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NEWSLETTER

DJMIT-SPANDAN

Dr. Jivraj Mehta Institute of Technology (DJMIT)
An Institute approved by AICTE, New Delhi & affiliated to Gujarat Technological University, Ahmedabad
Managed by: Charuttar Education & Navrachana Trust

Shri. NarendraShrimali,
Chairman , DJMIT,

FROM THE CHAIRMAN'S DESK

Dr. Jivraj Mehta Institute of Technology (DJMIT) was established in 2010 under the auspices of Charutar Education and Navrachna Trust (CENT) to provide quality education in the ever changing field of technical education. Over a period of more than ten years DJMIT has found a strong foot holding and tried to achieve the objectives of establishing the institute for the betterment and growth of students in the field of technical education.

We believe that in addition to technical education, cultural and sports also plays a major role in the overall development of potential and aspiring engineers which will enable them to understand and respond to society needs by providing appropriate solutions.

It is moment of great pride that the institute has started Newsletter DJMIT-SPANDAN. I extend a warm welcome to the highly talented generation of today to our Newsletter. It will provide great platform to express ones feelings, talent and ability in different fields along with technical field.

We can start various activities by remembering the saying by ZigZiglar
"You don't have to be great to start, but you have to start to be great."

Narendra Shrimali

FAMOUS QUOTES: ***"The future of India is interwined with its ability to integrate Science and Technology"*** **By Dr. S. Radhakrishnan**

EFFECTS OF GEOSYNTHETIC REINFORCEMENT ON THE PROPAGATION OF REFLECTION CRACKING IN ASPHALT OVERLAYS

To determine the effects of geosynthetic reinforcement on mitigating reflection cracking in asphalt overlays. The objectives of this study were to assess the effects of geosynthetics inclusion and its placement location on the accumulation of permanent deformation. To simulate an asphalt pavement overlaid on top of a crack in concrete or asphalt pavement, an asphalt mixture specimen was placed on top of two discontinuous concrete or asphalt concrete blocks with 100mm ht.

Four types of specimens were prepared wrt the location of geogrid:

(I) Unreinforced samples, which served as control specimen,

(II) Samples with geogrid embedded on the concrete or asphalt concrete block,

(III) Samples with geogrid embedded 1/3rd depth of asphalt concrete from bottom,

(IV) Samples with geogrid embedded in the middle of the asphalt beam.

Each specimen was then placed on rubber foundation for testing. Simulated-repeated loading was applied to asphalt mixture specimens using hydraulic dynamic loading frame. Each experiment was recorded in its entirety by video camera to allow physical observation of reflection crack formation & propagation.

This study revealed that geosynthetic reinforced specimens exhibited resistance to reflection cracking. Placing the geogrid at the one-third depth of overlay thickness had the maximum predicted service life.

Results indicate a significant reduction in the rate of crack propagation and rutting in reinforced samples compared to unreinforced samples.

By: Prof. Nilam Prajapati
Asst. Professor, Civil Engineering Department,
DJMIT

RESEARCH OPPORTUNITIES IN BLOCKCHAIN

Blockchain technology has attracted the attention of many IT innovators and experts as one of the most exciting technological innovations in the sphere of digitization of secure ownership of assets. It is based on the concept of a distributed ledger, a way of cataloging and accounting for large volumes of data in a decentralized manner. Many people view the Blockchain as a disruptive technology that "will bring revolution in business and redefine companies and economies." The words "block" and "chain" in this context means digital information (the "block") stored in a public database (the "chain").

The Blockchain technology may have a revolutionary impact on many sectors like financial services, supply chain management, manufacturing, transport, healthcare, fashion, and entertainment. The impact emerges through the enhanced use of a globally decentralized infrastructure of the digital world by establishing novel applications and business models. All this recent progress in spite of, academic research in the IT/ ISfield has been dropping behind the practical advancement of this technology. Particularly, a definite framework for the study of the current public and private Blockchain applications has not yet emerged. Though blockchain has been generating enormous impacts to many aspects of our life, research on blockchain technology is still very limited.

There are many unexplored approaches and directions for research in this domain. One especially important research problem that requires immediate attention emphasizes on inspecting many subtle socio-cultural aspects of utilizing this technology, which puts together individuals, organizations, and the society as a whole. Some other remarkable topics of research include a theoretical insight of the disintermediated online trust behavior of suppliers and consumers, prospective ranges of IoT (Internet of Things) applications of Blockchain, diverse legal issues involving IT/IS digital contracts across Blockchain platforms, and so on.

The present editorial will be helpful for those researchers who have earlier made attempts to publish research on the Blockchain and cryptocurrency usage technology. It will also be useful to those who intend to explore the new field and look forward to publishing their work for the first time in the near future. In the coming years, researchers will have multiple aspects of this technology to explore both from the individual as well as from the organizational outlook.

By: Prof. Kaushal Patel
Head, Information Technology Department,
DJMIT

FAMOUS QUOTES: ***"India's place in the sun would come from the partnership between wisdom of its rural people and skill of its professionals"*** **By Dr. Verghese Kurien**

EVENT HIGHLIGHTS

FDP ON "I AM A TEACHER" FOR ALL TEACHING STAFF

Expert: Dr. Mulchand Sen
Target Audience: Faculties – all Departments

DJMIT organized an FDP on "**I am a Teacher**" on 18th and 19th September 2020. The Expert Speaker was Dr. Mulchand Sen, President JCI Bardoli 2017 and Founder – Dhyey Career Academy & Visa Consultancy, Bardoli. He highlighted about the role of teacher in Engineering Institute. FDP was meant for faculties from departments like Mechanical, Civil, Computer, I.T, Electrical and E.C.

The FDP started with Inaugural Session. Shri. Narendra Shrimali Sir, Chairman, DJMIT was present during the Session along with the Expert Dr. Mulchand Sen Sir with the FDP Coordinator Dr. Kajal Rao.

Dr. Sen took three different sessions during this FDP. He discussed on various aspects like role of a teacher & art of classroom management, enhancing communication skills, basics and professional etiquettes, etc.

On the Second Day, Dr. sen started with a prayer and discussed about effective teaching tool and techniques and goal congruence & work life balance. He discussed on several live cases and demonstrations on topics like how to take leadership, teamwork and also individual decision which is used in each and every situation. Participants were divided into teams and given tasks so as to see the inherent communication skills and skills as a team. Each team demonstrated their topics and he evaluated and discussed benefits of such demonstrative presentations.

Glimpses of FDP on 'I am a Teacher' on 18th and 19th September 2020

Benefits after FDP: faculties applying their skills and knowledge, student's satisfaction, enhanced teacher's effectiveness and also achievement of institute's objectives. Lastly, Feedback was taken from participants before the Valedictory Function.

WEBINAR ON COVID-19 IMPACT ON POWER SYSTEM

Expert: Dr. Nilesh Chothani
Target Audience: Students of Electrical Engineering

Webinar discussed the effect of the lockdown on the power sector in India as well as in other countries. The power contracted by 22.5% in April'20. Students of Electrical Engineering participated in this webinar.

During the lockdown it was expected that electricity demand and generation would be affected due to the restrictions on commercial, industrial and transport activity in the country. Moreover, the demand itself naturally shifted towards residential usage from commercial and industrial consumption due to people staying at their homes.

Dr. Nilesh Chothani delivered talk with in depth discussion and sharing knowledge with practical exposure through simulation and models. There was also Question-Answer session at the end of the webinar during which students asked their questions for updating their knowledge and awareness.

Renewables which includes solar, wind, small hydro and biogas saw a decrease (approximately 4 per cent) in overall generation as well but included a marginal increase in solar production.

Glimpses of Webinar attendees

DARK WEB AND DEEP WEB

This is the era of internet i.e. worldwide network with thousands of networks and tens of thousands of computers and websites with millions of users surfing various internet sites on any given day. The computers and computer networks exchange data using TCP/ IP to connect with each other over internet. Internet has wide verity of information like reviewing movies, reading books, searching exotic holiday locations, finding job, learning courses, etc. and the best thing about it is that most of them are free of cost. Free material is most likely in the public domains. The communication is made over internet the HTTP (Hyper Text Transfer protocol). HTTP is a connectionless text based protocol. Clients (web browsers) send requests to web servers for web components such as web pages, audio, video and images. After the request is serviced by a server, the connection between client and server across the Internet is disconnected.

If you engage in a commercial business deal, use a deep website that has a good status. Never pay with a credit card. There's little alternative in chasing down a hidden service operators from this sites.

Both the terms are often confused for each other frequently. Specific search engines tend to be greater than general ones for finding info on the deep web. The darknet is a small part of the deep web that is retained hidden on purpose. Websites and data on the dark web *do* usually require a different tools to access. The dark web holds the content and data that can be retrieved with anonymity. It could be a blog, forum, chat room, or private gaming server, but the prettiness of the darknet is anonymity. No one knows any other one in the real world, so long as they take the necessary precautions. Users are free from the prying eyes of governments and corporations.

By: Prof. Ritika Jani
Asst. Professor, Computer Engineering Department
DJMIT

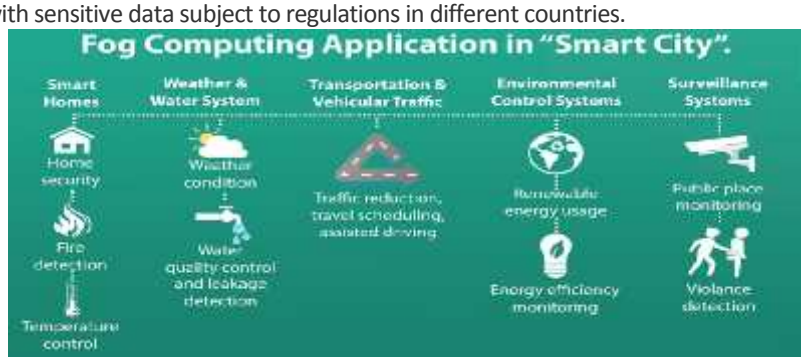
FOG COMPUTING

Fog computing is a decentralized computing infrastructure in which data, compute, storage and applications are located somewhere between the data source and the cloud. Like edge computing, fog computing brings the advantages and power of the cloud closer to where data is created and acted upon. Many people use the terms fog computing and edge computing interchangeably, because both involve bringing intelligence and processing closer to where the data is created. This is often done to improve efficiency, though it may also be used for security and compliance reasons.

The metaphor fog comes from the meteorological term for a cloud close to the ground, just as fog concentrates on the edge of the network.fog computing is open to the community at large. The key difference between edge and fog computing is where the intelligence and compute power is placed. In a strictly foggy environment, intelligence is at the local area network (LAN) and data is transmitted from endpoints to a fog gateway, where it is then transmitted to sources for processing and return transmission.

How fog computing works?

It is important to note that fog networking complements not replaces cloud computing; fogging allows for short-term analytics at the edge, and the cloud performs resource-intensive, longer-term analytics. While edge devices and sensors are where data is generated and collected, they sometimes don't have the compute and storage resources to perform advanced analytics and machine-learning tasks. Though cloud servers have the power to do these, they are often too far away to process the data and respond in a timely manner. In addition, having all endpoints connecting to and sending raw data to the cloud over the internet can have privacy, security and legal implications, especially when dealing with sensitive data subject to regulations in different countries.



Popular fog computing applications include smart grid, smart city, smart buildings, vehicle networks and software-defined networks.

By: Prof. Mayur Ajmeri
Asst. Professor, Computer Engineering Department
DJMIT

TRAINING AND PLACEMENT ACTIVITIES BY THE DEPARTMENT OF MECHANICAL ENGINEERING DURING LOCKDOWN PERIOD

The Training and Placement Cell, DJMIT facilitates the process of placement of students graduating from the institute besides collaborating with leading organizations in setting up internship programmes for the students. The Cell provides the infrastructural facilities to conduct pre-placement talks, online and written aptitude tests, group discussions, interviews besides catering to the hospitality of industry officials while on campus. Even in this pandemic, training and placement cell of the department of mechanical engineering put remarkable efforts for T&P activities by internet connectivity. Some of them are highlighted as below:

TRAININGS:

The department has organised following three online webinar for different students levels:

- "Role of Robotics in the furtherance of mankind" on 11th May 2020
- "Challenges and Opportunities in Renewable Energy" on 12th May 2020
- "Basics of 3D printing Technology" on 19th June 2020

PLACEMENT:

Due to firm efforts, department got success to secure placements of two students in the period. The details are as follows:

1. Nancy Samuel Baraiya, enrollment No. 160820119002 is placed in Unique Forgings India Private Limited, V.U. Nagar, Anand.
2.
3. Saiyad Mohmmadraish S, enrollment No. 140820119108 is placed in Varroc Engineering Ltd, Ahmedabad.

FACULTY ORIENTATION PROGRAM (ONLINE) ON "JAPANIVA"& "WORKEVA" PLACEMENT PROGRAMS

About the Event:

Career Development and Placement Cell (CDPC) of DJMIT had organized a faculty orientation program on **"JAPANIVA"** & **"WORKEVA"** placement programs for T & P and Internship Coordinators of all departments.

The aim of the orientation program was to familiarize the coordinators with CDPC cell and its new initiatives for students' placement.

Prof. Gaurav Patel started the online orientation program as per the schedule at 2:00 pm with a small introduction of CDPC and the different placement programs initiated by CDPC such as JAPANIVA and WORKEVA.

Later on, the session was handed over to Ms. Hetal Mehta, Career Mentor, Technoledge Infotech, Vadodara. The expert explained CDPC and both the programs in detail for more than half an hour.

Towards the end of the talk, coordinators of all departments asked different queries about each program which were resolved by Prof. Gaurav Patel and Ms. Hetal Mehta simultaneously. The program was successfully completed at 3:00 pm.

Details of Program:

Date		: October 12,2020
Venue		: Online (Google Meet)
Expert Name		: Ms. Hetal Mehta, Career Mentor, Technoledge
Duration		: 2:00 to 3:00 pm (01 hour)
Event Coordinator	:	Prof. Gaurav Patel, CDPC Coordinator (DJMIT)

INTERNSHIP OFFERED BY VARROC GROUP FOR ELECTRICAL ENGINEERING STUDENTS

VARROC GROUP Company, Ahmedabad offered a program for apprenticeship under "Product and Maintenance" Department for electrical engineering students.

Few students have shown their keen interest for this program in which the selected students will get remuneration from 1.5 lakh to 1.68 lakh per annum with subsidized food.

The students would be appointed nearby Ahmedabad City. The resumes of students of electrical department have been sent to Career Development and Placement Cell (CDPC), TPO, DJMIT.

By: Mr. Mayurdhvajsinh P Gohil
Dept. TPO Coordinator,
Asst. Professor, Electrical Engineering Department
DJMIT.

OVERVIEW OF WATER DISTILLATION METHODS

INTRODUCTION: Water and air are the most basic necessity for survival of living beings. Distilled water is needed for healthy life. Its quality is measured in TDS (total dissolved solids in PPM (parts/ million) and TSS (total suspended solids) in mg/l. Desalination is the science of removing salt and impurities from saline or sea water for potable water. Three types of water are Seawater, Brackish water and waste water. Studies are conducted on various systems to enhance the design and efficiency. Some methods used are RO, MSF, MED, ED, MD and SD. Research done is found on aspects like thermal modeling, experimentation, thermo-economic comparison, etc. to reduce the heat loss coefficient and increase distilled water output.

METHODS OF DISTILLATION

Reverse Osmosis (RO):

It is the main method of desalinated water. Its advantages are: hassle free function, low maintenance, higher output flow and preferred in urban areas as it runs on electricity. Globally-RO produces 22.4million m^3 of desalinated water/day (@ 51% of total daily output (TDO)). Its principle is similar to natural osmosis effect but in reverse direction using pump and a semi-permeable membrane, through which only water can flow thus entrapping salts and minerals.

Multi-Stage Flash Distillation (MSF):

It is second most used technology after RO systems. Globally MSF produces 14 million m^3 of desalinated water/day (@ 32% of TDO). It is mostly used in Arab countries. A MSF Distillation uses steam as its fuel of operation to increase the sea water temperatures which then flows through consecutive chambers to have reduced temperature. In each chamber evaporation occurs and the vapors are collected with the help of an outlet channel eventually the temperature decreases/ stage.

Multiple-Effect Distillation (MED):

In 1961 R. V. Dunkle published on a roof type solar distillation unit.

Today MED provides 3.7 million m^3 of desalinated water/day (@ 8% of TDO) and is becoming obsolete due to more energy consumption for its function. MED systems are used in Saudi Arabia, United Arab Emirates and Kuwait (Kuwait is a country totally dependent on desalinated water and desalinates 100% of its water). Its principle is similar to simple Distillation System. New MED systems are not installed anywhere due to its complex construction and the high installation and operating costs.

Electrodialysis Membrane (ED):

Most of the desalinated water in the world is obtained from the above said three systems. ED membrane produces 1.6 Million m^3 of desalinated water/ day (@ 4% of TDO). It is limited to desalinating only brackish water. It runs on direct current flowing through parallel channels divided by +ve/ -ve membranes which act like An-ion and Cat-ion membrane. In this system only ionic compounds can be removed from the water, whereas RO and Distillation systems can remove all types of impurities.

Membrane Distillation (MD):

It is not widespread due to its novelty and lack of research in the field. MD produces very low desalination (< 0.5%). A hydrophobic, microporous membrane is used to separate impurities from water. Being hydrophobic in nature the membrane passes out water vapour molecules, but captures the impurities in its pores. Temperature gradient between the feed water creates the permeate flux in a direction which flow occurs.

Solar Distillation (SD):

It is water desalination using Solar (Renewable) energy. SD Unit or a Solar Still utilizes irradiance passing through a transparent cover to heat the water in the basin. Water evaporates due to increasing temperature and controlled pressure inside the still. Water vapour rises upwards and starts to condensate on the inner side of condensing cover. This is collected through outlet channels. The most basic/ conventional Solar still is known as Single slope solar still having one basin and one condensing cover.

OTHER TECHNOLOGIES:

Freeze Thaw: The feed water is fed through heat exchanger. The ice crystals are separated in cycle outside the main refrigeration cycle while freshwater counter flow is forced on that mixture to clean the ice from brine. This ice then enters the Melter and freshwater is obtained from it. **Wave Powered Distillation:** It uses pump power with the help of ocean waves. A pump utilizes the forces of the waves to convert into useful mechanical work. **Vacuum Distillation:** It is a part of MD system using vacuum to enhance its productivity. A vacuum pressure is maintained in the side having permeate to remove volatile substances from freshwater. **Vapour-Compression Distillation: (**It uses heat from vapour compression to evaporate seawater. With the reduced pressure, the temperature required for boiling also reduces; this principle is utilized for this system).

Out of various distillation systems, **solar distillation** is promising option it being environmental friendly and effective for daily use with average distilled water output of basic solar still @ 2-3 lit/ day. Advances in solar distillation design helps in increased output. It is preferable to use solar distillation for thermo-economic considerations.

By: Mr. Nijith Mathew and Prof. Avdhoot Jejurkar
Alumni of ME Thermal Engg and Head, Mechanical Engineering Department
DJMIT

EVENT HIGHLIGHTS

WEBINAR ON "ACCELERATING CLEAN ENERGY THROUGH INDUSTRY 4.0"

Expert:
Shri. R.H. Kahar and Shri. Amarpal Kanojiya
Target Audience:
Students and Faculties of Electrical and Mechanical Departments and Industry persons

DJMIT Electrical Dept and SICD jointly organized this webinar on 10th October 2020. The Expert Speakers were Shri R.H. Kahar, Supdt. Er. (Renewable Energy), GSECL, Vadodara and Shri Amarpal Kanojiya. Asst. Prof. Electrical Dept, DJMIT.

The webinar was on Google meet platform. More than 100 Participants registered for the webinar from DJMIT and other institutes.

Shri R.H. Kahar shared his experience and concept of commissioning of residential and commercial solar projects.

Prof. Amarpa lKanojiya discussed how to correlate solar projects with Industry 4.0. He presented a live demonstration of how we could monitor and control the generation of solar pv system installed at a site.

Some participants shared their views about webinar at the end. Overall, the webinar delivered a great knowledge with the participants.

Glimpses of Webinar attendees

Glimpses of Webinar on "Accelerating Clean Energy through Industry 4.0"on 10th October 2020

74TH INDEPENDENCE DAY CELEBRATION

Independence Day has always remained a proud moment for each Indian to celebrate. Independence Day is commended throughout India on fifteenth August consistently. Independence Day is praised by each residence of India independent of position, ideology and religion.

Dr. Jivraj Mehta Institute of Technology, Mogar, Anand celebrated the 74th Independence Day of our Nation in a peaceful, grand manner and keeping social distance considering the precautions related to Covid-19 situation. Our Honorable Chairman Shri. Narendra Shrimali, hoisted the National Flag and accepted the salute and guard of honor.

During 74th Independence Day celebration, Honorable Chairman Shri. Narendra Shrimali, all Respected Directors, Faculty Members, Staff and support staff of Dr. Jivraj Mehta Institute of Technology were present to celebrate the event with great zeal and enthusiasm and maintaining social distancing. Prof. Anirudh Singh and Prof. Sunil Bachani coordinated the event.

On the eve of Independence Day, Chairman Sir gave a motivational and inspiring speech to make everyone present during the event to feel proud for our nation. He shared the information and importance of independence in our life. He said that Independence Day is one of the most noteworthy days in the Indian history that comments the boldness of our political dissidents. With structures enlightened by the tricolor, individuals give recognition to our chiefs and extraordinary contenders who battled and surrendered their lives for India's freedom. "Our Freedom" was laid on the sacrifices of many freedom fighters and hence celebrated with much dedication. The 74th Independence Day on 15th August 2020 is a national holiday when people express their happiness by singing patriotic songs and hoisting national flag when they get together to celebrate it.

Glimpses of 74th Independence Day Celebration on 15th August 2020

BIRTHDAY WISHES

To Our DJMIT Staff

MANY MANY
HAPPY RETURNS OF THE DAY

Birthdays in November

JAGDISH PARMAR	0n 8th
KAJAL RAO	On 9th
JIMESH RANA	On 18th

Birthdays in December

SAMARTH NAIK	On 1st
HITENDRA SHRIMALI	On 1st
PARMAR JIGNESH	On 12th
TUSHAR BHATIYA	On 18th
MITESH SHRIMALI	On 25th
MINESH RAJPUT	On 28th
HIREN TALATI	On 29th
VIVEK PATEL	On 30th
RIDDHI PATEL	On 31th

Birthdays in January

MANISH ROHIT	On 8th
AMIT PATEL (M)	On 13th
SANJAY PANCHAL	On 18th

INDIAN EDUCATION SYSTEM REQUIRES DEVELOPMENT IN ENTREPRENEURIAL ECOSYSTEM

Entrepreneurship is considered to be very important factor for the industrial growth of any country. India is in the middle of entrepreneurship development wave and is emerging as one of the most exciting entrepreneurial societies in the world. Various government initiatives like Ideas for New India, Make in India, Startup India, and Skill India are intended to transform the Indian economy into an 'entrepreneurial' from the 'managerial' one. Though Indian Government has taken several initiatives in this direction, it requires yet more sustained efforts in the domain of entrepreneurship education. There are a few universities/institutes which offer entrepreneurship education as a discipline, and there are some that offer it as a part of their wider syllabus. But the question remains whether these initiatives are enough to push entrepreneurship to a scale that India desires.

Education strengthens the most important part of an entrepreneurial culture or value. A recent study by the *Global Entrepreneurship Monitor (GEM)*revealed that entrepreneurship education in academic curriculum is an important factor in encouraging effective youth entrepreneurship. According to the report, a culture of experiential learning will provide students an opportunity to learn from the professional world and thereby assist them in their entrepreneurial journey. Therefore, the report establishes that entrepreneurs are not necessarily born but could be nurtured and developed through training as well. The GEM report, therefore, suggests introduction of entrepreneurship in school education too.

Professional institutions play a key role in promoting entrepreneurship and reducing employment dependency. Various stakeholders like the government, academicians, researchers and the private sector play an important role in enabling an entrepreneurial ecosystem. Though efforts are being undertaken by academia in promoting entrepreneurship education, a lot is yet to be done in this respect if India wants to resolve the issue of unemployment.

Government policies are enhancing their potential to support the entrepreneurial ecosystem. However, it is a matter of time before these initiatives translate into a booster dose for entrepreneurship development in India. Apart from improvement in education and training, along with government policies, factors like financial support, economic climate, commercial infrastructure and cultural and social norms play pivotal role in growth of entrepreneurship in India.

By: Prof. Anirudha Singh
I/c Head, EC Dept.,
Center Associate, SICD, DJMIT

FEEDBACK/ SUGGESTIONS:

We request our readers to send the Feedback/ Suggestions to:
Prof. Avdhoot Jejurkar at events@djmit.ac.in
Or to Whatsapp No. **9924296602** or
fill the google link given here: https://forms.gle/vHxj9Wp6aFr5EVgh9