher</li> <li>2. Perform encryption and decryption using following transposition techniques (i) Rail fence (ii) row &amp; Column</li> </ol>		

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		<p>Transformation</p> <ol style="list-style-type: none"> <li>3. Apply DES algorithm for practical applications.</li> <li>4. Apply AES algorithm for practical applications.</li> <li>5. Implement RSA Algorithm using HTML and JavaScript</li> <li>6. Implement the Diffie-Hellman Key Exchange algorithm for a given problem.</li> <li>7. Calculate the message digest of a text using the SHA-1 algorithm.</li> <li>8. Implement the SIGNATURE SCHEME - Digital Signature Standard.</li> <li>9. Demonstrate intrusion detection system (ids) using any tool eg. Snort or any other s/w.</li> <li>10. Automated Attack and Penetration Tools</li> <li>Exploring N-Stalker, a Vulnerability Assessment Tool</li> <li>11. Defeating Malware             <ol style="list-style-type: none"> <li>i) Building Trojans</li> <li>ii) Rootkit Hunter</li> </ol> </li> </ol>	<p>5 BATCH (4 STUDENTS/ BATCH) &amp; 2 CYCLES</p>	
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## PHOTO GALLERY



CLOUD COMPUTING LABORATORY

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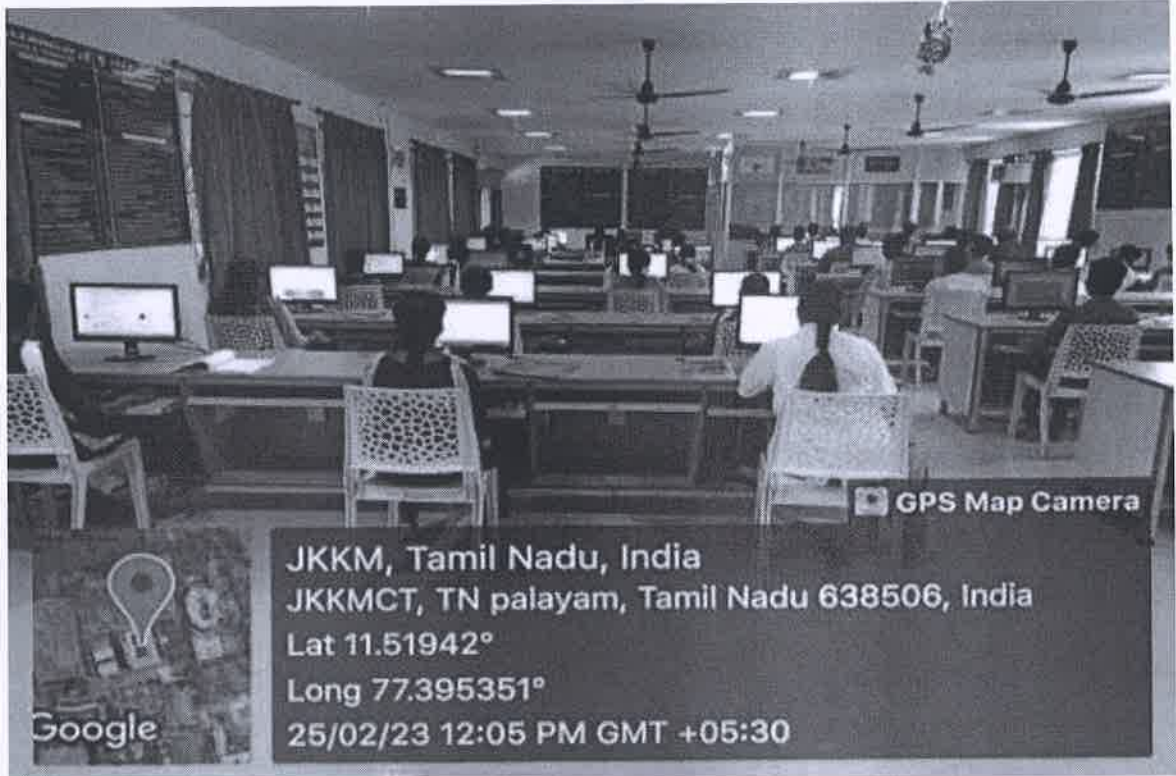


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SECURITY LABORATORY



INTERNET PROGRAMMING LABORATORY

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## LIST OF LABORATORY COURSES ACADEMIC YEAR 2022-23

### DEPARTMENT OF INFORMATION TECHNOLOGY

S.NO	SEMESTER	COURSE CODE	SUBJECT CODE	SUBJECTNAME
1	I	C106	GE3151	Problem Solving and Python Programming Laboratory
2	II	C206	CS3251	Programming in C Laboratory
3	III	C306	CD3281	Data Structures And Algorithms Laboratory
4		C307	CS3381	Object Oriented Programming Laboratory
5		C308	CS3361	Data Science Laboratory
6		C309	GE3361	Professional Development
7	IV	C408	CS3461	Operating Systems Laboratory
8		C409	CS3481	Database Management Systems Laboratory
9	V	C507	EC8681	Microprocessors and Microcontrollers Laboratory
10		C508	CS8581	Networks Laboratory
11		C509	IT8511	Web Technology Laboratory
12		C606	CS8662	Mobile Application Development Laboratory
13		C607	CS8582	Object Oriented Analysis and Design Laboratory
14		C608	IT8611	Mini Project
15	VI	C609	HS8581	Professional Communication
16	VII	C706	IT8711	FOSS and Cloud Computing Laboratory
17		C707	IT8761	Security Laboratory
18	VIII	C803	CS8811	Project Work

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S.No	LAB NAME	LIST OF EXPERIMENTS	BATCH SIZE (STUDENTS)	REMARKS
1	DATA STRUCTURES LABORATORY	1.Array implementation of Stack, Queue and Circular Queue ADTs. 2.Implementation of Singly Linked List 3.LinkedList implementation of Stack and Linear Queue ADTs 4.Implementation of Polynomial Manipulation using Linked list 5.Implementation of Evaluating Postfix Expressions, Infix to Postfix conversion 6.Implementation of Binary Search Trees 7.Implementation of AVL Trees 8.Implementation of Heaps using Priority Queues 9.Implementation of Dijkstra's Algorithm 10.Implementation of Prim's Algorithm 11.Implementation of Linear Search and Binary Search 12.Implementation of Insertion Sort and Selection Sort 13.Implementation of Merge Sort 14.Implementation of Open Addressing (Linear Probing and Quadratic Probing)	7 BATCH (6STUDENT S/ BATCH) & 2 CYCLES	

		B1.Solve problems by using sequential search, binary search, and quadratic sorting algorithms (selection, insertion)	 Principal	
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2	<b>OBJECT ORIENTED PROGRAMMING LABORATORY</b>	<p>2. Develop stack and queue data structures using classes and objects.</p> <p>3. Develop a java application with an Employee class with Emp_name, Emp_id, Address, Mail_id, Mobile_no as members. Inherit the classes, Programmer, Assistant Professor, Associate Professor and Professor from employee class. Add Basic Pay (BP) as the member of all the inherited classes with 97% of BP as DA, 10 % of BP as HRA, 12% of BP as PF, 0.1% of BP for staff club funds. Generate pay slips for the employees with their gross and net salary.</p> <p>4. Write a Java Program to create an abstract class named Shape that contains two integers and an empty method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contains only the method printArea( ) that prints the area of the given shape.</p> <p>5. Solve the above problem using an interface.</p> <p>6. Implement exception handling and creation of user defined exceptions.</p> <p>7. Write a java program that implements a multi-threaded application that has three</p>	7 BATCH (6STUDENT S/ BATCH) & 2 CYCLES	
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		<p>threads. First thread generates a random integer every 1 second and if the value is even, the second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of the cube of the number.</p> <p>8. Write a program to perform file operations.</p> <p>9. Develop applications to demonstrate the features of generics classes.</p> <p>10. Develop applications using JavaFX controls, layouts and menus.</p> <p>11. Develop a mini project for any application using Java concepts.</p>		
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3	<b>DATA SCIENCE LABORATORY</b>	<p>1. Download, install and explore the features of NumPy, SciPy, Jupyter, Statsmodels and Pandas packages.</p> <p>2. Working with Numpy arrays</p> <p>3. Working with Pandas data frames</p> <p>4. Reading data from text files, Excel and the web and exploring various commands for doing descriptive analytics on the Iris data set.</p> <p>5. Use the diabetes data set from UCI and Pima Indians Diabetes data set for performing the following:</p> <p>a. Univariate analysis: Frequency, Mean, Median, Mode, Variance, Standard Deviation, Skewness and Kurtosis.</p>	7 BATCH (6 STUDENTS) BATCH & 2 CYCLES	
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		<p>b. Bivariate analysis: Linear and logistic regression modeling c. Multiple Regression analysis d. Also compare the results of the above analysis for the two data sets.</p> <p>6. Apply and explore various plotting functions on UCI data sets. a. Normal curves b. Density and contour plots c. Correlation and scatter plots d. Histograms e. Three dimensional plotting 7. Visualizing Geographic Data with Basemap</p>		
4	<b>PROFESSIONAL DEVELOPMENT</b>	<p>MS WORD: Create and format a document Working with tables Working with Bullets and Lists Working with styles, shapes, smart art, charts Inserting objects, charts and importing objects from other office tools Creating and Using document templates Inserting equations, symbols and special characters Working with Table of contents and References, citations Insert and review comments Create bookmarks, hyperlinks, endnotes footnote Viewing document in different modes Working with document protection and security Inspect document for accessibility</p> <p>MSEXCEL: Create worksheets, insert and format data Work with different types of data: text, currency, date, numeric etc. Split, validate, consolidate, Convert data</p>	7 BATCH (6 STUDENTS/ BATCH) & 2 CYCLES	

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		<p>Sort and filter data Perform calculations and use functions: (Statistical, Logical, Mathematical, date, Time etc.,) Work with Lookup and reference formulae Create and Work with different types of charts Use pivot tables to summarize and analyse data Perform data analysis using own formulae and functions Combine data from multiple worksheets using own formulae and built-in functions to generate results Export data and sheets to other file formats Working with macros Protecting data and Securing the workbook MS POWERPOINT: Select slide templates, layout and themes Formatting slide content and using bullets and numbering Insert and format images, smart art, tables, charts Using Slide master, notes and handout master Working with animation and transitions Organize and Group slides Import or create and use media objects: audio, video, animation Perform slideshow recording and Record narration and create presentable videos</p>		
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4	<b>OPERATING SYSTEMS LABORATORY</b>	<ol style="list-style-type: none"><li>1. Installation of windows operating system</li><li>2. Illustrate UNIX commands and Shell Programming</li><li>3. Process Management using System Calls : Fork, Exit, Getpid, Wait, Close.</li><li>4. Write C programs to implement the various CPU Scheduling Algorithms</li><li>5. Illustrate the inter process communication strategy</li><li>6. Implement mutual exclusion by Semaphore</li><li>7. Write C programs to avoid Deadlock using Banker's Algorithm</li><li>8. Write a C program to Implement Deadlock Detection Algorithm</li><li>9. Write C program to implement Threading</li><li>10. Implement the paging Technique using C program</li><li>11. Write C programs to implement the following Memory Allocation Methods First Fit      b. Worst Fit      c. Best Fit</li><li>12. Write C programs to implement the various Page Replacement Algorithms</li><li>13. Write C programs to Implement the various File Organization Techniques</li></ol>	6 BATCH (6STUDENT S/ BATCH) & 2 CYCLES	
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		<p>14. Implement the following File Allocation Strategies using C programs</p> <p>a. Sequential    b. Indexed</p> <p>c. Linked</p> <p>15. Write C programs for the implementation of various disk scheduling algorithms</p> <p>16. Install any guest operating system like Linux using VMware.</p>		
5.	<p><b>DATABASE MANAGEMENT SYSTEMS LABORATORY</b></p>	<ol style="list-style-type: none"> <li>1. Create a database table, add constraints (primary key, unique, check, Not null), insert rows, update and delete rows using SQL DDL and DML commands.</li> <li>2. Create a set of tables, add foreign key constraints and incorporate referential integrity.</li> <li>3. Query the database tables using different 'where' clause conditions and also implement aggregate functions.</li> <li>4. Query the database tables and explore sub queries and simple join operations.</li> <li>5. Query the database tables and explore natural, equi and outer joins.</li> <li>6. Write user defined functions and stored procedures in SQL.</li> <li>7. Execute complex transactions and realize DCL and TCL commands.</li> <li>8. Write SQL Triggers for insert, delete, and update operations in a database table.</li> <li>9. Create View and index for database tables with a large number of records.</li> <li>10. Create an XML database</li> </ol>	<p>6 BATCH (6STUDENTS/ BATCH) &amp; 2 CYCLES</p>	

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		<p>and validate it using XML schema.</p> <p>11. Create Document, column and graph based data using NOSQL database tools.</p> <p>12. Develop a simple GUI based database application and incorporate all the above-mentioned features</p> <p>13. Case Study using any of the real life database applications from the following list</p> <p>a) Inventory Management for a EMart Grocery Shop</p> <p>b) Society Financial Management</p> <p>c) Cop Friendly App – Eseva</p> <p>d) Property Management – eMall</p> <p>e) Star Small and Medium Banking and Finance</p> <ul style="list-style-type: none"> <li>● Build Entity Model diagram. The diagram should align with the business and functional goals stated in the application.</li> <li>● Apply Normalization rules in designing the tables in scope.</li> <li>● Prepared applicable views, triggers (for auditing purposes), functions for enabling enterprise grade features.</li> <li>● Build PL SQL / Stored Procedures for Complex Functionalities, ex EOD Batch Processing for calculating the EMI for Gold Loan for each eligible Customer.</li> </ul>		
		<p><b>8086 Programs using kits and MASM</b></p> <p>1. Basic arithmetic and Logical operations</p> <p>2. Move a data block with</p>	 <b>Principal</b>	<b>J.K.K. Munirajah College of Technology</b> <b>(Autonomous)</b> <b>T.N.Palayam, Gobi (Tk),</b> <b>Erode (Dt) - 638 506.</b>



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6.	<b>MICROPROCESSORS AND MICROCONTROLLERS LABORATORY</b>	<p>overlap 3.Code conversion, decimal arithmetic and Matrix operations. 4.Floating point operations, string manipulations, sorting and searching 5.Password checking, Print RAM size and system date 6.Counters and Time Delay</p> <p><b>Peripherals and Interfacing Experiments</b></p> <p>7.Traffic light controller 8.Stepper motor control 9.Digital clock 10.Key board and Display 11.Printer status 12.Serial interface and Parallel interface 13.A/D and D/A interface and Waveform Generation</p> <p><b>8051 Experiments using kits and MASM</b></p> <p>14.Basic arithmetic and Logical operations 15.Square and Cube program, Find 2's complement of a number 16.Unpacked BCD to ASCII</p>	5 BATCH (5STUDENTS/ BATCH) & 2 CYCLES	
7.	<b>WEB TECHNOLOGY LABORATORY</b>	<p>1.Create a web page with the following using HTML. i)To embed an image map in a web page. ii)To fix the hot spots. iii)Show all the related information when the hot spots are clicked 2.Create a web page with all types of Cascading style sheets. 3.Client Side Scripts for Validating Web Form Controls using DHTML.</p>	5 BATCH (5STUDENTS/ BATCH) & 2 CYCLES	<p><i>[Signature]</i> <b>Principal</b> J.K.K.Munirajah College of Technology (Autonomous) T.N.Palayam, Gobi (Tk), Erode (Dt) - 638 506.</p>



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		<p>4. Installation of Apache Tomcat web server.</p> <p>5. Write programs in Java using Servlets: To invoke servlets from HTML forms. Session Tracking.</p> <p>6. Write programs in Java to create three-tier applications using JSP and Databases</p> <ul style="list-style-type: none"> <li>• For conducting on-line examination.</li> <li>• For displaying student mark list. Assume that student information is available in a database which has been stored in a database server.</li> </ul> <p>7. Programs using XML – Schema – XSLT/XSL.</p> <p>8. Programs using DOM and SAX parsers.</p> <p>9. Programs using AJAX.</p> <p>10. Consider a case where we have two web Services- an airline service and a travel agent and the travel agent is searching for an airline. Implement this scenario using Web Services and Data base.</p>		
8	<b>NETWORKS LABORATORY</b>	<p>1. Learn to use commands like tcpdump, netstat, ifconfig, nslookup and traceroute. Capture ping and traceroute PDUs using a network protocol analyzer and examine.</p> <p>2. Write a HTTP web client program to download a web page using TCP sockets.</p> <p>3. Applications using TCP sockets like:</p> <ul style="list-style-type: none"> <li>• Echo client and echo server</li> <li>• Chat</li> <li>• File Transfer</li> </ul> <p>4. Simulation of DNS using</p>	<p>5 BATCH (5STUDENTS)</p> <p style="text-align: center;"><i>[Signature]</i> <b>Principal</b></p>	



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		<p>UDP sockets.</p> <p>5. Write a code simulating ARP /RARP protocols.</p> <p>6. Study of Network simulator (NS) and Simulation of Congestion Control Algorithms using NS.</p> <p>7. Study of TCP/UDP performance using Simulation tool.</p> <p>8. Simulation of Distance Vector/ Link State Routing algorithm.</p> <p>9. Performance evaluation of Routing protocols using Simulation tool.</p> <p>10. Simulation of error correction code (like CRC).</p>	<p>BATCH) &amp; 2 CYCLES</p>	
<p>9</p>	<p><b>MOBILE APPLICATION DEVELOPMENT LABORATORY</b></p>	<p>1. Develop an application that uses GUI components, Font and Colours</p> <p>2. Develop an application that uses Layout Managers and event listeners.</p> <p>3. Write an application that draws basic graphical primitives on the screen.</p> <p>4. Develop an application that makes use of databases.</p> <p>5. Develop an application that makes use of Notification Manager</p> <p>6. Implement an application that uses Multi-threading</p> <p>7. Develop a native application that uses GPS location information</p> <p>8. Implement an application that writes data to the SD card.</p> <p>9. Implement an application that creates an alert upon receiving a message</p>	<p>5 BATCH (4 STUDENTS/ BATCH) &amp; 2 CYCLES</p>	<p> <b>Principal</b></p>



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		<p>10. Write a mobile application that makes use of RSS feed</p> <p>11. Develop a mobile application to send an email.</p> <p>12. Develop a Mobile application for simple needs (Mini Project)</p>		
10	<b>OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY</b>	<p>1. Identify a software system that needs to be developed.</p> <p>2. Document the Software Requirements Specification (SRS) for the identified system.</p> <p>3. Identify use cases and develop the Use Case model.</p> <p>4. Identify the conceptual classes and develop a Domain Model and also derive a Class Diagram from that.</p> <p>5. Using the identified scenarios, find the interaction between objects and represent them using UML Sequence and Collaboration Diagrams</p> <p>6. Draw relevant State Chart and Activity Diagrams for the same system.</p> <p>7. Implement the system as per the detailed design</p> <p>8. Test the software system for all the scenarios identified as per the usecase diagram</p> <p>9. Improve the reusability and maintainability of the software system by applying appropriate design patterns.</p> <p>10. Implement the modified system and test it for various scenarios</p>	5 BATCH (4 STUDENTS/ BATCH) & 2 CYCLES	

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11.	<b>PROFESSIONAL COMMUNICATION</b>	<p>UNIT I</p> <p>Introduction to Soft Skills-- Hard skills &amp; soft skills - employability and career Skills—Grooming as a professional with values—Time Management—General awareness of Current Affairs</p> <p>UNIT II</p> <p>Self-Introduction-organizing the material - Introducing oneself to the audience – introducing the topic – answering questions – individual presentation practice— presenting the visuals effectively – 5 minute presentations</p> <p>UNIT III</p> <p>Introduction to Group Discussion— Participating in group discussions – understanding group dynamics - brainstorming the topic -- questioning and clarifying –GD strategies- activities to improve GD skills</p> <p>UNIT IV</p> <p>Interview etiquette – dress code – body language – attending job interviews– telephone/skype interview -one to one interview &amp;panel interview – FAQs related to job interviews</p> <p>UNIT V</p> <p>Recognizing differences between groups and teams- managing time-managing stress- networking professionally- respecting social protocols-understanding career management-developing a long- term career plan-making career changes</p>	5 BATCH (4 STUDENTS/ BATCH) & 2 CYCLES	
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12.	<b>CLOUD COMPUTING LABORATORY</b>	<ol style="list-style-type: none"> <li>1. Install Virtualbox/VMware Workstation with different flavours of linux or windows OS on top of windows7 or 8.</li> <li>2. Install a C compiler in the virtual machine created using virtual box and execute Simple Programs</li> <li>3. Install Google App Engine. Create hello world app and other simple web applications using python/java.</li> <li>4. Use GAE launcher to launch the web applications.</li> <li>5. Simulate a cloud scenario using CloudSim and run a scheduling algorithm that is not present in CloudSim.</li> <li>6. Find a procedure to transfer the files from one virtual machine to another virtual machine.</li> <li>7. Find a procedure to launch virtual machine using trystack (Online Openstack Demo Version)</li> <li>8. Install Hadoop single node cluster and run simple applications like wordcount.</li> </ol>	3 BATCH (3 STUDENTS/ BATCH) & 2 CYCLES	
13.	<b>SECURITY LABORATORY</b>	<ol style="list-style-type: none"> <li>1. Perform encryption, decryption using the following substitution techniques (i) Ceaser cipher, (ii) playfair cipher iii) Hill Cipher iv) Vigenere cipher</li> <li>2. Perform encryption and decryption using following transposition techniques i) Rail fence ii) row &amp; Column Transformation</li> <li>3. Apply DES algorithm for practical applications.</li> <li>4. Apply AES algorithm for practical applications.</li> <li>5. Implement RSA Algorithm using HTML and JavaScript</li> <li>6. Implement the Diffie-Hellman Key Exchange algorithm for</li> </ol>	3 BATCH (3 STUDENTS/ BATCH) & 2 CYCLES	

  
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		<p>given problem.</p> <p>7. Calculate the message digest of a text using the SHA-1 algorithm.</p> <p>8. Implement the SIGNATURE SCHEME - Digital Signature Standard.</p> <p>9. Demonstrate intrusion detection system (ids) using any tool eg. Snort or any other s/w.</p> <p>10. Automated Attack and Penetration Tools Exploring N-Stalker, a Vulnerability Assessment Tool</p> <p>11. Defeating Malware i) Building Trojans ii) Rootkit Hunter</p>		
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## PHOTO GALLERY



OBJECT ORIENTED PROGRAMMING LABORATORY

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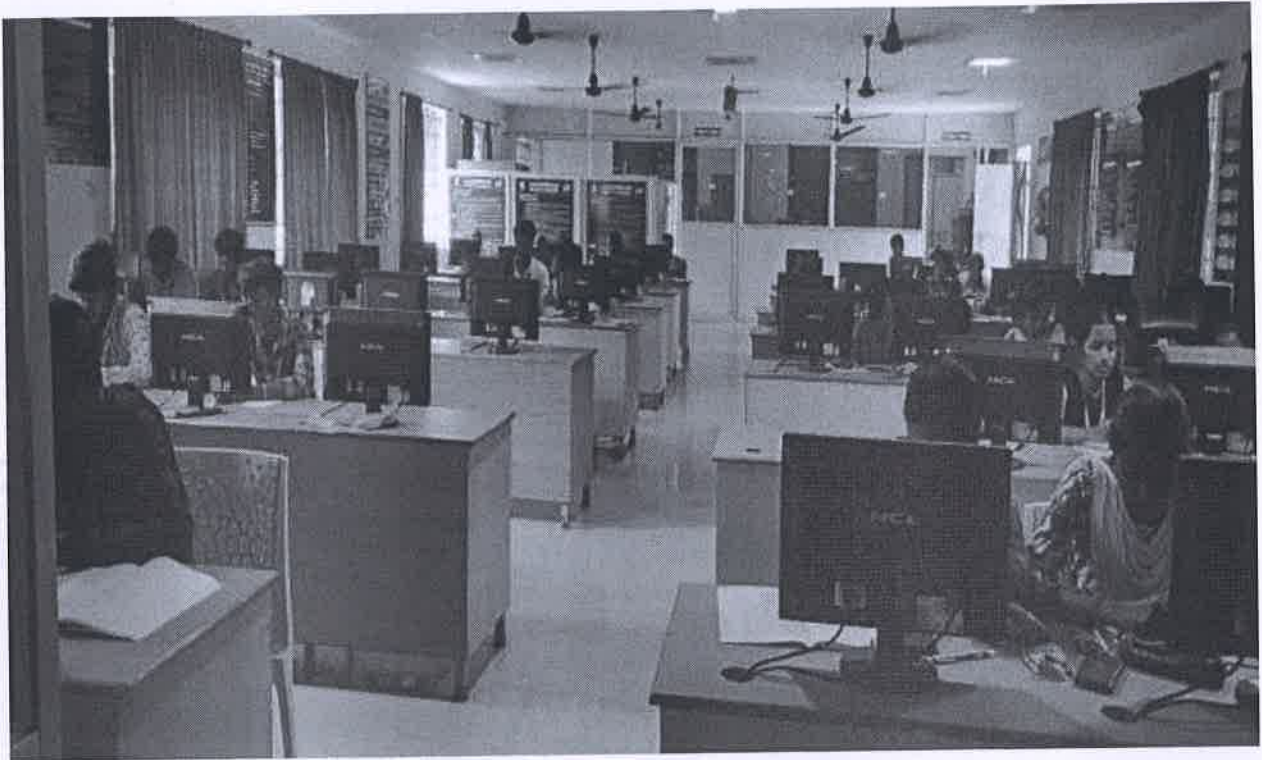


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**NETWORKS LABORATORY**

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**DEPARTMENT OF COMPUTER SCIENCE ENGINEERING M.E–**  
**COMPUER SCIENCE ENGINEERING**

**LIST OF LABORATORY COURSES**

**ACADEMIC YEAR 2022-23**

**MASTER OF ENGINEERING**

**DEPARTMENT OF COMPUTER SCIENCE ENGINEERING**

S.NO	SEMESTER	COURSE CODE	SUBJECT CODE	SUBJECT NAME
1	I	C108	CP4161	Advanced Data Structures and Algorithms Laboratory
2	II	C207	CP4211	Term Paper Writing and seminar
3		C208	CP4212	Software Engineering Laboratory
4	III	C305	CP4311	Project Work I
5	IV	C401	CP4411	Project Work II

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S.No	LAB NAME	LIST OF EXPERIMENTS	(STUDENTS)	REMARKS
1	<b>ADVANCED DATA STRUCTURES AND ALGORITHMS LABORATORY</b>	1: Implementation of recursive function for tree traversal and Fibonacci 2: Implementation of iteration function for tree traversal and Fibonacci 3: Implementation of Merge Sort and Quick Sort 4: Implementation of a Binary Search Tree 5: Red-Black Tree Implementation 6: Heap Implementation 7: Fibonacci Heap Implementation 8: Graph Traversals 9: Spanning Tree Implementation 10: Shortest Path Algorithms (Dijkstra's algorithm, Bellman Ford Algorithm) 11: Implementation of Matrix Chain Multiplication 12: Activity Selection and Huffman Coding Implementation	1 BATCH(2 STUDENTS/ BATCH) & 2 CYCLES	

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2	<b>TERM PAPER WRITING AND SEMINAR</b>	<ol style="list-style-type: none"> <li>1. Selecting a subject, narrowing the subject into a topic</li> <li>2. Stating an objective.</li> <li>3. Collecting the relevant bibliography (atleast 15 journal papers)</li> <li>4. Preparing a working outline.</li> <li>5. Studying the papers and understanding the authors contributions and critically analysing each paper.</li> <li>6. Preparing a working outline</li> <li>7. Linking the papers and preparing a draft of the paper.</li> <li>8. Preparing conclusions based on the reading of all the papers.</li> <li>9. Writing the Final Paper and giving final Presentation</li> </ol>	1 BATCH(2 STUDENTS /BATCH) & 2 CYCLES	
3	<b>SOFTWARE ENGINEERING LABORATORY</b>	<ol style="list-style-type: none"> <li>1. Write a Problem Statement to define a title of the project with bounded scope of project</li> <li>2. Select relevant process model to define activities and related task set for assigned project</li> <li>3. Prepare broad SRS (Software Requirement Specification) for the above selected projects</li> <li>4. Prepare USE Cases and Draw Use Case Diagram using modelling Tool</li> <li>5. Develop the activity diagram to represent flow from one activity to another for software development</li> <li>6. Develop data Designs using DFD Decision Table &amp; ER Diagram.</li> <li>7. Draw class diagram, sequence diagram, Collaboration Diagram, State Transition Diagram</li> </ol> <p>for the assigned project</p> <ol style="list-style-type: none"> <li>8. Write Test Cases to Validate requirements of assigned project from SRS Document</li> </ol>	1 BATCH(2 STUDENTS /BATCH) & 2 CYCLES	

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		9. Evaluate Size of the project using function point metric for the assigned project 10. Estimate cost of the project using COCOMO and COCOMOII for the assigned project 11. Use CPM/PERT for scheduling the assigned project 12. Use timeline Charts or Gantt Charts to track progress of the assigned project		
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**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**

**LIST OF LABORATORY COURSES**

**ACADEMIC YEAR: 2022-23**

**DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS**

S.NO	SEMESTER	COURSE CODE	SUBJECT CODE	SUBJECT NAME
1	I	C108	MC4111	Advanced Data Structures and Algorithms Laboratory
2		C109	MC4112	Python Programming Laboratory
3		C110	MC4113	Communication Skills Enhancement – I
4	II	C207	MC4211	Advanced Database Technology Laboratory
5		C208	MC4212	Full Stack Web Development Laboratory
6		C209	MC4213	Communication Skills Enhancement– II
7	III	C307	MC4311	Machine Learning Laboratory
9		C308	MC4312	Internet of Things Laboratory.
11	IV	C401	MC4411	Project Work

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S.No	LAB NAME	LIST OF EXPERIMENTS	(STUDENTS)	REMARKS
1	Advanced Data Structures and Algorithms Laboratory	<ol style="list-style-type: none"><li>1: Implementation of recursive function for tree traversal and Fibonacci</li><li>2: Implementation of iteration function for tree traversal and Fibonacci</li><li>3: Implementation of Merge Sort and Quick Sort</li><li>4: Implementation of a Binary Search Tree</li><li>5: Red-Black Tree Implementation</li><li>6: Heap Implementation</li><li>7: Fibonacci Heap Implementation</li><li>8: Graph Traversals</li><li>9: Spanning Tree Implementation</li><li>10: Shortest Path Algorithms (Dijkstra's algorithm, Bellman Ford Algorithm)</li><li>11: Implementation of Matrix Chain Multiplication</li><li>12: Activity Selection and Huffman Coding Implementation</li></ol>	2 BATCH (3 STUDENTS/ BATCH) & 2 CYCLES	

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2	Python Programming Laboratory	<ol style="list-style-type: none"><li>1. Python programming using simple statements and expressions (exchange the values of two variables, circulate the values of n variables, distance between two points).</li><li>2. Scientific problems using Conditionals and Iterative loops.</li><li>3. Linear search and Binary search</li><li>4. Selection sort, Insertion sort</li><li>5. Merge sort, Quick Sort</li><li>6. Implementing applications using Lists, Tuples.</li><li>7. Implementing applications using Sets, Dictionaries.</li><li>8. Implementing programs using Functions.</li><li>9. Implementing programs using Strings.</li><li>10. Implementing programs using written modules and Python Standard Libraries (pandas, numpy, Matplotlib, scipy)</li><li>11. Implementing real-time/technical applications using File handling.</li><li>12. Implementing real-time/technical applications using Exception handling.</li><li>13. Creating and Instantiating classes</li></ol>	2 BATCH (3 STUDENTS/ BATCH) & 2 CYCLES	
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3	Communication Skills Enhancement – I	<p>1. Listening: Listening and practicing neutral accents Listening to short talks and lectures and completing listening comprehension exercises Listening to TED Talks</p> <p>2. Speaking: Giving one minute talks Participating in small Group Discussions Making Presentations</p> <p>3. Reading: Reading Comprehension Reading subject specific material Technical Vocabulary</p> <p>4. Writing: Formal vs Informal Writing Paragraph Writing Essay Writing Email Writing</p>	2 BATCH (3 STUDENTS/ BATCH) & 2 CYCLES	
4	Machine Learning Laboratory	<p>1. Demonstrate how do you structure data in Machine Learning</p> <p>2. Implement data preprocessing techniques on real time dataset</p> <p>3. Implement Feature subset selection techniques</p> <p>4. Demonstrate how will you measure the performance of a machine learning model</p> <p>5. Write a program to implement the naïve Bayesian classifier for a sample training data</p>	2 BATCH (3 STUDENTS/ BATCH) & 2 CYCLES	

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	<p>set. Compute the accuracy of the classifier, considering few test data sets.</p> <p>6. Write a program to construct a Bayesian network considering medical data. Use this model to demonstrate the diagnosis of heart patients using the standard Heart Disease Data Set.</p> <p>7. Apply EM algorithm to cluster a set of data stored in a .CSV file.</p> <p>8. Write a program to implement k-Nearest Neighbor algorithm to classify the data set.</p> <p>9. Apply the technique of pruning for a noisy data monk2 data, and derive the decision tree from this data. Analyze the results by comparing the structure of pruned and unpruned tree.</p> <p>10. Build an Artificial Neural Network by implementing the Back propagation algorithm and test the same using appropriate data sets</p> <p>11. Implement Support Vector Classification for linear kernels.</p> <p>12. Implement Logistic Regression to classify problems such as spam detection. Diabetes predictions and so on.</p>		
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5	Internet of Things Laboratory.	<ol style="list-style-type: none"><li>1. To study various IoT protocols – 6LowPAN, IPv4/IPv6, Wifi, Bluetooth, MQTT.</li><li>2. IoT Application Development Using sensors and actuators (temperature sensor, light sensor, infrared sensor)</li><li>3. To study Raspberry Pi development board and to implement LED blinking applications.</li><li>4. To develop an application to send and receive data with Arduino using HTTP request</li><li>5. To develop an application that measures the room temperature and posts the temperature value on the cloud platform.</li><li>6. To develop an application that measures the moisture of soil and post the sensed data over Google Firebase cloud platform.</li><li>7. To develop an application for measuring the distance using ultrasonic sensor and post distance value on Google Cloud IoT platform</li><li>8. Develop a simple application based on sensors.</li><li>9. Develop IoT applications using Django Framework and Firebase/ Bluemix platform.</li><li>10. Develop a commercial IoT application.</li></ol>	2 BATCH (3 STUDENTS/ BATCH) & 2 CYCLES	
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## PHOTO GALLERY



**DATA STRUCTURES AND ALGORITHMS LABORATORY**

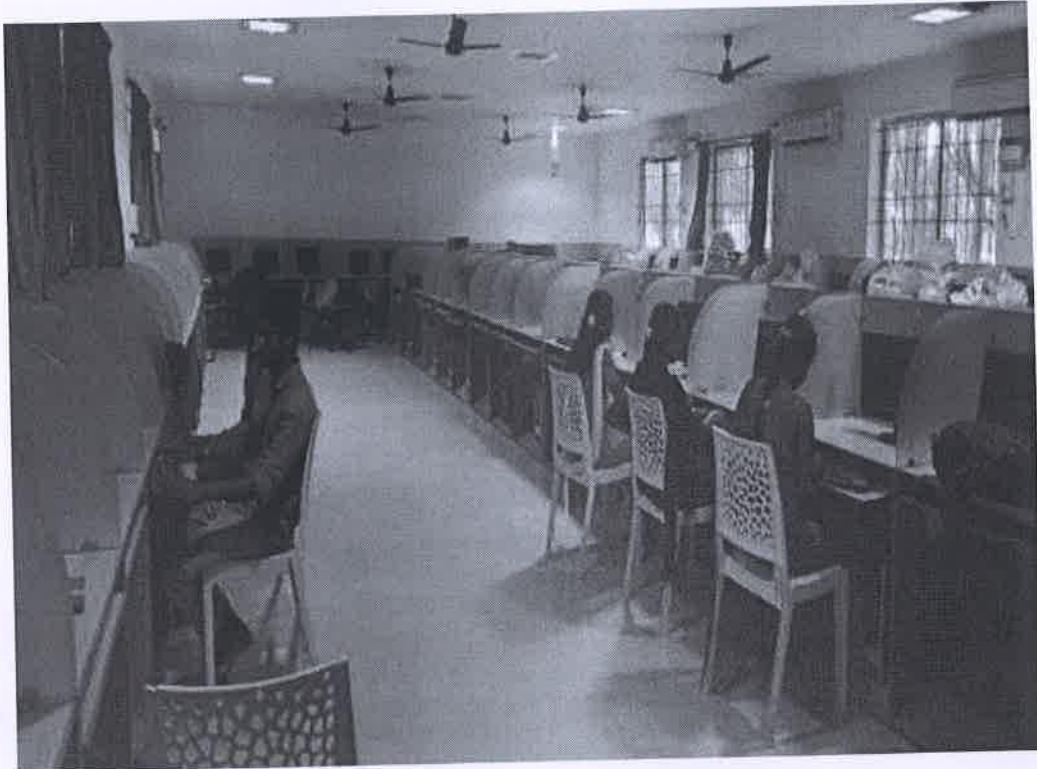


**WEB PROGRAMMING WITH JAVA LABORATORY**



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**MOBILE APPLICATION DEVELOPMENT LABORATORY**



**CLOUD AND BIG DATA LABORATORY**

  
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**SOFTWARE TESTING LABORATORY**

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## LIST OF LABORATORY COURSES ACADEMIC YEAR 2022-23

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

S.NO	SEMESTER	COURSE CODE	SUBJECT CODE	SUBJECT NAME
1	I	C106	GE3171	PYTHON PROGRAMMING LABORATORY
2		C107	BS3171	PHYSICS AND CHEMISTRY LABORATORY
3	II	C114	GE3271	ENGINEERING PRACTICES LABORATORY
4		C115	EC3271	CIRCUIT ANALYSIS LABORATORY
5	III	C208	CS3362	CPROGRAMMING AND DATASTRUCTURES LABORATORY
6		C207	EC3361	ELECTRONIC DEVICES AND CIRCUITSLABORATORY
7		C210	EC3352	DIGITAL SYSTEMS DESIGN LABORATORY
8		C217	EC3461	COMMUNICATION SYSTEMS LABORATORY
9	IV	C218	EC3462	LINEAR INTEGRATED CIRCUITS LABORATORY
10		C219	EC3492	DIGITAL SIGNAL PROCESSING LABORATORY
11	V	C307	EC8562	DIGITAL SIGNAL PROCESSING LABORATORY
12		C308	EC8561	COMMUNICATION SYSTEMS LABORATORY
13		C309	EC8563	COMMUNICATION NETWORKS LABORATORY
14		C316	EC8681	MICROPROCESSORS AND MICROCONTROLLERS LABORATORY
15	VI	C317	EC8661	VLSI DESIGN LABORATORY
16	VII	C403	EC8711	EMBEDDED LABORATORY
17		C408	EC8761	ADVANCED COMMUNICATION LABORATORY

  
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S.No	LAB NAME	LIST OF EXPERIMENTS	BATCH SIZE (STUDENTS)	REMARKS
1	.GE3171-Python Programming Laboratory	<p>1. Identification and solving of simple real life or scientific or technical problems, and developing flow charts for the same. (Electricity Billing, Retail shop billing, Sin series, weight of a motorbike, Weight of a steel bar, compute Electrical Current in Three Phase AC Circuit, etc.)</p> <p>2. Python programming using simple statements and expressions (exchange the values of two variables, circulate the values of n variables, distance between two points).</p> <p>3. Scientific problems using Conditionals and Iterative loops. (Number series, Number Patterns, pyramid pattern)</p> <p>4. Implementing real-time/technical applications using Lists, Tuples. (Items present in a library/Components of a car/ Materials required for construction of a building – operations of list &amp; tuples)</p> <p>5. Implementing real-time/technical applications using Sets, Dictionaries. (Language, components of an automobile,</p>	<p>7 BATCHES (5 STUDENTS PER BATCH) &amp; 2 CYCLES</p>	

  
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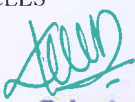
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		<p>Elements of a civil structure, etc.- operations of Sets &amp; Dictionaries) 6. Implementing programs using Functions. (Factorial, largest number in a list, area of shape)</p> <p>7. Implementing programs using Strings. (reverse, palindrome, character count, replacing characters)</p> <p>8. Implementing programs using written modules and Python Standard Libraries (pandas, numpy. Matplotlib, scipy)</p> <p>9. Implementing real-time/technical applications using File handling. (copy from one file to another, word count, longest word)</p> <p>10. Implementing real-time/technical applications using Exception handling. (divide by zero error, voter's age validity, student mark range validation)</p> <p>11. Exploring Pygame tool. 12. Developing a game activity using Pygame like bouncing ball, car race etc.</p>		
2	BS3171-Physics and Chemistry Laboratory	<p><b>PHYSICS LABORATORY :</b></p> <p>1. Torsional pendulum - Determination of rigidity modulus of wire and moment of inertia of regular and irregular objects.</p>	<p>7 BATCHES (5 STUDENTS PER BATCH) &amp; 2 CYCLES</p>	<p> <b>Principal</b></p>



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	<p>2. Simple harmonic oscillations of cantilever.</p> <p>3. Non-uniform bending - Determination of Young's modulus</p> <p>4. Uniform bending – Determination of Young's modulus</p> <p>5. Laser- Determination of the wavelength of the laser using grating</p> <p>6. Air wedge - Determination of thickness of a thin sheet/wire</p> <p>7. a) Optical fibre - Determination of Numerical Aperture and acceptance angle b) Compact disc- Determination of width of the groove using laser.</p> <p>8. Acoustic grating- Determination of velocity of ultrasonic waves in liquids.</p> <p>9. Ultrasonic interferometer – determination of the velocity of sound and compressibility of liquids</p> <p>10. Post office box - Determination of Band gap of a semiconductor.</p> <p>11. Photoelectric effect</p> <p>12. Michelson Interferometer.</p> <p>13. Melde's string experiment</p> <p>14. Experiment with lattice dynamics kit</p> <p><b>CHEMISTRY</b></p>		
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	<p><b>LABORATORY</b></p> <ol style="list-style-type: none"><li>1. Preparation of <math>\text{Na}_2\text{CO}_3</math> as a primary standard and estimation of acidity of a water sample using the primary standard</li><li>2. Determination of types and amount of alkalinity in a water sample. - Split the first experiment into two</li><li>3. Determination of total, temporary &amp; permanent hardness of water by EDTA method.</li><li>4. Determination of DO content of water sample by Winkler's method.</li><li>5. Determination of chloride content of water sample by Argentometric method.</li><li>6. Estimation of copper content of the given solution by Iodometry.</li><li>7. Estimation of TDS of a water sample by gravimetry.</li><li>8. Determination of strength of given hydrochloric acid using pH meter.</li><li>9. Determination of strength of acids in a mixture of acids using conductivity meter.</li><li>10. Conductometric titration of barium chloride against sodium sulphate (precipitation titration)</li><li>11. Estimation of iron content of the given solution using</li></ol>	
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		<p>potentiometer.</p> <p>12. Estimation of sodium /potassium present in water using a flame photometer.</p> <p>13. Preparation of nanoparticles (TiO<sub>2</sub>/ZnO/CuO) by Sol-Gel method.</p> <p>14. Estimation of Nickel in steel</p> <p>15. Proximate analysis of Coal</p>		
4	GE3271-Engineering Practices Laboratory	<p><b>GROUP – A</b> <b>(CIVIL &amp; ELECTRICAL)</b> <b>PART I</b> <b>CIVIL ENGINEERING PRACTICES PLUMBING WORK:</b></p> <p>a) Connecting various basic pipe fittings like valves, taps, coupling, unions, reducers, elbows and other components which are commonly used in household.</p> <p>b) Preparing plumbing line sketches.</p> <p>c) Laying pipe connection to the suction side of a pump</p> <p>d) Laying pipe connection to the delivery side of a pump.</p> <p>e) Connecting pipes of different materials: Metal, plastic and flexible pipes used in household appliances.</p> <p><b>WOOD WORK:</b></p> <p>a) Sawing,</p> <p>b) Planing and</p>	7 BATCHS (5 STUDENTS PER BATCH) & 2 CYCLES	



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c) Making joints like T-Joint, Mortise joint and Tenon joint and Dovetail joint.

**Wood Work Study:**

- a) Studying joints in door panels and wooden furniture
- b) Studying common industrial trusses using models.

**PART II**

**ELECTRICAL  
ENGINEERING**

**PRACTICES**a) Introduction to switches, fuses, indicators and lamps - Basic switch board wiring with lamp, fan and three pin socket

b) Staircase wiring

c) Fluorescent Lamp wiring with introduction to CFL and LED types.

d) Energy meter wiring and related calculations/ calibration

e) Study of Iron Box wiring and assembly

f) Study of Fan Regulator (Resistor type and Electronic type using Diac/Triac/quadrac)

g) Study of emergency lamp wiring/Water heater

**PART II**

**ELECTRICAL  
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a) Introduction to switches, fuses, indicators and lamps -

  
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	<p>Basic switch board wiring with lamp, fan and three pin socket</p> <p>b) Staircase wiring</p> <p>c) Fluorescent Lamp wiring with introduction to CFL and LED types.</p> <p>d) Energy meter wiring and related calculations/ calibration</p> <p>e) Study of Iron Box wiring and assembly</p> <p>f) Study of Fan Regulator (Resistor type and Electronic type using Diac/Triac/quadrac)</p> <p>g) Study of emergency lamp wiring/Water heater</p> <p><b>GROUP – B (MECHANICAL AND ELECTRONICS)</b></p> <p><b>PART III</b></p> <p><b>MECHANICAL</b></p> <p><b>ENGINEERING PRACTICES</b></p> <p><b>WELDING WORK:</b></p> <p>a) Welding of Butt Joints, Lap Joints, and Tee Joints using arc welding.</p> <p>b) Practicing gas welding.</p> <p><b>BASIC MACHINING WORK:</b></p> <p>a) (simple)Turning.</p> <p>b) (simple)Drilling.</p> <p>c)(simple)Tapping.</p> <p><b>ASSEMBLY WORK:</b></p> <p>a) Assembling a centrifugal pump.</p> <p>b) Assembling a household mixer.</p>	
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		<p>c) Assembling an airconditioner.</p> <p><b>SHEET METAL WORK:</b></p> <p>a) Making of a square tray</p> <p><b>FOUNDRY WORK:</b></p> <p>a) Demonstrating basic foundry operations.</p> <p><b>PART IV ELECTRONIC ENGINEERING PRACTICES</b></p> <p><b>SOLDERING WORK:</b></p> <p>a) Soldering simple electronic circuits and checking continuity.</p> <p><b>ELECTRONIC ASSEMBLY AND TESTING WORK:</b></p> <p>a) Assembling and testing electronic components on a small</p> <p><b>PCB. ELECTRONIC EQUIPMENT STUDY:</b></p> <p>a) Study an elements of smart phone.</p> <p>b) Assembly and dismantle of LED TV.</p> <p>c) Assembly and dismantle of computer/ laptop</p>		
5	EC3271-Circuit Analysis Laboratory	<p>1. Verifications of KVL &amp; KCL.</p> <p>2. Verifications of Thevenin &amp; Norton theorem.</p> <p>3. Verification of Superposition Theorem.</p> <p>4. Verification of maximum power transfer Theorem</p> <p>5. Determination of Resonance Frequency of Series &amp; Parallel RLC Circuits.</p>	<p>7 BATCHS (5STUDENTS PER BATCH) &amp; 2 CYCLES</p>	<p> Principal</p>



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		6. Transient analysis of RL and RC circuits.		
6	CS3362-C Programming and Data Structures Laboratory	<ol style="list-style-type: none"> <li>1. Practice of C programming using statements, expressions, decision making and iterative statements</li> <li>2. Practice of C programming using Functions and Arrays</li> <li>3. Implement C programs using Pointers and Structures</li> <li>4. Implement C programs using Files</li> <li>5. Development of real time C applications</li> <li>6. Array implementation of List ADT</li> <li>7. Array implementation of Stack and Queue ADTs</li> <li>8. Linked list implementation of List, Stack and Queue ADTs</li> <li>9. Applications of List, Stack and Queue ADTs</li> <li>10. 10.Implementation of Binary Trees and operations of Binary Trees</li> <li>11. Implementation of Binary Search Trees</li> <li>2. Implementation of searching techniques</li> </ol>	7 BATCHS (5STUDENTS PER BATCH) & 2 CYCLES	
7	EC3361-Electronic Devices and Circuits Laboratory	<ol style="list-style-type: none"> <li>1. Characteristics of PN Junction Diode and Zener diode.</li> <li>2. Full Wave Rectifier with Filters.</li> <li>3. Design of Zener diode</li> </ol>	7 BATCHS (5STUDENTS PER BATCH) & 2 CYCLES  <b>Principal</b> <b>J.K.K.Munirajah College of Technology</b> <b>(Autonomous)</b> <b>T.N.Palayam, Gobi (Tk),</b> <b>Erode (Dt) - 638 506.</b>	



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		<p>Regulator.</p> <p>4. Common Emitter input-output Characteristics.</p> <p>5. MOSFET Drain current and Transfer Characteristics.</p> <p>6. Frequency response of CE and CS amplifiers.</p> <p>7. Frequency response of CB and CC amplifiers.</p> <p>8. Frequency response of Cascode Amplifier</p> <p>9. CMRR measurement of Differential Amplifier</p> <p>10. Class A Transformer Coupled Power Amplifier</p>		
8	EC3352-Digital Systems Design Laboratory	<p>1. Design of adders and subtractors &amp; code converters.</p> <p>2. Design of Multiplexers &amp; Demultiplexers.</p> <p>3. Design of Encoders and Decoders.</p> <p>4. Design of Magnitude Comparators</p> <p>5. Design and implementation of counters using flip-flops</p> <p>6. Design and implementation of shift registers.</p>	7 BATCHES (5 STUDENTS PER BATCH) & 2 CYCLES	
9	EC3461-Communication Systems Laboratory	<p>1. AM- Modulator and Demodulator</p> <p>2. FM - Modulator and Demodulator</p> <p>3. Pre-Emphasis and De-Emphasis.</p> <p>4. Signal sampling and TDM.</p>	7 BATCHES (5 STUDENTS PER BATCH) & 2 CYCLES	

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		<ol style="list-style-type: none"><li>5. Pulse Code Modulation and Demodulation.</li><li>6. Pulse Amplitude Modulation and Demodulation.</li><li>7. Pulse Position Modulation and Demodulation and Pulse Width Modulation and Demodulation.</li><li>8. Digital Modulation – ASK, PSK, FSK.</li><li>9. Delta Modulation and Demodulation.</li><li>10. Simulation of ASK, FSK, and BPSK Generation and Detection Schemes.</li><li>11. Simulation of DPSK, QPSK and QAM Generation and Detection Schemes.</li><li>12. Simulation of Linear Block and Cyclic Error Control coding Schemes.</li></ol>		
10	EC3462-Linear Integrated Circuits Laboratory	<ol style="list-style-type: none"><li>1. Series and Shunt feedback amplifiers-Frequency response, Input and output impedance</li><li>2. RC Phase shift oscillator and Wien Bridge Oscillator</li><li>3. Hartley Oscillator and Colpitts Oscillator</li><li>4. RC Integrator and Differentiator circuits using Op-Amp</li><li>5. Clippers and Clampers</li><li>6. Instrumentation amplifier</li><li>7. Active low-pass, High pass &amp; Band pass filters</li></ol>	7 BATCHES (5 STUDENTS PER BATCH) & 2 CYCLES	

  
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		<p>8. PLL Characteristics and its use as frequency multiplier, clock synchronization</p> <p>9. R-2R ladder type D-A converter using Op-Am</p>		
11	EC3492-Digital Signal Processing Laboratory	<p>1. Generation of elementary Discrete-Time sequences</p> <p>2. Linear and Circular convolutions</p> <p>3. Auto correlation and Cross Correlation</p> <p>4. Frequency Analysis using DFT</p> <p>5. Design of FIR filters (LPF/HPF/BPF/BSF) and demonstrates the filtering operation</p> <p>6. Design of Butterworth and Chebyshev IIR filters (LPF/HPF/BPF/BSF) and demonstrate the filtering operations</p> <p>7. Study of architecture of Digital Signal Processor</p> <p>8. Perform MAC operation using various addressing modes</p> <p>9. Generation of various signals and random noise</p> <p>10. Design and demonstration of FIR Filter for Low pass, High pass, Band pass and Band stop filtering</p> <p>11. Design and demonstration of Butter worth and Chebyshev IIR</p>	7 BATCHS (5 STUDENTS PER BATCH) & 2 CYCLES	

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		Filters for Low pass, High pass, Band pass and Band stop filtering 12. Implement an Up-sampling and Down-sampling operation in DSP Processor		
12	EC8562-Digital Signal Processing Laboratory	<b>LIST OF EXPERIMENTS: MATLAB / EQUIVALENT SOFTWARE PACKAGE</b> 1.Generation of elementary Discrete-Time sequences 2.Linear and Circular convolutions 3.Autocorrelation and Cross correlation 4.Frequency analysis using DFT 5. Design of FIR filters (LPF/HPF/BPF/BSF) and demonstrates the filtering operation 6.Design of Butterworth and Chebyshev IIR filters (LPF/HPF/BPF/BSF) and demonstrate the filtering operations <b>DSP PROCESSOR BASED IMPLEMENTATION</b> Study of architecture of Digital Signal Processor Perform MAC operation using various addressing modes Generation of various signals and random noise Design and demonstration of FIR Filter for Low pass, High pass, Band pass and Band stop filtering Design and demonstration of Butter worth and Chebyshev IIR Filters for Low pass, High pass, Band pass and Band stop filtering	7 BATCHS (5 STUDENTS PER BATCH) & 2 CYCLES	 Principal

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		Implement an Up-sampling and Down-sampling operation in DSP Processor		
13	EC8561- Communication Systems Laboratory	<ol style="list-style-type: none"><li>1. Signal Sampling and reconstruction</li><li>2. Time Division Multiplexing</li><li>3. AM Modulator and Demodulator</li><li>4. FM Modulator and Demodulator</li><li>5. Pulse Code Modulation and Demodulation</li><li>6. Delta Modulation and Demodulation</li><li>7. Line coding schemes</li><li>8. Simulation of ASK, FSK, and BPSK generation schemes</li><li>9. Simulation of Linear Block and Cyclic error control coding schemes</li><li>10. Simulation of signal constellations of BPSK, QPSK and QAM</li><li>11. Simulation of ASK, FSK, BPSK Schemes</li><li>12. Simulation of DPSK, QPSK and QAM generation schemes</li><li>13. Simulation of Convolutional coding scheme</li><li>14. Communication link simulation</li></ol>	7 BATCHES (5 STUDENTS PER BATCH) & 2 CYCLES	
14	EC8563- Communication Networks Laboratory	<ol style="list-style-type: none"><li>1. Implementation of Error Detection / Error Correction Techniques</li><li>2. Implementation of Stop and Wait Protocol and sliding window</li><li>3. Implementation and study of Goback-N and selective repeat protocols</li><li>4. Implementation of High Level Data Link Control</li></ol>	7 BATCHES (5 STUDENTS PER BATCH) & 2 CYCLES	 Principal

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		<p>5.Implementation of IP Commands such as ping, Traceroute, nslookup</p> <p>6.Implementation of IP address configuration</p> <p>7.To create scenario and study the performance of network with CSMA / CA protocol and compare with CSMA/CD protocols</p> <p>8.Network Topology - Star, Bus, Ring</p> <p>9.Implementation of distance vector routing algorithm</p> <p>10.Implementation of Link state routing algorithm</p> <p>11.Study of Network simulator (NS) and simulation of Congestion Control Algorithms using NS</p> <p>12.Implementation of Encryption and Decryption Algorithms using any programming language.</p>		
15	EC8681- Microprocessors and Microcontrollers Laboratory	<p><b>8086 Programs using kits and MASM</b></p> <p>1. Basic arithmetic and Logical operations</p> <p>2. Move a data block without overlap</p> <p>3. Code conversion, decimal arithmetic and Matrix operations.</p> <p>4. Floating point operations, string manipulations, sorting and searching</p> <p>5. Password checking, Print RAM size and system date</p> <p>6. Counters and Time Delay</p> <p><b>Peripherals and Interfacing Experiments</b></p> <p>7. Traffic light controller</p> <p>8. Stepper motor control</p> <p>9. Digital clock</p> <p>10. Key board and Display</p> <p>11. Printer status</p> <p>12. Serial interface and Parallel interface</p>	7 BATCHS (5 STUDENTS PER BATCH) & 2 CYCLES	

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		<p>13. A/D and D/A interface and Waveform Generation <b>8051 Experiments using kits and MASM</b> 14. Basic arithmetic and Logical operations 15. Square and Cube program, Find 2's complement of a number 16. Unpacked BCD to ASCII</p>		
16	EC8661-VLSI Design Laboratory	<p><b>Part I: Digital System Design using HDL &amp; FPGA</b> 1.Design an Adder (Min 8 Bit) using HDL. Simulate it using Xilinx/Altera Software and implement by Xilinx/Altera FPGA 2. Design a Multiplier (4 Bit Min) using HDL. Simulate it using Xilinx/Altera Software and implement by Xilinx/Altera FPGA 3.Design an ALU using HDL. Simulate it using Xilinx/Altera Software and implement by Xilinx/Altera FPGA 4.Design a Universal Shift Register using HDL. Simulate it using Xilinx/Altera Software and implement by Xilinx/Altera FPGA 5.Design Finite State Machine (Moore/Mealy) using HDL. Simulate it using Xilinx/Altera Software and implement by Xilinx/Altera FPGA 6.Design Memories using HDL. Simulate it using Xilinx/Altera Software and implement by Xilinx/Altera FPGA <b>Part-II Digital Circuit Design</b> 7.Design and simulate a</p>	7 BATCHS (5 STUDENTS PER BATCH) & 2 CYCLES	

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		<p>CMOS inverter using digital flow</p> <p>8.Design and simulate a CMOS Basic Gates &amp; Flip-Flops</p> <p>9.Design and simulate a 4-bit s Manual/Automatic Layout experiments 7 to 9</p> <p>10. Analyze the power, area and timing for experiments 7 to 9 by performing Pre Layout and Post Layout Simulations</p> <p><b>Part-III Analog Circuit Design</b></p> <p>11.Design and Simulate a CMOS Inverting Amplifier</p> <p>12Design and Simulate basic Common Source, Common Gate and Common Drain Amplifiers</p> <p>13. Analyze the input impedance, output impedance, gain and bandwidth for experiments 10 and 11 by performing Schematic Simulations</p> <p>14.Design and simulate simple 5 transistor differential amplifier. Analyze Gain, Bandwidth and CMRR by performing Schematic Simulations.</p>		
17	EC8711- Embedded Laboratory	<p>1.Study of ARM evaluation system</p> <p>2. Interfacing ADC and DAC</p> <p>3 .Interfacing LED and PWM.</p> <p>4. Interfacing real time clock and serial port</p> <p>5 Interfacing keyboard and LCD.</p> <p>6. Interfacing EPROM and interrupt</p> <p>7 .Mailbox.</p> <p>8. Interrupt performance characteristics of ARM and FPGA.</p> <p>9. Flashing of LEDS</p>	7 BATCHS (5STUDENTS PER BATCH) & 2 CYCLES	

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		<p>10 .Interfacing stepper motor and temperature sensor.</p> <p>11. Implementing zigbee protocol with ARM</p>		
18	EC8761-Advanced Communication Laboratory	<p><b>LIST OF OPTICAL EXPERIMENTS</b></p> <p>1.Measurement of connector, bending and fiber attenuation losses</p> <p>2.Numerical Aperture and Mode Characteristics of Fibers.</p> <p>3.DC Characteristics of LED and PIN Photo diode</p> <p>4. Fiber optic Analog and Digital Link Characterization - frequency response(analog), eye diagram and BER (digital)</p> <p><b>LIST OF WIRELESS COMMUNICATION EXPERIMENTS</b></p> <p>1. Wireless Channel Simulation including fading and Doppler effects</p> <p>2. Simulation of Channel Estimation, Synchronization &amp; Equalization techniques</p> <p>3.Analysing Impact of Pulse Shaping and Matched Filtering using Software Defined Radios</p> <p>4.OFDM Signal Transmission and Reception using Software Defined Radios</p> <p><b>LIST OF MICROWAVE EXPERIMENTS</b></p> <p>1. VSWR and Impedance</p> <p>2.Measurement and Impedance Matching</p> <p>3.Characterization of Directional Couplers, Isolators, Circulators</p> <p>Gunn Diode Characteristics</p> <p>4.Microwave IC – Filter Characteristics</p>	7 BATCHS (5 STUDENTS PER BATCH) & 2 CYCLES	

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## M.E –APPLIED ELECTRONICS

S.NO	SEMESTER	COURSE CODE	SUBJECT CODE	SUBJECT NAME
1	I	C108	AP4111	ELECTRONICS SYSTEM DESIGN LABORATORY
2		C109	AP4112	SIGNAL PROCESSING LABORATORY
3	II	C205	AP4211	VLSI DESIGN LABORATORY
4		C206	AP4072	PCB DESIGN LABORATORY

S.No	LAB NAME	LIST OF EXPERIMENTS	BATCH SIZE (STUDENTS)	REMARKS
1	AP4111 - ELECTRONICS SYSTEM DESIGN LABORATORY	<p>1. Design of a 4-20 mA transmitter for a bridge type transducer. Design the Instrumentation amplifier with the bridge type transducer (Thermistor or any resistance variation transducers) and convert the amplified voltage from the instrumentation amplifier to 4 – 20 mA current using op-amp. Plot the variation of the temperature Vs output current.</p> <p>2. Design of AC/DC voltage regulator using SCR Design a phase controlled voltage regulator using full wave rectifier and SCR, vary the conduction angle and plot the output voltage.</p> <p>3. PCB layout design using CAD</p>	<p>1 BATCHES (2 STUDENTS PER BATCH) &amp; 2 CYCLES</p>	

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		<p>Drawing the schematic of simple electronic circuit and design of PCB layout using CAD</p> <p>4. HDL based design entry and simulation of Parameterizable cores of Counters, Shift registers, State machines, 8-bit Parallel adders and 8 –Bit multipliers.</p> <p>5. HDL based design entry and simulation of Parameterizable cores on the simple Distributed Arithmetic system. Test vector generation and timing analysis.</p> <p>6. HDL based design entry and simulation of Parameterizable cores on memory design and 4 – bit ALU. Synthesis, P&amp;R and post P&amp;R simulation, Critical paths and static timing analysis results to be identified. FPGA real time programming and I/O interfacing.</p> <p>7. Interfacing with Memory modules in FPGA Boards. Verifying design functionality by probing internal signals.</p> <p>8. Realization of Discrete Fourier transform/Fast Fourier Transform algorithm in HDL and observing the spectrum in simulation.</p> <p>9. Invoke PLL module and demonstrate the use of the PLL for clock generation in FPGAs. Verify design functionality implemented in FPGA by capturing the signal in</p>		
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		Oscilloscope		
2	AP4112-SIGNAL PROCESSING LABORATORY	<ol style="list-style-type: none"> <li>1. Design of Adaptive channel equalizer</li> <li>2. Realization of sub band filter using linear convolution</li> <li>3. Realization of STFT using FFT</li> <li>4. Demonstration of Bayes technique</li> <li>5. Demonstration of Min-max technique</li> <li>6. Realization of FIR Wiener filter</li> <li>7. Generation of Multivariate Gaussian generated data with desired mean vector and the required covariance matrix.</li> <li>8. Design and Realization of the adaptive filter using LMS algorithm (solved using steepest descent algorithm)</li> <li>9. Representation of the 2D image signal as the linear combinations of PCA (Eigen faces)</li> <li>10. Image compression using Discrete cosine transformation (DCT).</li> <li>11. Multiple-input Multiple output (MIMO)</li> <li>12. Speech recognition using Support Vector Machine (SVM)</li> <li>13. LMS filtering implementation using TMS320C6x processor</li> <li>14. Face detection and tracking in video using OpenCV</li> </ol>	1 BATCHES (2 STUDENTS PER BATCH) & 2 CYCLES	
3	AP4211- VLSI DESIGN LABORATORY	<ol style="list-style-type: none"> <li>1. Synthesize and implement Combinational and Sequential Circuits in VERILOG / VHDL</li> </ol>	1 BATCHES (3 STUDENTS PER BATCH) &	 <b>Principal</b> <b>J.K.K. Munirajah College of Technology</b> <b>(Autonomous)</b> <b>T.N. Palayam, Gobi (TK),</b> <b>Erode (Dt) - 638 506.</b>



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		<p>Monostablemultivibrator using IC555</p> <p>5. RC Phase-shift or Wein-bridge Oscillator using transistor.</p> <p>6. 4 bit binary /MOD N counter using D-Flip flops.</p> <p>7. Design a 8051 Development board having Power section consisting of IC7805, capacitor, resistor, headers, LED,Serial communication section consisting of MAX 232, Capacitors,DB9 connector, Jumper, LEDs, Reset &amp; Input/ output sections consisting of89C51 Microcontroller, Electrolytic Capacitor, Resistor, Jumper, Crystal Oscillator, Capacitors.</p> <p>8. Touch plate switches – transistorized or 555 based</p> <p>9. Doorbell/cordless bell</p> <p>10. Clapping switch and IR switch</p> <p>11. Blinkers</p> <p>12. Cell charger, battery charger, mobile charger</p> <p>13. Fire/smoke/intruder alarm</p> <p>14. Liquid level controller</p> <p>15. Audio amplifiers</p>		
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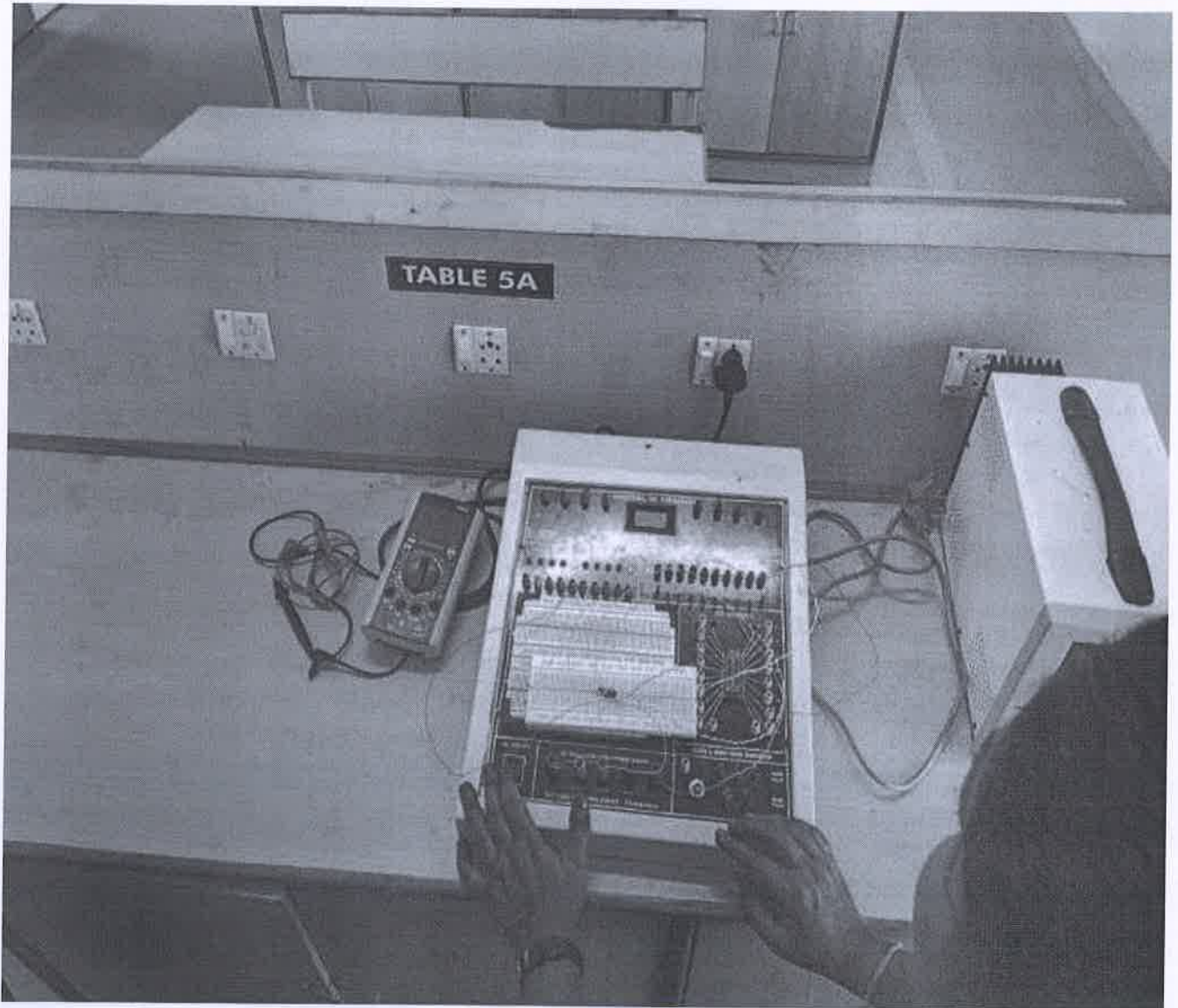
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## PHOTO GALLERY



## DIGITAL SYSTEMS DESIGN LABORATORY

*[Handwritten Signature]*

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**LINEAR INTEGRATED CIRCUITS LABORATORY**



**COMMUNICATION SYSTEMS LABORATORY**

*[Signature]*  
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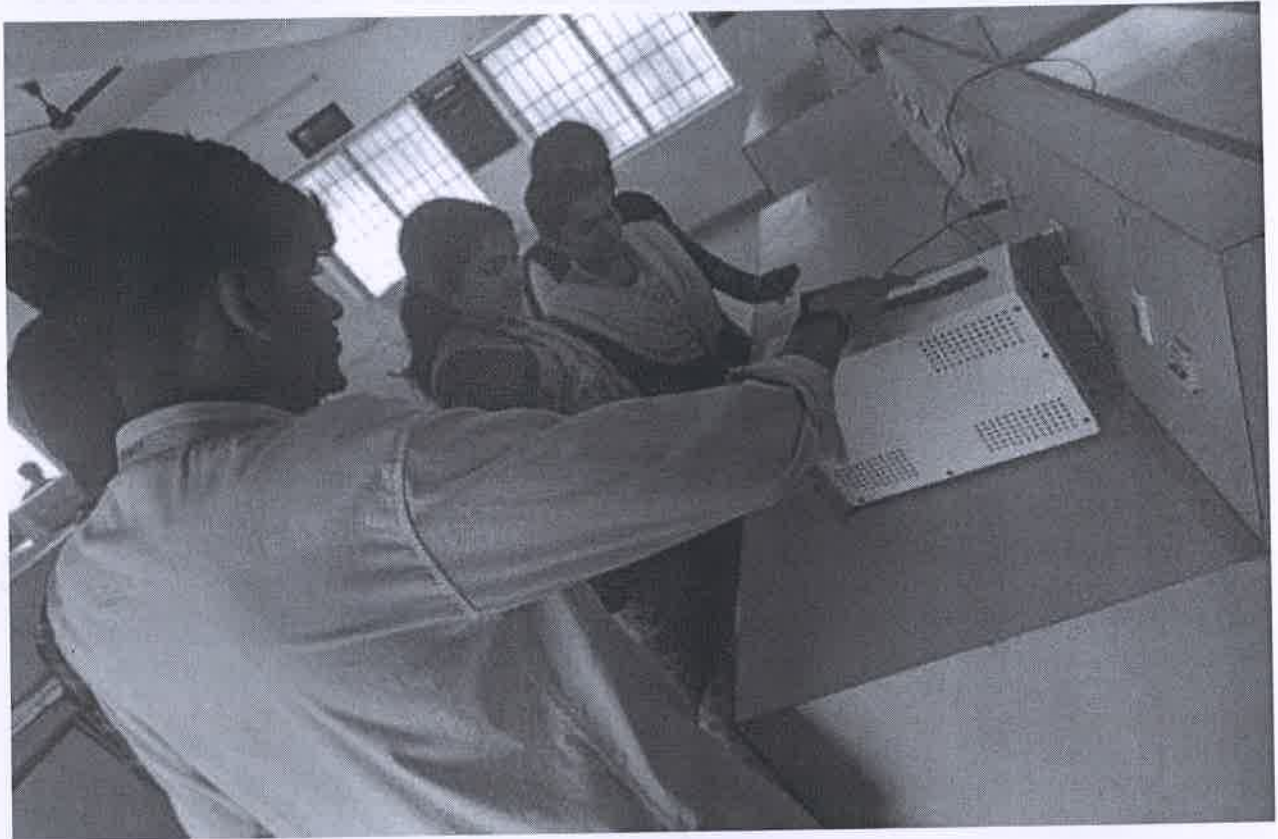


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**VLSI DESIGN LABORATORY**



**CIRCUIT ANALYSIS LABORATORY**

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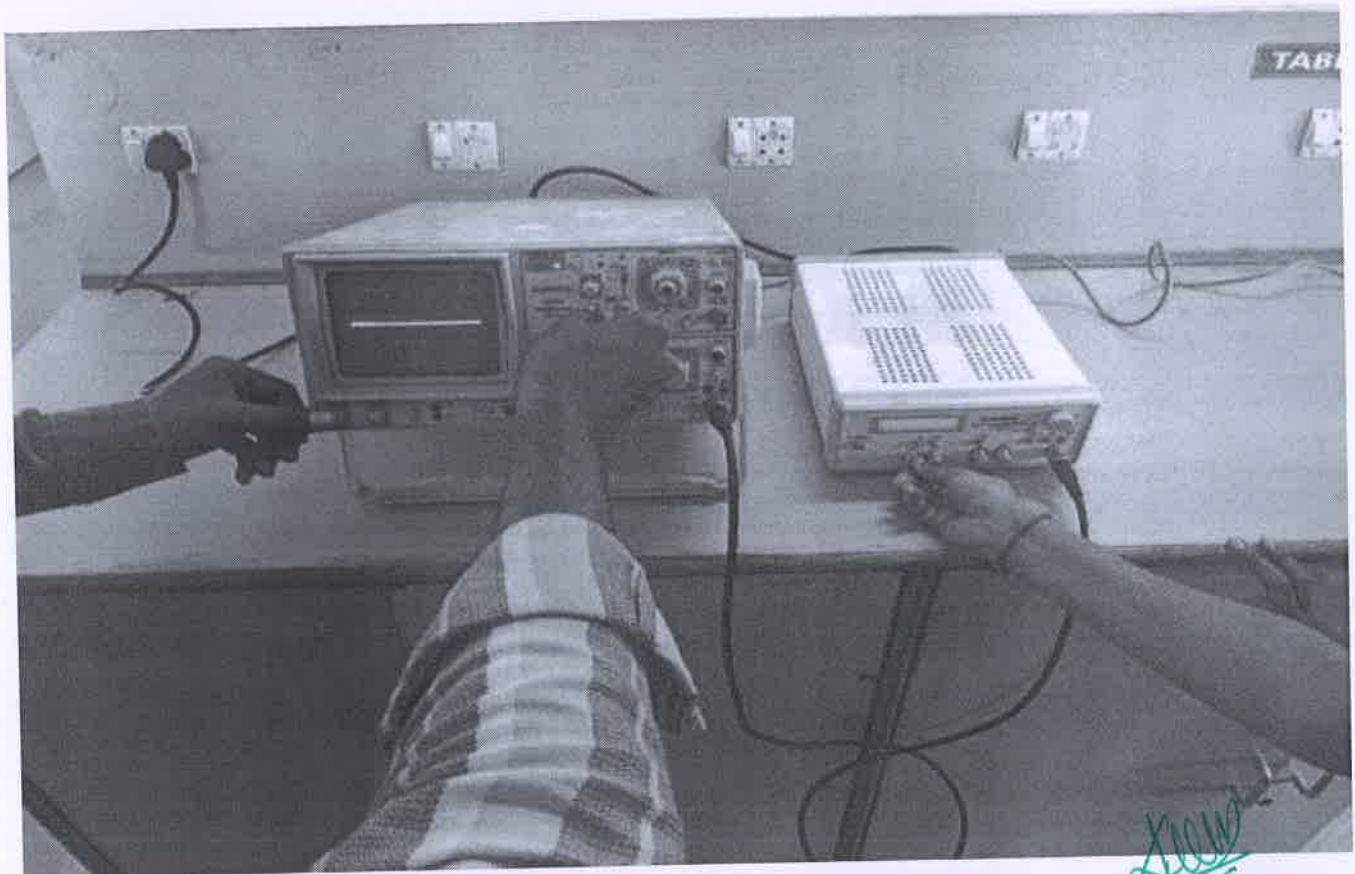
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EMBEDDED LABORATORY



ELECTRONICS DEVICES AND CIRCUITS LABORATORY

  
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**2.2 CLUB  
ACTIVITIES**

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## 2.2 CLUB ACTIVITES

### WOMEN'S EMPOWERMENT CELL

### INTERNATIONAL WOMEN'S DAY CELEBRATION

Event Organized By	Women's Empowerment Cell of JKKMCT
Name of the Convenor	MRS.V.MOHANAPRIYA,HOD/CIVIL,JKKMCT
Name of the Members	MS.V.SATHIYAPRIYAL,AP/CIVIL MRS.D. NIVETHINI,AP/IT MRS.U.SASIKALA,AP/ECE MRS.S.POORNIMA.AP/S&H MRS.M.C.SAVITHRI,AP/MCA
Name of the Programme	INTERNATIONAL WOMEN'S DAY CELEBRATION
Venue	JKKMCT SEMINAR HALL
Chief Guest	Mrs.priyanka M.E(ECE),Nxtwave ,IIT Organization
Date	08.03.2024

- International Women's Day is celebrated annually on March 8th. It's a day dedicated to honoring the social, economic, cultural, and political achievements of women around the world. It's also a time to raise awareness about the ongoing fight for gender equality and women's rights.
- It's also a time to raise awareness about the ongoing fight for gender equality and women's rights. **"Empowering women isn't about handing them strength; it's about igniting the fire within them to blaze their own trails."**When we empower women, we unlock their potential to contribute to society in meaningful ways.
- The speaker discussed various initiatives and programs aimed at leveraging technology to address gender disparities, such as promoting digital literacy, providing access to online resources, and supporting women entrepreneurs in the digital space.
- Overall, the speech underscored the importance of harnessing the power of innovation and technology to achieve greater gender equality in our society.
- The theme for the celebration of IWD in India is \_\_ Women of Tomorrow. It aimed to make women successful in all fields without discriminating.

*(Signature)*  
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T.N.Palayam-638 506, Gobichettipalayam(Tk), Erode(Dt), Tamilnadu.

NAAC Accreditation with "A" GRADE

*Women's Empowerment Cell*  
*Cordially Invites you all for the*  
**Women's Day Celebration**

March 8, 2024

Venue: JKCMCT SEMINAR HALL  
Time: 11.00am to 1.30pm

Chairman  
**Mrs.VASANTHAKUMARI MUNIRAJAH**


Secretary  
**Mrs.KASTHURIPRIYA M.B.A.,**

Research Director  
**Dr.S.KIRUPAKAR MURALI B.Tech., M.S., Ph.D.,**

Principal  
**Dr.K.SRIDHARAN ME., M.B.A., Ph.D., MISTE.,**

Resource Person  
**Mrs.P.PRIYANKA M.E (ECE),**  
NXT WAVE, IIT ORGANIZATION  
SENIOR CBA

Organized by  
**Mrs.V.MOHANAPRIYA M.E., (HOD/CIVIL)**  
WEC In-Charge  
&  
**ALL DEPARTMENT WEC MEMBERS**  
**All Womens Faculty Members**  
&  
**Students**

  
**Principal**  
J.K.K.Munirajah College of Technology  
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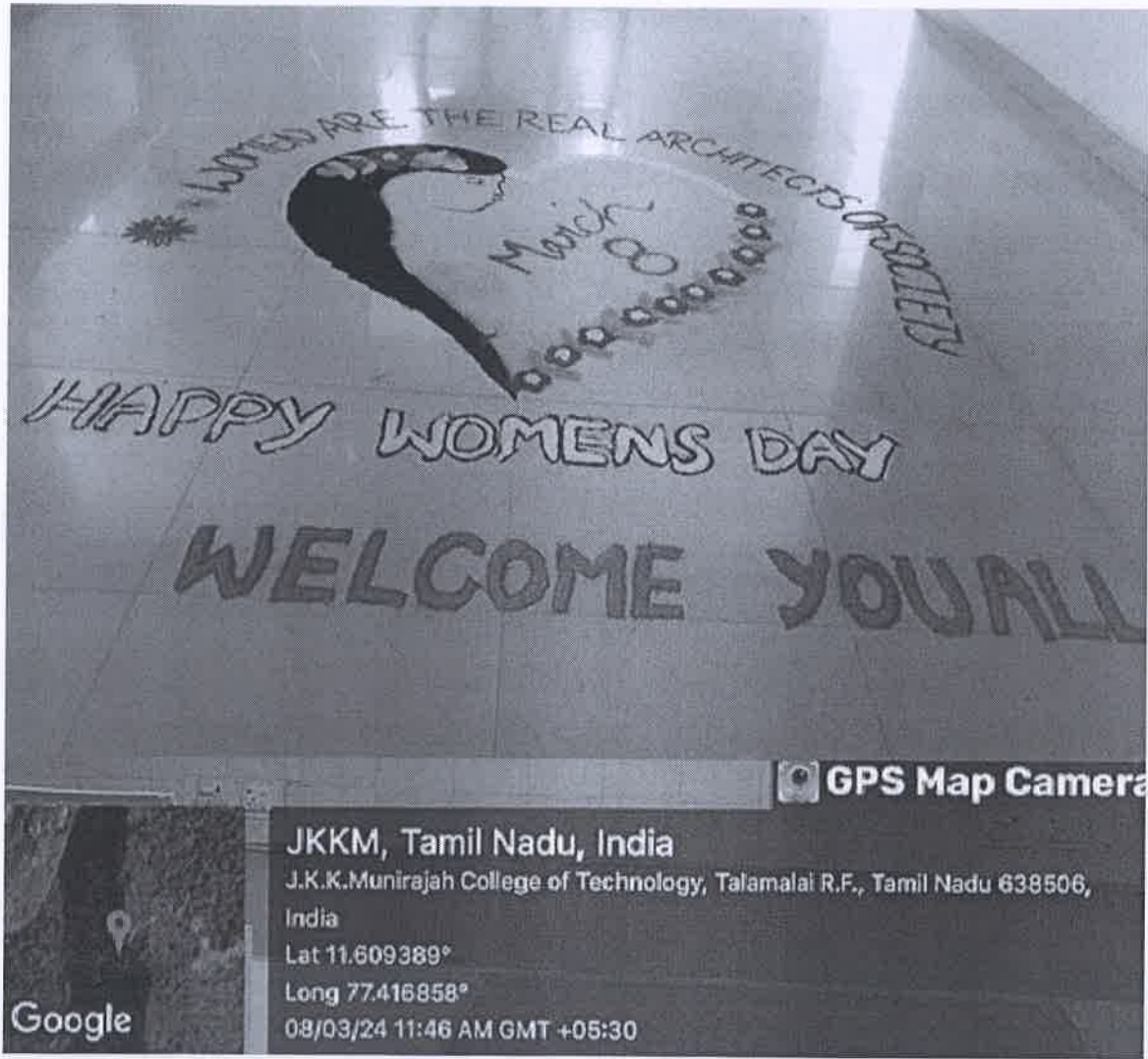
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## RANGOLI OF THE EVENT

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JKKM, Tamil Nadu, India

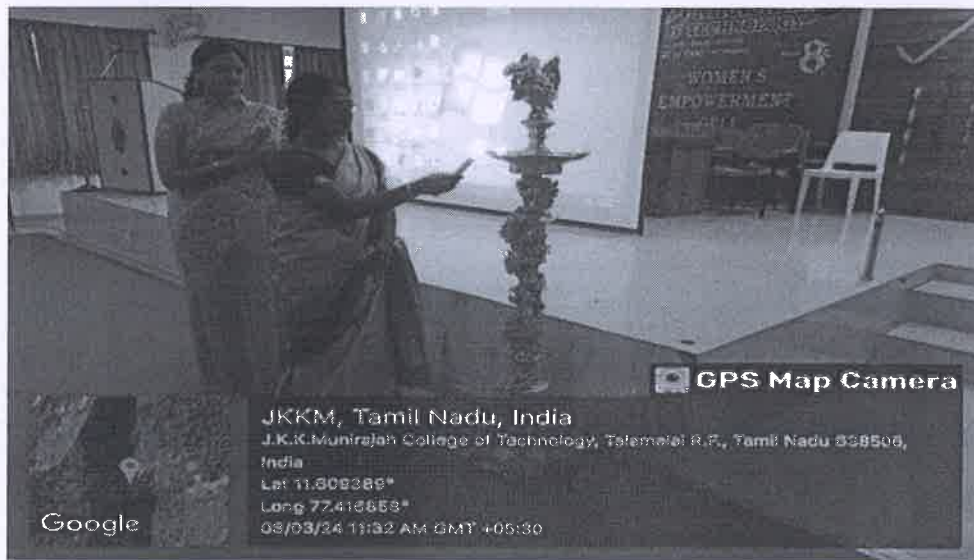
J.K.K.Munirajah College of Technology, Talamalai R.F., Tamil Nadu 638506, India

Lat 11.609389°

Long 77.416858°

08/03/24 11:32 AM GMT +05:30

Google



JKKM, Tamil Nadu, India

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Long 77.416858°

08/03/24 11:32 AM GMT +05:30

Google

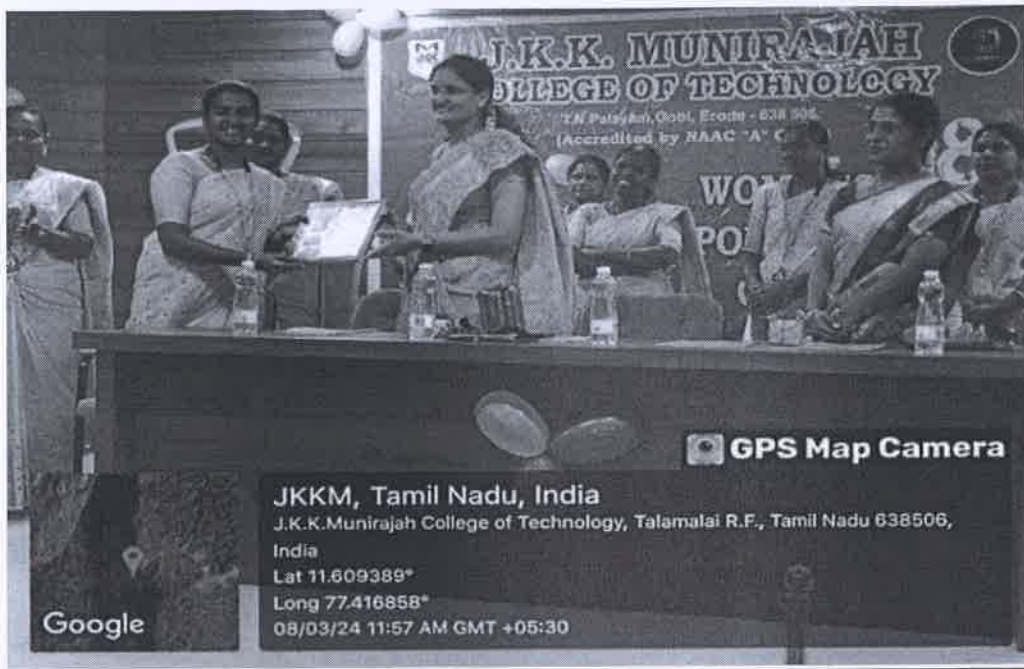
## PHOTO LIGHTENING OF LAMP

*[Signature]*  
Principal  
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## PHOTO OF HONOURING OF OUR SECRETARY MADAM WITH GIFT & SHAWL

  
Principal  
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**PHOTO OF MARCH „8“2023 WOMEN“S DAY CELEBRATION AT JKMMCT BY CUTTING THE CAKE BY OUR HONOURABLE SECRETARY MADAM & OUR RESPECTED CHIEF GUEST**



**PHOTO OF THE GIRL STUDENTS AND FACULTIES OF THE EVENT**

*[Handwritten Signature]*  
**Principal**  
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## WOMEN'S EMPOWERMENT CELL

### 3.NEE OINTHIRUKKALAGATHU

Event Organized By	Women's Empowerment Cell
Name of the Convenor	MRS.V.MOHANAPRIYA,HOD/CIVIL,JKKMCT
Name of the Members	MS.V.SATHIYAPRIYA,AP/CIVIL
Name of the Programme	NEE OINTHIRUKKALAGATHU
Venue	JKKMCT SEMINAR HALL
Chief Guest	NAGAVALLI NAGARAJ
Date	14.09.23

- The Programme was Organized by Women's Empowerment cell at JKKMCT Seminar Hall on 14.09.23 from 2.00pm to 4.00pm .Mrs.V.Mohanapriya M.E HOD/CIVIL, Women's Empowerment cell I/C,was spoke about Women's Empowerment cell and its activities.
- Then the our resource person Mrs. Nagavalli Nagaraj gave motivational speech for students to protect themselves against violence in our society. It was highly useful and energetic for students.

  
Principal  
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# Women Empowerment Bell

“நீ ஓய்ந்திருக்கலாகாது...!”

DATE: 14-09-2023 10.00 AM to 12.30 PM

**venue**

JKKMCT SEMINAR HALL

**Prayer song**

A. PARVATHY/FINAL - IT

**Lighting of kuthuvilaku**

Mrs.J.K.K. VASANTHAKUMARI MUNIRAJAH, CHAIRMAN  
JKKM EDUCATIONAL INSTITUTIONS

Mrs. KASTHURIPRIYA KIRUPAKARMURALI, M.B.A., SECRETARY  
JKKM EDUCATIONAL INSTITUTIONS

Dr. K. SRIDHARAN, Ph.D., PRINCIPAL,  
J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY.

**Honouring the Guest**

Dr. K. SRIDHARAN, PH.D., PRINCIPAL, JKKMCT

**Welcome Address**

AR.A. CAYALVIZHI AP / B. ARCH, WEC I/C

**Presidential Address**

Dr. K. SRIDHARAN, PH.D., PRINCIPAL, JKKMCT

**Speech by Resource Person**

Mrs. NAGAVALLI NAGARAJ

**Vote Of Thanks**

Mrs. S. HARIPRIYA AP/MBA JKKMCT

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# Women Empowerment Cell

Organizes

Motivational Speech On

“நீ ஓய்ந்திருக்கலாகாது...!”

**LIGHTING OF KUTHU VILAKU**

Mrs.J.K.K. Vasanthakumari Munirajah  
Mrs. Kasthuripriya kirupakarmurali, M.B.A.,

**CHAIRMAN**

Mrs.J.K.K. Vasanthakumari Munirajah  
Jkkm Educational Institutions

**SECRETARY**

Mrs. Kasthuripriya kirupakarmurali, M.B.A.,  
Jkkm Educational Institutions

**PRINCIPAL**

Dr. K. Sridharan, Ph.D.,  
Jkkm College Of Technology

Venue

JKKMCT SEMINAR HALL  
SEP 14, 2023  
10.00 am – 12.30 pm

**CHIEF GUEST**

**Thirumathi. Nagavalli Nagarajan**  
Motivational Speaker

*[Signature]*  
Principal

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**POSTER OF THE EVENT**

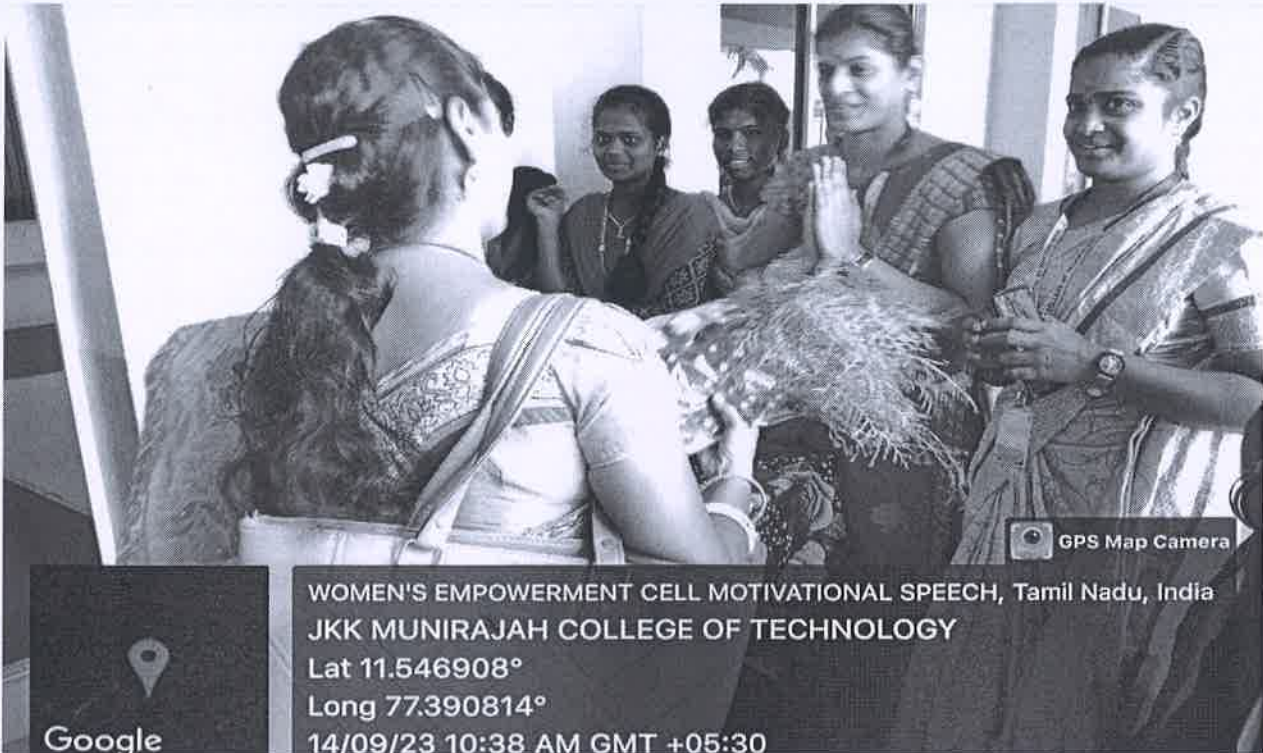


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GPS Map Camera

WOMEN'S EMPOWERMENT CELL MOTIVATIONAL SPEECH, Tamil Nadu, India  
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY

Lat 11.546908°

Long 77.390814°

14/09/23 10:38 AM GMT +05:30

Google



GPS Map Camera

WOMEN'S EMPOWERMENT CELL MOTIVATIONAL SPEECH, Tamil Nadu, India

JKK MUNIRAJAH COLLEGE OF TECHNOLOGY

Lat 11.546908°

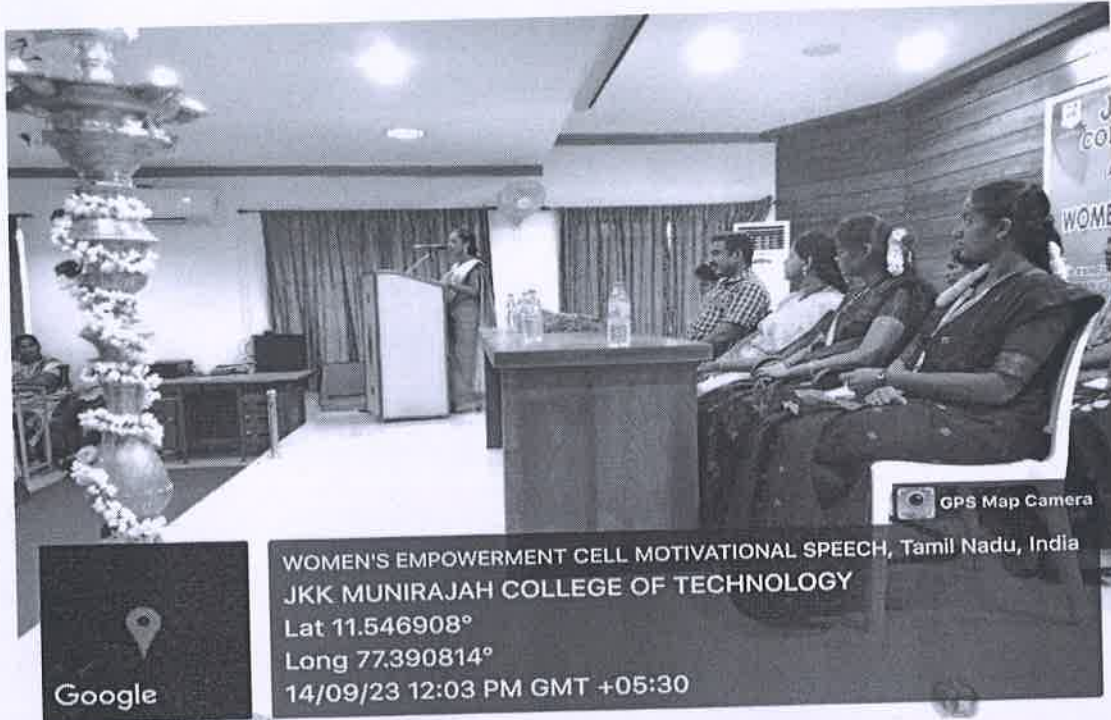
## PHOTO OF THE EVENT

*[Handwritten Signature]*  
Principal  
J.K.K. Munirajah College of Technology  
(Autonomous)  
T.N. Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



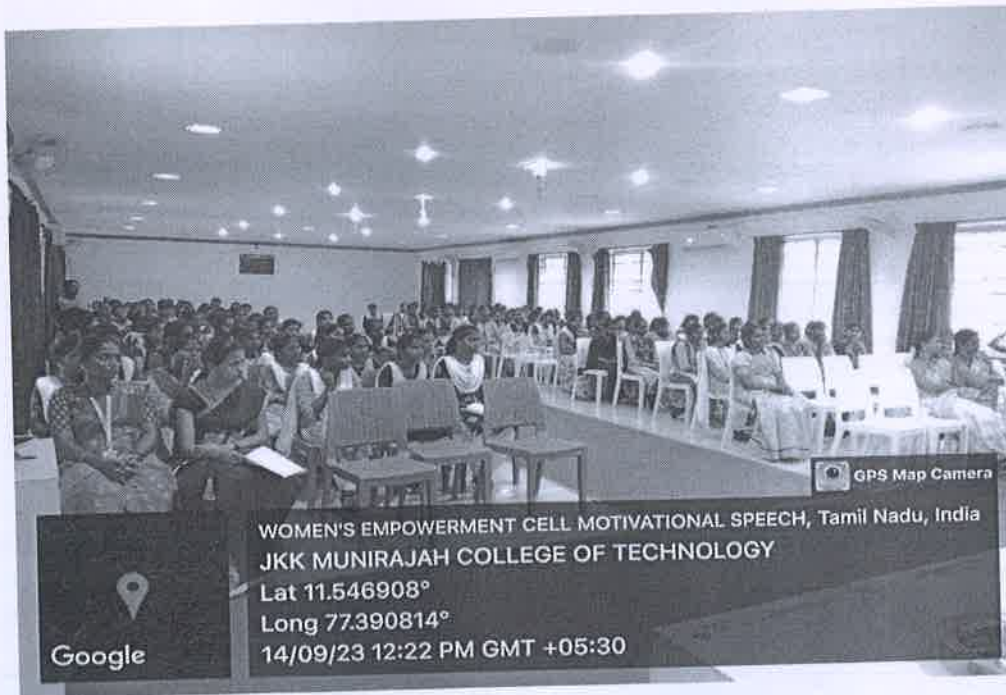
# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY (AUTONOMOUS)

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GPS Map Camera  
WOMEN'S EMPOWERMENT CELL MOTIVATIONAL SPEECH, Tamil Nadu, India  
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY  
Lat 11.546908°  
Long 77.390814°  
14/09/23 12:03 PM GMT +05:30

## PHOTO OF CHIEF GUEST SPEECH



GPS Map Camera  
WOMEN'S EMPOWERMENT CELL MOTIVATIONAL SPEECH, Tamil Nadu, India  
JKK MUNIRAJAH COLLEGE OF TECHNOLOGY  
Lat 11.546908°  
Long 77.390814°  
14/09/23 12:22 PM GMT +05:30

*[Signature]*  
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## PHOTO OF THE PRESENTATION FOR THE EVENT



*[Signature]*  
 Principal  
 J.K.K.Munirajah College of Technology  
 (Autonomous)  
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## ECO -SDG CLUB

### 1. OUTDOOR CLASSROOM IN OPEN ATMOSPHERE

<b>ACTIVITY NAME:</b>	<b>OUTDOOR CLASSROOM IN OPEN ATMOSPHERE</b>
<b>VENUE:</b>	JKKM COLLEGE
<b>DATE:</b>	21.07.2023
<b>CHIEF GUEST:</b>	Dr. K.Sridharan, Principal, JKKMCT. Forest Guard, Kadambur Hills
<b>NO. OF BENEFICIARIES:</b>	800
<b>NO. OF HOURS INVOLVED:</b>	04 Hours
<b>ACTIVITY DETAILS:</b>	<p>Open atmosphere classrooms can foster a more engaging and interactive learning environment. Students may feel more connected to the material and the instructor, leading to increased participation and enthusiasm for learning.</p> <p>The open design encourages collaboration among students. They can easily work in groups, discuss ideas and share resources which can enhance their understanding of the subject matter.</p> <p>Improved Communication Skills: Students in open classrooms often have more opportunities to communicate with their peers and instructors. This can help them develop better communication skills, which are valuable in both academic and professional settings.</p> <p>Open classrooms may allow for flexible seating arrangements and teaching methods. Instructors can adapt their teaching styles to suit different topics and student needs, promoting a more dynamic learning experience.</p>

**Principal**

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**PHOTO OF OUTDOOR CLASSROOM IN OPEN ATMOSPHERE**  
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**2. GROWING ORGANIC GARDEN**

ACTIVITY NAME:	GROWING ORGANIC GARDEN
VENUE:	JKKM COLLEGE
DATE:	11.08.23
CHIEF GUEST:	Dr. K.Sridharan, Principal, JKKMCT.
NO. OF BENEFICIARIES:	200
NO. OF NSS VOLUNTEERS:	15

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<p><b>NO. OF HOURS INVOLVED:</b></p>	<p>04 Hours</p>
<p><b>ACTIVITY DETAILS:</b></p>	<ol style="list-style-type: none"> <li>15. <b>Chemical-Free:</b> Organic gardens avoid synthetic pesticides, herbicides, and fertilizers, promoting healthier ecosystems and reducing chemical exposure.</li> <li>16. <b>Nutrient-Rich Soil:</b> Organic practices focus on building and maintaining nutrient-rich soil through composting, mulching, and natural amendments.</li> <li>17. <b>Biodiversity:</b> Organic gardens support biodiversity by encouraging beneficial insects, birds, and wildlife, creating a balanced ecosystem.</li> <li>18. <b>Healthier Food:</b> Organic produce tends to have fewer pesticide residues and higher nutrient levels, appealing to health-conscious consumers.</li> <li>19. <b>Sustainability:</b> Organic gardening reduces the carbon footprint by minimizing energy-intensive synthetic inputs and emphasizing sustainable practices.</li> </ol>



GPS Map Camera

JKKMCT, Tamil Nadu, India  
JKKMCT, TN PALAYAM., Tamil Nadu 638506, India  
Lat 11.519449°

*[Handwritten Signature]*  
Principal  
J.K.K. Munirajah College of Technology  
(Autonomous)  
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## 3. REMINDER POSTERS AND GREETINGS

ACTIVITY NAME:	REMINDER POSTERS AND GREETINGS
VENUE:	JKKM COLLEGE
DATE:	22 August 2023
CHIEF GUEST:	Dr. K.Sridharan, Principal, JKKMCT.
NO. OF BENEFICIARIES:	200
NO. OF NSS VOLUNTEERS:	2
NO. OF HOURS INVOLVED:	02 Hours
ACTIVITY DETAILS:	<p><b>Increased Awareness:</b> A Poster competition raises the awareness about the importance of diverse concepts of sustainability issues among club members and the wider community.</p> <p><b>Creative Expression:</b> Poster competitions encouraged creativity and artistic expression among participants. This helped individuals to express their thoughts and feelings about issues.</p> <p><b>Education:</b> Participants learned about converting their thoughts into actions, Posters. They realized the importance of creating awareness through the process of presenting &amp; explaining their posters.</p> <p><b>Engagement:</b> Competitions engage a diverse range of people that can foster a sense of community and shared commitment to sustainable practices.</p>

  
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## 2.2 SEMINAR

**Principal**

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## 2.3 SEMINAR


### Civil engineering

#### ONE DAY SEMINAR ON HIGH-PERFORMANCE CONCRETE FOR SUSTAINABLE BUILDINGS

Event Organized By	CIVIL DEPARTMENT OF JKKMCT
Name of the Event	ONE DAY SEMINAR
Date of the Event	13.08.23
Number of Participants	11
Venue	JKKMCT Seminar Hall
Name of Chief Guest/Speakers	Er.N.CHANDRASEKARAN ,M.E(Ph.d)

A one day Seminar on High-Performance Concrete for Sustainable Buildings was conducted on 13.08.23. The resource person Mr.N.Chandrasekaran ,M.E Delivered speech about Civil High-Performance Concrete for Sustainable Buildings.

- Our Participants gained insights into the latest advancements, technologies, and trends in the automotive and production industries, fostering continuous learning.
- Attendees become aware of the cutting-edge technologies, innovations and emerging trends that are shaping the future of the automotive and production sectors.
- Seminars provide a platform for networking with industry experts, professionals, and like-minded individuals, facilitating valuable connections and collaborations.

  
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## J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY



TN PALAYAM, GOBI(TK), ERODE (DT)- 638506.

### MINAR

Where AI meets civil engineering  
"A new era of innovation"

TOPIC OF

"High-Performance concrete for Sustainable Buildings"

ORGANIZED BY

DEPARTMENT OF CIVIL ENGINEERING

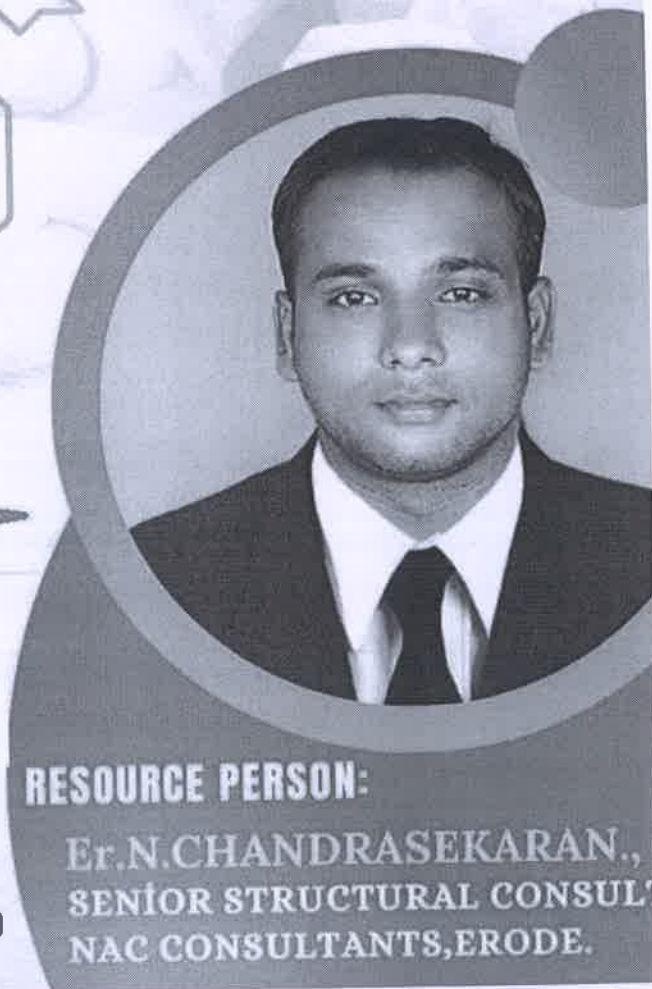
13.08.2023

10 AM

VENUE -JKKMCT SEMINAR HALL

+91 86758 34476

MRS.V.MOHANAPRIYA.,(M.E)  
HOD/CIVIL



RESOURCE PERSON:

Er.N.CHANDRASEKARAN.,  
SENIOR STRUCTURAL CONSULTANT,  
NAC CONSULTANTS, ERODE.

### INVITATION OF THE SEMINAR EVENT

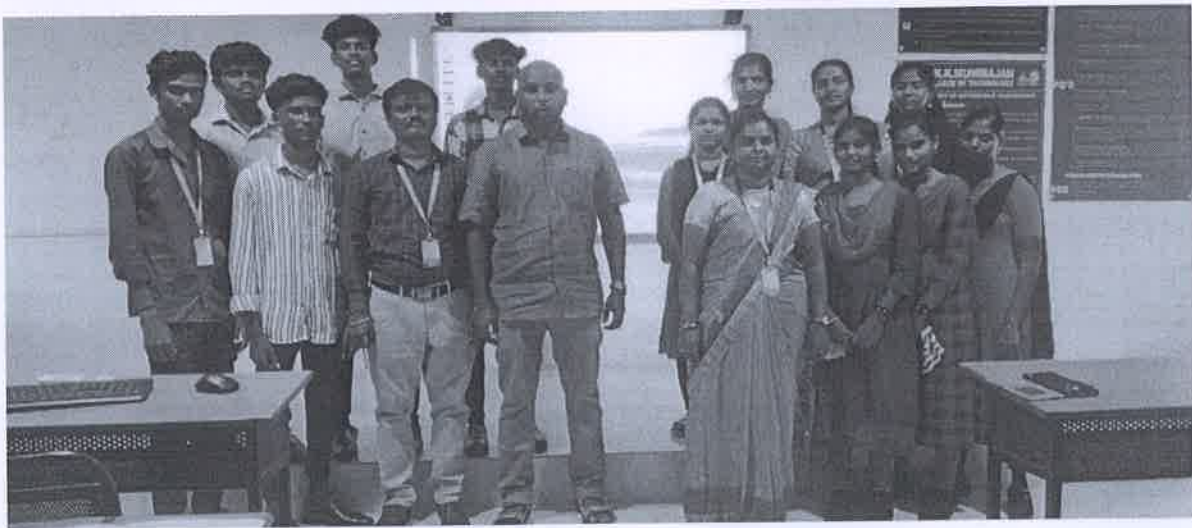
*[Signature]*  
Principal

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**PHOTO OF THE SEMINAR EVENT**

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## Mechanical engineering

### ONE DAY SEMINAR ON RECENT TRENDS IN GREEN POWER TECHNOLOGY

<b>Event Organized By</b>	<b>MECHANICAL DEPARTMENT OFJKKMCT</b>
<b>Name of the Event</b>	<b>ONE DAY SEMINAR</b>
<b>Date of the Event</b>	<b>28.03.24</b>
<b>Number of Participants</b>	<b>82</b>
<b>Venue</b>	<b>MECHANICAL SMART CLASS</b>
<b>Name of Chief Guest/Speakers</b>	<b>DR. MUTHUKUMAR MARAPPAN.</b>

This seminar was planned as theoretical session. A total of 50 students and two faculties' members have participated in this seminar.

Students learned about the fuel cells technology, Builds knowledge on the Hydrogen fuel cells technology and applications of fuel cells technology, Students understand of current advancement and different types of fuel cells technology used in automobiles, industries etc.

A total of 50 students and two faculties' members have participated in this seminar. He was well explained about basics of fuel cells technology, various types of fuel cells, working principles, Hydrogen fuel cells availability in India and other countries and its applications.

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(AN AUTONOMOUS INSTITUTION)

### DEPARTMENT OF MECHANICAL ENGINEERING



Organizing  
A Seminar On



### "RECENT TRENDS IN GREEN POWER TECHNOLOGY"



#### Resource Person

**Dr.Muthukumar** M.B.,Ph.D.

Professor

Department of Mechanical Engineering  
Nandha Engineering College, Erode



*Welcome You All*

DATE : 28.03.2024(Thursday)  
TIME : 10 am to 12 pm

VENUE : JKKMCT, Seminar Hall,  
J.K.K.Munirajah college of Technology



Dr.K.Sridharan  
Principal

Mr.K.Sriram  
Principal

### INVITATION OF THE SEMINAR EVENT

*[Signature]*  
Principal

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**2.3 WORKSHOP**

**Principal**

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## DEPARTMENT OF CIVIL ENGINEERING

NAME OF EVENT ORGANIZED	ONE DAY WORKSHOP
NAME OF CHIEF GUEST/SPEAKERS	Er.K.G.ASHOKKUMAR, SOUVENIR COMMITTEE, ERODE DT CIVIL ENGINEERSASSOCIATION
TITLE OF THE EVENT	BUILDING INFORMATION MODELING (BIM)
VENUE	JKKMCT -SEMINAR HALL
NO OF PARTICIPANTS	15

The one-day workshop on Building Information Modeling (BIM), organized by the Department Civil Engineering at JKKMCT, successfully brought together faculty members, engineers, researchers to delve into the latest advancements in construction technology.

BIM, as a revolutionary tool, continues to reshape the construction industry by enhancing collaboration, reducing errors, and improving efficiency in the design, construction, and operation of buildings.

This workshop was aimed at providing participants with a deeper understanding of the fundamental principles of BIM, its applications in civil engineering, and its critical role in modern, sustainable construction practices.

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PHOTO OF THE EVENT

  
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## DEPARTMENT OF MECHANICAL ENGINEERING

NAME OF EVENT ORGANIZED	ONE DAY WORKSHOP AND HANDS ON TRAINING ON 3D PRINTING TECHNOLOGY
NAME OF CHIEF GUEST/SPEAKERS	SANDEEP KUMAR R.MANAGER – BUSINESSDEVELOPMENT INSTITUTE OF INDUSTRIAL DESIGN, SALEM
TITLE OF THE EVENT	HANDS ON TRAINING ON 3D PRINTING TECHNOLOGY
VENUE	MECHANICAL SMART CLASS
NO OF PARTICIPANTS	48

Students who learn 3D printing have the potential to become successful entrepreneurs. Here's how 3D printing skills can be leveraged to build a business

Start a business offering rapid prototyping services to startups, inventors, and product designers Short Runs 3D printing is ideal for small-scale production runs, perfect for niche markets

Eco-Friendly Production Market products as sustainable, using eco-friendly materials like PLA.

Unique Creations Use 3D printing to produce innovative artwork or sculptures.

Collaborations Work with architects, designers, or galleries to showcase and sell 3D- printed art.

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T.N.Palayam-638 506,Gobichettipalayam, Erode (DT), Tamil Nadu.



**DEPARTMENT OF MECHANICAL ENGINEERING**  
&  
**INSTITUTE OF INDUSTRIAL DESIGN SALEM**  
*Jointly Organising*



COUNSELING CODE  
**2758**

**ONE DAY WORKSHOP & HANDS ON TRAINING**

ON



**PRINTING TECHNOLOGY**

**Practical**

- Slicing Software
- Different types of Infill Patterns
- Types of support structures
- Printing demo on FDM Printers

**Theory**

- Advanced Additive manufacturing Technology
- Applications of Additive Manufacturing in various fields
- FDM FFF and SLA Technology
- Materials



**FOR REGISTRATION**



Registration Fee

**Rs.300/- per head**

**Resource Person:**

Mr.R.RAGUNATHAN  
Business Head,  
Institute of Industrial Design,  
Salem.

Faculty coordinator's  
Mr.E.Deeparaj  
9715539027

Dr.N.Sankar  
8946040512

Student Coordinator's  
M.Thirumurugan  
M.Kumaravel

Date : 26th Sep 2023  
Venue: Seminar Hall, JKKMCT

Dr.K.SRIDHARAN

Mr.K.SRIRAM

**INVITATION OF THE EVENT**

*(Signature)*  
Principal

J.K.K.Munirajah College of Technology  
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## About college

J.K.K. Munirajah college of Technology was established in the year 2008 Governed by Anna J.K.K.Sampooran Ammal Charitable Trust, primarily with the objective of delivering world class quality in Education and Training in a structured and systematic manner. J.K.K. Munirajah group of Institutions was founded by J.K.K.Munirajah, who is a reputed Industrialist, technocrat, an educationalist par excellence, an avid social worker, a person imbued in deep spiritual values and a philanthropist. The management has completed 25 years of dedicated service to the people of India and abroad in the field of Education. The Institution has an area of 250 acres of land richly endowed with beautiful greenland. The college with its state-of-the-art infrastructural facilities and excellent academic records has earned recognition as one of the reputed educational institutions for men and women in India.

## About Department

The Mechanical Engineering Department was started in the year 2010. The department offers four years B. E -Mechanical Engineering. The department has a team of highly qualified, dedicated and motivated faculty and well equipped laboratories with facilities for UG and PG Degrees has been Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai. The department of Mechanical Engineering is committed to excellence in academics by providing students ample opportunities for knowledge acquisition and application enabling them to changing global needs.

## ORGANIZING COMMITTEE

### Chief Patron

Mrs.J.K.K.VASANTHAKUMARI MUNIRAJA,  
Chairman, JKKMCT, Erode

Mrs.KASTHURIPRIYA KARUPAKAMURALI, MBA  
Secretary, JKKMCT, Erode

### Patron

Dr.K.SRIDHARAN  
Principal, JKKMCT, Erode

### HOD

Mr.K.Sriram  
Assistant Professor,  
Dept. of Mechanical Engineering, JKKMCT

### Coordinators

Mr. E.Deeparaj  
Assistant Professor,  
Dept. of Mechanical Engineering, JKKMCT  
Dr.N.Sankar  
Assistant Professor,  
Dept. of Mechanical Engineering, JKKMCT

## REGISTRATION

- ↔ Delegates from Academia : INR 300
- ↔ Student Delegates: INR 300.
- ↔ Selected candidates will be intimated by email.
- ↔ Confirmation of participation is to be made through E-mail reply.
- ↔ If selected, the applicant should attend the program without fail.
- ↔ No TA/DA will be provided
- ↔ The participants who are in need of accommodation have to make their own arrangement.

## RESOURCE PERSON

- ↔ Resource person from Industrial.

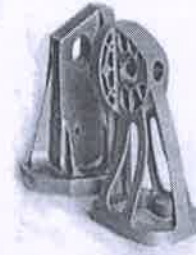
## IMPORTANT DATES

- ↔ Submission of Application form : 20.09.2023
- ↔ Intimation of Selection by E-Mail : 25.09.2023

## VENUE

- ↔ J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY.  
(Mechanical Smart class)

ONE DAY WORKSHOP  
&  
HANDS ON TRAINING ON  
3D PRINTING TECHNOLOGY  
On  
26<sup>th</sup> September 2023



Organized by  
DEPARTMENT OF MECHANICAL  
ENGINEERING



J.K.K.MUNIRAJAH COLLEGE OF  
TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)  
T.N.PALAYAM, ERODE – 638506, TAMILNADU  
Phone +91 99655 73111, Fax +91 4288-266760  
Web: www.jkkm.com, Email: jkkm\_kpm@yahoo.com

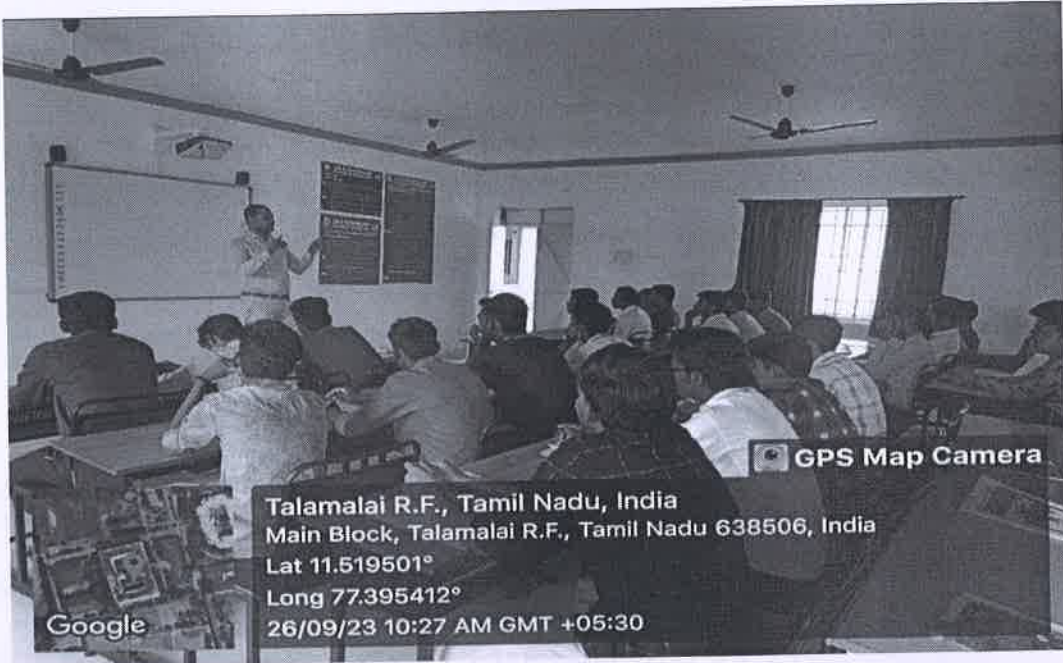
  
Principal

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Erode (Dt) - 638 506.

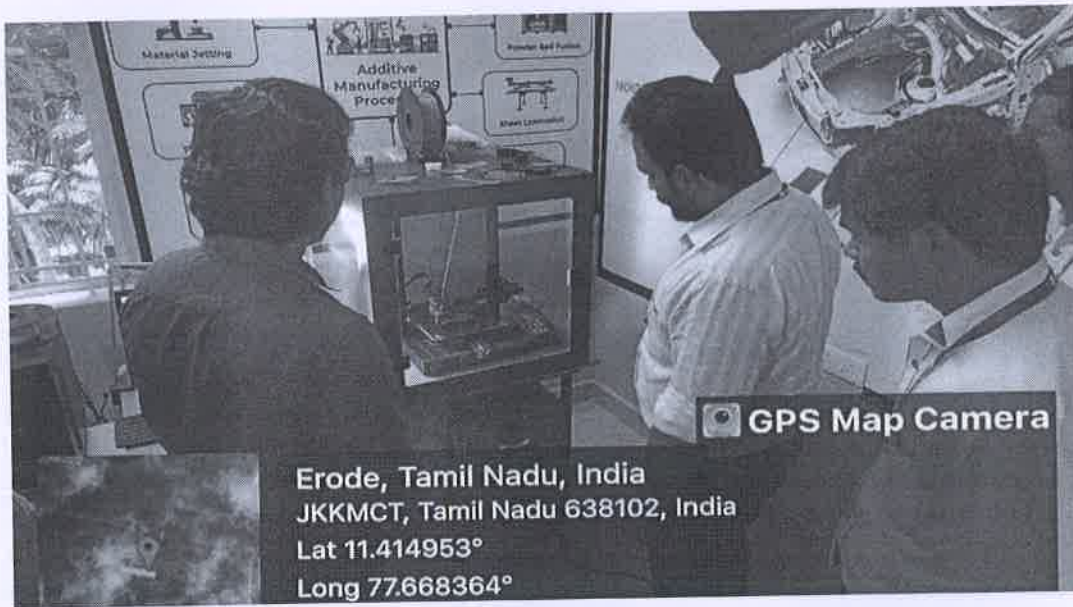


# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY (AUTONOMOUS)

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Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.




GPS Map Camera  
Talamalai R.F., Tamil Nadu, India  
Main Block, Talamalai R.F., Tamil Nadu 638506, India  
Lat 11.519501°  
Long 77.395412°  
26/09/23 10:27 AM GMT +05:30



GPS Map Camera  
Erode, Tamil Nadu, India  
JKKMCT, Tamil Nadu 638102, India  
Lat 11.414953°  
Long 77.668364°

## PHOTOS OF THE EVENT

  
**Principal**  
J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506,



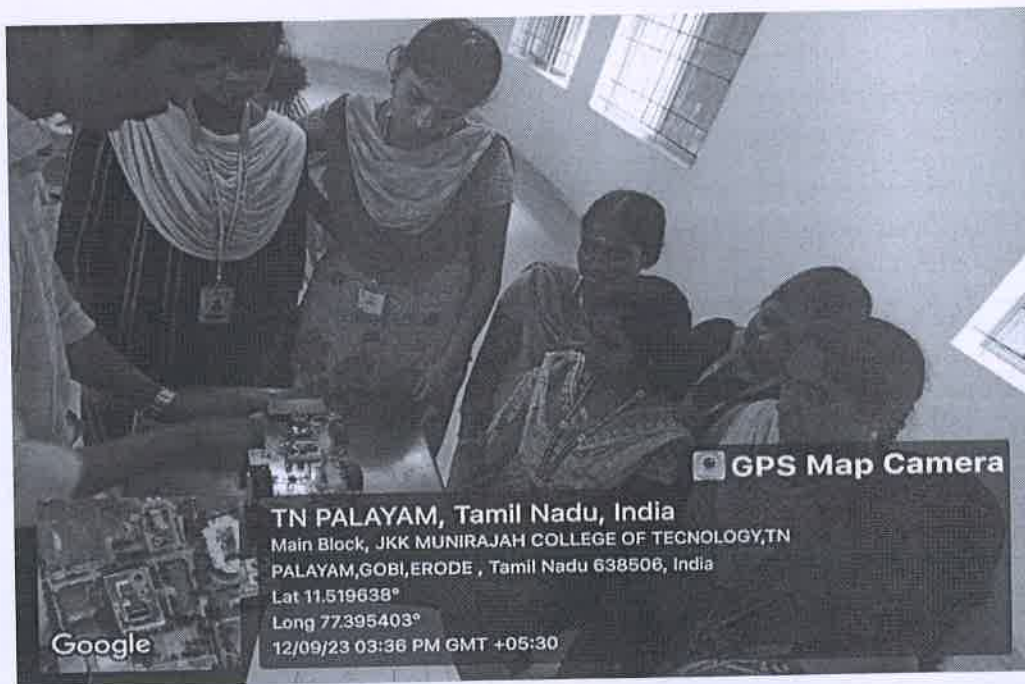
# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY (AUTONOMOUS)

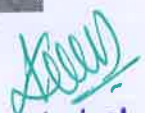
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Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



Event Organized By	ECE Department of JKKMCT
Name of the Event	A National level Workshop on "Exploring the Potential of IoT"
Date of the Event	12.09.2023
Venue	JKKMCT Seminar Hall
Name of the Resource Person	Mr.N.Boovananthan Embedded System Engineer, ETS Academy, Mettur Road, Erode.

- Electronics and Communication Engineering Students Association and a national level workshop on "Exploring the Potential of IoT" was conducted on 12.09.2023. The resource persons were Mr.N.Boovananthan Embedded System Engineer from ETS Academy Erode.



  
Principal  
J.K.K.Munirajah College of Technolo:  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506,



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T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



**3.1 FINAL YEAR  
PROJECT**



# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY (AUTONOMOUS)

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T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



## 2.3.1 Problem Solving techniques

Branch & Semester :Civil Engineering & VIII semester

PROJECT WORK Batch:2022-2023

S.NO	Title of the Project	Project Members	Reg.No	Guide's Name	Dept	Relevance				
						Research	Environment	CaseStudy	Ethics	Others
1.	AN EXPERIMENTAL INVESTIGATION ON PARTIAL REPLACEMENT OF SAND WITH INDUSTRIAL TEXTILE WASTE	DIVAKAR R	731220103001	Mrs.V.MOHANAPRIYA	CSE	✓	✓			

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T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



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Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



**AN EXPERIMENTAL INVESTIGATION OF  
PARTIAL REPLACEMENT OF SAND WITH  
INDUSTRIAL TEXTILE WASTE**



**A PROJECT REPORT**

Submitted by

**DIVAKAR.R**

**(731220103001)**

*In partial fulfillment for the requirement of award of the degree*

*of*

**BACHELOR OF ENGINEERING**

*in*

**DEPARTMENT OF CIVIL ENGINEERING**

**J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY**

**T.N.PALAYAM - 638 506**

**ANNA UNIVERSITY, CHENNAI - 600025**

**MAY-2024**

**Principal**  
J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506,



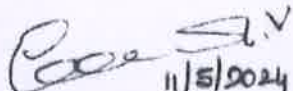
**J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY**  
(AUTONOMOUS)

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.  
Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



**BONAFIDE CERTIFICATE**

This is to certify that the project report TITLED "AN EXPERIMENTAL INVESTIGATION OF PARTIAL REPLACEMENT OF SAND WITH INDUSTRIAL TEXTILE WASTE" is approved record of work done by R.DIVAKAR (731220103001), in partial fulfillment for the award of bachelor of civil engineering of Anna University of technology during the year 2023-2024.

  
11/5/2024  
SIGNATURE

Mrs.V.MOHANAPRIYA, M.E.,

SUPERVISOR

Department of civil engineering

J.K.K Munirajah College of Technology

T.N.palayam-638 506

  
11/5/24  
SIGNATURE

Mrs.V.MOHANAPRIYA., M.E.,


HEAD OF THE DEPARTMENT

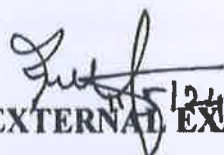
Department of civil engineering


J.K.K Munirajah College of Technology

T.N.palayam-638 506

Submitted for the end semester viva voice examination held on 11.5.2024

  
11/5/24  
INTERNAL EXAMINER

  
11/5/24  
EXTERNAL EXAMINER

  
Principal  
J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY

(AUTONOMOUS)

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Accredited by NAAC with "A" grade

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



## 2.3.1 Problem solving Techniques

Branch & Semester : Electronics & Communication Engineering & VIII semester

PROJECT WORK

Batch :2023-2024

S.No	Title of the Project	Project Members	Reg.No.	Guide's Name	Dept	Relevance				
						Research	Environment	Caste Study	Ethics	Others
1	INDUSTRIES BASED GAS OIL LEAKAGE DETECTION SYSTEM	MUTHUKUMAR SUGUNADEVI.M JANARTHANAN.K	731220106005 731220106007 731220106301	Mrs.U. SASIK ALA	ECE	✓	✓	✓	✓	
2	GAMIFIED APP FOR LEARNING BY PWDs USING ARTIFICIAL INTELLIGENCE	AJAYSRI. A KALAISELVI.K THANGESHWA RLG	731220205001 731220205011 731220205024	Mrs.D.NI VETHINI	IT		✓	✓	✓	
3	HEART DISEASE PREDICTION USING MACHINE LEARNING	PARVATHY.A PRIYANKA.S SHILPA.C	731220205017 731220205018 731220205303	Mrs.D.NI VETHINI	IT		✓	✓	✓	

*Principal*

J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



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4	IMAGE AI FLASK APPLICATION	DEEPAK.A RAMKUMAR.R SHIJIN KUMAR.K.G	731220205004 731220205019 731220205021	Dr.N.SATH YABALAJI	IT	✓	✓	✓	
5	SMART GATEPASS MANAGEMENT SYSTEM	MAYILRAJ.V	731220205014	Mrs.P.SAN GEETHA	IT	✓	✓	✓	
6	SMART HELMET	DINESH.S  SRIRAM.V  RAVINDHIRAN. R	731220205008  731220205023  731220205302	Mrs.S.THA RANI	IT	✓	✓	✓	
7	DESIGNING A CHATBOT FOR GOVERNMENT SCHEME ASSISTANCE	GOKUL.S PANDIYARAJ.C RAVI SANKARAN.N	731220205009 731220205016 731220205020	Dr.N.SATH YABALAJI	IT	✓	✓	✓	
8	VIRTUAL HR:AI DRIVEN AUTOMATION FOR CANDIDATE RECRUITMENT	KAVIN.P MUTHUKUMAR .G POORANESHW ARAN.N	731220205012 731220205015 731220205301	Mrs.S.THA RANI	IT	✓	✓	✓	
9	FARMERS AGRICULTURE ASSISTANCE CHATBOT	BALU R KAVIN.M DEEPAK.S BOOPALAN. M	731220104003 731220104012 731220104005 731220104301	Dr. N. SATHY ABALAJ I	CSE	✓	✓	✓	

J.K.K.Munirajah College of Technology  
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T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



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## 3.2 MINI PROJECT

**Principal**

**J.K.K.Munirajah College of Technology  
(Autonomous)**

**T.N. Palayam, Gobi (Tk),  
Erode (Dt) - 638 506,**



# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY (AUTONOMOUS)

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T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



## 2.3.1 Problem Solving techniques

Branch & Semester :Computer science and engineering & VI semester  
**PROJECT WORK** Batch:2023-2024

S.NO	Title of the Project	Project Members	Reg.No	Guide's Name	Dept	Relevance				
						Research	Environment	CaseStudy	Ethics	Others
1.	FARMERS AGRICULTURE ASSISTANCE CHATBOT	BALU R KAVIN.M DEEPAK.S BOOPALAN.M	73122010400 731220104012 731220104005 731220104301	Dr. N. SATHYABALAJI	CSE	✓	✓	✓		
2.	CREDIT CARD TRANSACTION USING FACE RECOGNITION	ABINAYA G DHARANISELVI. M ROSHMA I	731220104003 731220104012 731220104031	Mr.E.ANANTH	CSE	✓	✓	✓		
3.	A NOVEL HUNGER MANAGEMENT SYSTEM TO AVOID FOOD WASTAGE	CHARLES WILLIAM.L SUNDARAGANESAN.K VINOCHKUMARR.R	731220104025 731220104025 731220104031	Dr. N. SATHYABALAJIR	CSE	✓		✓		
4.	WEB-BASED CLOUD STORAGE FOR SECURE DATA SHARING ACROSS PLATFORMS	DEEPAK.S JAGATHESWARN.P ROHITH.R	731220104005 731220104009 731220104022	Dr.N.SATHYABALAJI	CSE	✓	✓	✓		
55.	FACEMASK DETECTION WITH ACCURACY	KARUNYAA.M RAMYA.S ROSHMA I	731220104010 731220104021 731220104023	Mr.S.D.NIVETHINI	CSE		✓		✓	



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7.	AI RESUME ANALYZER USING MACHINE LEARNING AND DEEP LEARNING	LOGANATH HANT VIGNESH. M NIRMALRA J.S	731220104029 731220104030	Mrs.M.C.SAVITHRI	CSE	✓	✓	✓	
8.	REAL TIME DRIVERS DROWSINESS DETECTION	KATHIRESAN. K DHAMODARA N.G	731220104301 731220104302	Dr.N.SATHYABALAJI	CSE		✓	✓	✓

  
Principal

J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
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Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



**FERTILIZER RECOMMENDATION  
SYSTEM FOR DISEASE PREDICTION**



**A PROJECT REPORT**

**Submitted by**

<b>S.DEEPIKA</b>	<b>(731220104006)</b>
<b>T.VINISHA</b>	<b>(731220104029)</b>
<b>A.VINITHA</b>	<b>(731220104030)</b>


*in partial fulfillment for the award of the degree  
of*

**BACHELOR OF ENGINEERING**  
in  
**COMPUTER SCIENCE AND ENGINEERING**

**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
**T.N.PALAYAM, GOBI-638 506**

**ANNA UNIVERSITY :: CHENNAI 600 025**

**MAY 2024**

  
**J.K.K.Munirajah**  
(Autonomous)  
T.N.Palayam, Gobi (T)  
Erode (Dt) - 638 506.



# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY

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Accredited by NAAC with "A" grade

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



ANNA UNIVERSITY :: CHENNAI 600 025

## BONAFIDE CERTIFICATE

Certified that this project report on "FERTILIZER RECOMENDATION SYSTEM FOR DISEASE PREDICTION" is the bonafide work of "S. DEEPIKA (731220104006) , T. VINISHA (731220104029) and A. VINITHA (731220104030)" who carried out the project work under my supervision.

  
SIGNATURE

  
SIGNATURE

Dr.N. SATHYABALAJI M.E, Ph.D,M.I.S.T.E Mrs.M.C.SAVITHRI, M.E.,

ASSOCIATE PROFESSOR

ASSISTANT PROFESSOR

HEAD OF THE DEPARTMENT

SUPERVISOR

Dept. of Computer Science and Engineering

Dept. of Computer Science and Engineering

J.K.K.Munirajah College of Technology

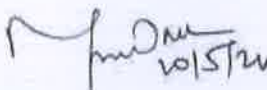
J.K.K.Munirajah College of Technology


T.N.Palayam.

T.N.Palayam.

Submitted for the Viva-Voce examination held on 10.05.2024 (FN)

  
INTERNAL EXAMINER

  
EXTERNAL EXAMINER

  
Principal  
J.K.K.Munirajah College of Technolo  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.



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(AUTONOMOUS)

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.  
Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



**A NOVEL HUNGER MANAGEMENT SYSTEM  
TO AVOID FOOD WASTAGE**



**A PROJECT REPORT**

*Submitted by*

CHARLES WILLIAM L	(731220104004)
SUNDARA GANESAN K	(731220104025)
VINOTHKUMAR R	(731220104031)

*In partial fulfilment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

**IN**

**COMPUTER SCIENCE AND ENGINEERING**

**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY**

**T.N. PALAYAM, GOBI – 638506**

**ANNA UNIVERSITY: CHENNAI-600025**

**MAY-2024**

**Principal**

**J.K.K.Munirajah College of Technology,  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506.**



# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY (AUTONOMOUS)

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Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



## BONAFIDE CERTIFICATE

Certified that this project report on "A NOVEL HUNGER MANAGEMENT SYSTEM TO AVOID FOOD WASTAGE" is the Bonafide work of "CHARLES WILLIAM L (731220104004) and SUNDARA GANESAN K (731220104025) and VINOTHKUMAR R (731220104031)" who carried out the project work under My supervision.

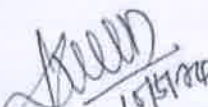
  
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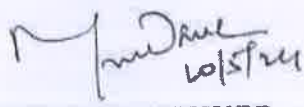
Dr.N. SATHYABALAJI M.E., Ph.D., M.I.S.T.E.,  
ASSOCIATE PROFESSOR  
HEAD OF THE DEPARTMENT  
Dept of Computer Science and Engineering  
J.K.K. Munirajah College of Technology  
T.N. Palayam.

  
SIGNATURE


Dr.N. SATHYABALAJI M.E., Ph.D., M.I.S.T.E.,  
ASSOCIATE PROFESSOR  
SUPERVISOR  
Dept of Computer Science and Engineering  
J.K.K. Munirajah College of Technology  
T.N. Palayam.

Submitted for the Viva-Voce examination held on 10.05.2024 FN

  
INTERNAL EXAMINER

  
EXTERNAL EXAMINER

ii

  
Principal  
J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506



# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

(AUTONOMOUS)

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

Accredited by NAAC with "A" grade

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



## CREDIT CARD TRANSACTION USING FACE RECOGNITION



A PROJECT REPORT

*Submitted by*

ABINAYA G

(731220104001)

DHARANISELVI M

(731220104007)

ROSHMA I

(731220104023)

*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

*in*

**COMPUTER SCIENCE AND ENGINEERING**

**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY**

**T.N. PALAYAM, GOBI – 638506**

**ANNA UNIVERSITY: CHENNAI-600025**

**MAY 2024**

**Principal**

**J.K.K.Munirajah College of Technolog,**

**(Autonomous)**

**T.N.Palayam, Gobi (Tk),**

**Erode (Dt) - 638 506**



**J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY**  
(AUTONOMOUS)

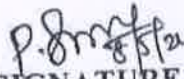
Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.  
Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



**BONAFIDE CERTIFICATE**

Certified that this project report on "CREDIT CARD TRANSACTION USING FACE RECOGNITION" is the Bonafide work of "ABINAYA G (731220104001) and DHARANISEVI M (731220104007) and ROSHMA I (731220104023)" who carried out the project work under my supervision.

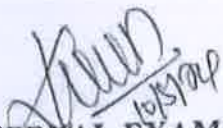
  
SIGNATURE

  
SIGNATURE


**Dr.N.SATHYABALAJI M.E., Ph.D., M.I.S.T.E.,**  
**ASSOCIATE PROFESSOR**  
**HEAD OF THE DEPARTMENT**  
Dept of Computer Science and Engineering  
J.K.K. Munirajah College of Technology  
T.N. Palayam.

**Mrs.P.SASIREKA M.E.,**  
**ASSISTANT PROFESSOR**  
**SUPERVISOR**  
Dept of Computer Science and Engineering  
J.K.K. Munirajah College of Technology  
T.N. Palayam.

Submitted for the Viva-Voce examination held on 10-05-2024 (FN)

  
INTERNAL EXAMINER

  
EXTERNAL EXAMINER

  
**Principal**  
**J.K.K.Munirajah College of Technology**  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506



**J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY**  
(AUTONOMOUS)

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.  
Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



**BONAFIDE CERTIFICATE**

Certified that this project report on "Bus Time Table Management Assistant" is the bonafide work of "P.JAGATHESWARAN (731220104009), R.ROHITH (731220104022), K. SIVALINGAM (731220104024)" who carried out the project work under my supervision.

  
SIGNATURE

Dr. N. SATHYABALAJI M.E., Ph.D., M.I.S.T.,

ASSOCIATE PROFESSOR

HEAD OF THE DEPARTMENT

Dept. of Computer Science & Engineering

JKK Munirajah college of technology.

T.N. Palayam.

  
SIGNATURE

Mr.G.TAMILSELVAN M.E.,

ASSISTANT PROFESSOR

SUPERVISOR

Dept. of Computer Science & Engineering


JKK Munirajah college of technology,

T.N. Palayam.

Submitted for the Viva-Voce examination held on 10.05.2024 / FN

  
INTERNAL EXAMINER

  
EXTERNAL EXAMINER

  
Principal  
J.K.K.Munirajah College of Technology  
(Autonomous)  
T.N.Palayam, Gobi (Tk),  
Erode (Dt) - 638 506



**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**  
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Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.  
Accredited by NAAC with "A" grade  
T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506.



**A PROJECT REPORT**

*Submitted by*

<b>LOGANATHAN T</b>	<b>(731220104014)</b>
<b>NIRMALRAJ S</b>	<b>(731220104019)</b>
<b>VIGNESH M</b>	<b>(731220104028)</b>

*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

*in*

**COMPUTER SCIENCE AND ENGINEERING**

**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY**

**T.N.PALAYAM, GOBI - 638 506**

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# J.K.K.MUNIRAJAH COLLEGE OTECHNOLOGY

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## BONAFIDE CERTIFICATE

Certified that this project report on "AI RESUME ANALYZER USING MACHINE LEARNING AND DEEP LEARNING" is the Bonafide work of "T. LOGANATHAN (731220104014), S. NIRMALRAJ (731220104019), M. VIGNESH (731220104028)" who carried out the project work under my supervision.

  
SIGNATURE

  
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Submitted for the Viva-Voce examination held on 10.05.2024 (FN)

  
INTERNAL EXAMINER

  
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## ABSTRACT

The Intelligent Resume Analyzer is an AI-powered system that analyses candidate resumes and makes recommendations to enhance them. The system takes a candidate's resume as input and processes it using machine learning algorithms to discover areas for improvement. The system's main goal is to assist job searchers in creating resumes that can pass the screening process of job interviews.

To extract useful insights from the candidate's resume, the system employs a variety of approaches such as natural language processing, text mining, and sentiment analysis. It examines the candidate's experience, skills, education, and achievements to provide feedback on how to improve the resume. The algorithm also evaluates the resume's layout, language, and spelling to verify it follows industry standards.

Both job searchers and recruiters can benefit from the Intelligent Resume Analyzer. Recruiters can use the system to swiftly find the top candidates for a certain job, while job seekers can use it to build resumes that are more likely to pass the screening process of interviews. Job seekers can improve their chances of getting hired for the positions they want by utilizing the Intelligent Resume Analyzer.

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## CHAPTER 9

### CONCLUSION AND FUTURE WORK

#### 9.1 CONCLUSION:

All In conclusion, the Intelligent Resume Analyzer system is a powerful tool that analyses resumes and makes suggestions for improvement using artificial intelligence and machine learning algorithms. The system gives individualized feedback to assist job searchers improve their resumes and raise their chances of success by utilizing the power of AI and natural language processing techniques.

The Intelligent Resume Analyzer system's methodology section discussed the study design, data gathering, and analytic techniques utilized in the system's creation. The system was created using a supervised learning method, with annotated resumes used to teach the system to recognize specific patterns. The system was assessed based on its ability to forecast the suitability of a resume for a certain job vacancy.

Overall, the Intelligent Resume Analyzer technology has the potential to transform how job searchers produce resumes and apply for positions. The technology can help job searchers generate resumes that appropriately represent their qualifications and boost their chances of being hired by delivering individualized feedback. As the job market grows more competitive, the Intelligent Resume Analyzer technology can give jobseekers with a significant competitive advantage.

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**3.3 CASE  
STUDIES**

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**3.3 CASE STUDIES**

**DEPARTMENT OF M.E-COMPUTER SCIENCE AND ENGINEERING**

S.NO	NAME OF THE CASE STUDY	OUTCOME REPORT	TOTAL STRENGTH OF STUDENTS
1.	E-commerce Cloud Migration with Security	Seamless cloud migration, improved scalability, cost-efficiency, and agility with robust security measures.	15

**E-COMMERCE CLOUD MIGRATION WITH SECURITY CASE STUDY**

**CASE STUDY: E-COMMERCE CLOUD MIGRATION WITH SECURITY FOCUS**

**BACKGROUND:**

An established global e-commerce company, XYZ Retail, decided to migrate its operations to the cloud to enhance scalability, reduce operational costs, and improve overall agility. However, given the sensitive nature of customer data and the ever-evolving threat landscape, the organization placed a strong emphasis on integrating robust security measures throughout the migration process.

**CHALLENGES:**

➤ **Data Protection:**


- Ensuring the protection of sensitive customer information during and after the migration process.

➤ **Compliance:**

- Adhering to industry-specific regulatory requirements and data protection standards.

➤ **Continuous Monitoring:**

- Establishing mechanisms for continuous monitoring and threat detection

  
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in the cloud environment.

## SOLUTIONS:

- **Multi-Layered Encryption:**
  - Implemented end-to-end encryption for data in transit and at rest.
  - Leveraged encryption key management systems to ensure secure key storage and access.
- **Identity and Access Management (IAM):**
  - Established strict IAM policies to control access to cloud resources.
  - Implemented role-based access controls (RBAC) to ensure the principle of least privilege.
- **Regular Security Audits:**
  - Conducted thorough security audits and vulnerability assessments before, during, and after the migration.
  - Engaged third-party security experts to perform penetration testing to identify and address potential weaknesses.
- **Comprehensive Compliance Framework:**
  - Developed a compliance framework aligned with industry standards and regulations.
  - Regularly updated policies and procedures to ensure ongoing compliance.
- **Incident Response and Recovery Plan:**
  - Formulated a detailed incident response and recovery plan to address any security incidents promptly.
  - Conducted regular tabletop exercises to test and refine the incident response procedures.

## OUTCOME:

### ➤ **Successful Cloud Migration:**

The organization seamlessly migrated its operations to the cloud, experiencing improved scalability and agility.

### ➤ **Enhanced Data Security:**

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Customer data remained secure throughout the migration process, mitigating the risk of data breaches.

➤ **Cost-Efficiency:**

Achieved cost savings through the cloud's pay-as-you-go model while maintaining security measures.

➤ **Adherence to Compliance Standards:**

XYZ Retail consistently met and exceeded industry-specific regulatory requirements, fostering trust among customers and partners.

➤ **Proactive Threat Detection:**

Continuous monitoring and proactive threat detection mechanisms helped identify and address potential security issues before they could escalate.

This case study highlights how a meticulous approach to security, encompassing encryption, IAM, compliance, and incident response planning, can facilitate a secure and successful migration to the cloud for e-commerce organizations.

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## DEPARTMENT OF MASTER OF BUSINESS ADMINISTRATION

S.NO	NAME OF THE CASE STUDY	OUTCOME REPORT	TOTAL STRENGTH OF STUDENTS
1.	ABSENCE AND CAPABILITY MANAGEMENT	Our involvement ensured that the client fulfilled their obligations under equality and disability legislation, especially the duty to make reasonable adjustments.	20

### ABSENCE AND CAPABILITY MANAGEMENT

#### CASE STUDY: ABSENCE AND CAPABILITY MANAGEMENT IN ANIMAL PARK

##### THE CLIENT

A animal park offering bird of prey experiences, flying displays, school visits, children's parties and Phot ography workshop

##### THE BRIEF

The client had a disabled employee who came to the company via the government Workstart scheme. The employee's performance and attendance had begun to cause concern and the client was worried pote: tial disability discrimination in dealing with the issues.


##### THE SOLUTION

Solutions for HR initially adopted an informal approach to discussing the problem in a sensitive and non-Intrusive manner.

During an informal discussion, the employee advised that she was feeling tired and this accounted for her frequent absences and performance issues.

We recommended offering a temporary reduction in hours which the employee accepted. The employee was also advised of the improvements expected.

Despite the adjustments made, the situation quickly deteriorated and within two weeks the employee was certified off work for 4 weeks by her GP with work-related stress

  
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Solutions for HR engaged the services of an Occupational Health Professional to evaluate the employee's condition, reasons for absence and to advise on measures to facilitate a return to work.

Further absence capability meetings followed at regular intervals and eventually, the employee agreed there was nothing further that the company could do to facilitate a return to work and she simply could not cope with the work.

She subsequently resigned.

**CASE STUDY -2**

S.NO	NAME OF THE CASE STUDY	OUTCOME REPORT	TOTAL STRENGTH OF STUDENTS
1.	<b>DISCIPLINARY INVESTIGATION</b>	Our involvement provided an impartial investigation for the client to enable management to pursue disciplinary proceedings internally. Solutions for HR ensured that a fair and robust investigation was carried out in line with the Acas Code of Practice.	20

**DISCIPLINARY INVESTIGATION**

**CASE STUDY: DISBILINARY INVESTIGATION**

**THE CLIENT**

The client is a textile manufacturer with a diverse portfolio of operations supplying to the automotive, furniture, bedding, civil engineering, aerospace and construction industries.

**THE BRIEF**

The client had received concerns from numerous employees relating to a colleague's inappropriate behaviour on the shop floor.

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The initial concerns related to events impacting on the effective running of the machinery, however suspicions were growing about why these events were happening, which included potential sabotage, racial abuse and victimisation towards a work colleague.

## THE SOLUTION

Following initial advice to the company to suspend the employee on full pay, Solutions for HR began a formal investigation into the concerns by interviewing the perpetrator, victim and witnesses.

Recognising the sensitivities of the potential racial motives for the inappropriate behaviour, delicate seen as "blowing the whistle" which may lead to issues for others.

Solutions for HR engaged the services of an Occupational Health Professional to evaluate the employee's condition, reasons for absence and to advise on measures to facilitate a return to work.


## THE RESULT

Our involvement provided an impartial investigation for the client to enable management to pursue disciplinary proceedings internally.

Solutions for HR ensured that a fair and robust investigation was carried out in line with the Acas Code of Practice.

The company were able to review the full suite of evidence supplied and take the appropriate steps to formally address the matter, with independent support and advice provided by Solutions for HR focused

The case resulted in a summary dismissal.

  
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