



**POORNIMA**  
INSTITUTE OF ENGINEERING & TECHNOLOGY

Affiliated to RTU, Kota • Approved by AICTE & UGC under 2(f) • Accredited by NAAC and NBA

Technical Partner



International  
Online Faculty Development Programme on  
**Computational Mathematics for  
Engineers and Researchers**

**July 10-12, 2020**

Organized by  
Department of Mathematics  
&  
Department of Computer Engineering  
Poornima Institute of Engineering & Technology, Jaipur

A  
Report  
on  
Three days International Online Faculty  
Development Program on

**“Computational Mathematics for  
Engineers and Researchers”**

**July 10-12, 2020**

## *OVERVIEW*

FDP aims to provide a platform to learn about applications of engineering & research and hands-on using scientific tools for computational Mathematics and offers guidance for preparing journal articles, reports in a scientific structure and organized manner with necessary scientific computing.

Faculty Development Program (FDP) is being organized on Research paper writing and hands-on using scientific tools like Maple, Scilab, MATLAB and R programming.

### *Day #1*

**Opening Ceremony** :- The FDP is inaugurated by Prof. O. D. Makinde, Dr. S. R. Mishra, Dr. Dinesh Goyal, Mr. Deepak Moud, Dr. Priya Mathur and the participants with the prayer of Goddess Saraswati Devi.

The Welcome address was delivered by Mr. Deepak Moud and introduction of FDP was delivered by Dr. Priya Mathur.

The Chief Guest of FDP Prof. O. D. Makinde, Special Guest Dr. S. R. Mishra and Dr. Dinesh Goyal shared their valuable thoughts about theme of FDP. At last Dr. K. K. Gupta was delivered thank you speech.

### *Session Details of Day -1*

**Session-1:-** This session is taken by Dr. S. R. Mishra on the topic of “Maple Programming”. He talked about how to use Maple programming for Mathematical function.

**Session-2:-** This session is taken by Prof. O. D. Makinde on the topic of “Computational modeling of engineering problems”. He talked about a case study of automobile catalytic converter.

### *Session Details of Day -2*

**Session-1:-** This session is taken by Prof. Sanjeev Kumar on the topic of “Fuzzy logic and its application”. He discussed real life applications of fuzzy logic in engineering and research.

**Session-2:-** This session is taken by Dr. Sanjay Kumar on the topic of “Use of Scilab in research”. He talked about how to use Scilab for Mathematical function.

## Session Details of Day -3

**Session-1:-** This session is taken by Dr. Thirupathi T. Reddy on the topic of “MATLAB programming”. He talked about how to use MATLAB programming for Mathematical function.

**Session-2:-** This session is taken by Dr. Priya Mathur on the topic of “Basic Statistics with R programming”. She talked about how to use R programming for Mathematical and Statistical function.

## Valedictory Session closing of ceremony

The guest for valedictory session was Dr. S. R. Mishra, Dr. Dinesh Goyal, Dr. Priya Mathur. Concluding remark and vote of thanks was given by Dr. K. K. Gupta.

More than 400 Participants was benefited by this International online FDP. More than 200 participants have joined through Google meet and rests of the participants have joined via Youtube live. The participants also shared the feedback about the FDP through Google form. The E-Certificate has been issued by Certify'em of FDP to the participants.

The screenshot shows a Zoom Webinar interface. At the top, there are video thumbnails for Krishna Gupta, Prof. O. D. Makinde, S.R. Mishra, Dr. Priya Mathur, and Rahul Singhii. The main content area displays a slide titled "Introduction: Cars Air Pollution" with the S100 logo. The slide lists several points about air pollution from cars. On the right, a "Participants (43)" list shows panelists and attendees, including Krishna Gupta (Me), Rahul Singhii (Host), Prof. O. D. Makinde (Co-host), Dr. Priya Mathur, and S.R. Mishra. The bottom of the screen shows the Windows taskbar with various application icons and system tray information.

**Zoom Webinar**

Recording **LIVE** on YouTube

**Introduction: Cars Air Pollution** S100 1918 2018

- Millions of cars on the road are a source of air pollution.
- The amount of pollution that all the cars produce together can create big problems.
- Government create clean-air laws that restrict the amount of pollution that cars can produce to solve it.
- Automakers have made many improvement to car engines and fuel systems to keep up with these laws.
- In 1975 an interesting device called a **catalytic converter** was created.
- Catalytic converter is to convert harmful pollutants into less harmful emissions before they ever leave the car's exhaust system.

Participants (43)

Panelists (5) Attendees (38)

KG Krishna Gupta (Me)

Rahul Singhii (Host)

Prof. O. D. Makinde (Co-host)

Dr. Priya Mathur

SM S.R. Mishra

Invite Unmute Me Raise Hand

Type here to search

ENG US 12:31 10-07-2020

Zoom Webinar

Participants (52)

Panelists (5) Attendees (47)

KG Krishna Gupta (Me)

Rahul Singhii (Host)

Prof. O. D. Makin... (Co-host)

Dr. Priya Mathur

SM S.R. Mishra

Invite Unmute Me Raise Hand

Zoom Webinar Chat

From S.R. Mishra to All panelists:  
whether the shape of CC is cylindrical only, or it will affect if it is other than cylindrical

From SUMAN THAKUR to All panelists:  
hii sr

To: All panelists and attendees

Type message here...

8 items

Model Formulation

STOO 1918-2018

Assumptions

- Steady parallel flow
- Two dimensional problem
- Incompressible
- Cylindrical pipe filled with porous medium

O. D. Makinde: Applied Thermal Engineering, Vol.29 (2009) 1773-1777.

Dimensionless Model Equations

$$\frac{1}{\eta} \frac{d}{d\eta} \left( \eta \frac{dW}{d\eta} \right) - \beta W - SW^2 + A = 0$$

$$\frac{1}{\eta} \frac{d}{d\eta} \left( \eta \frac{d\theta}{d\eta} \right) + \lambda e^{(\theta - \theta_0)} + Br \left[ \left( \frac{dW}{d\eta} \right)^2 + \beta W^2 + SW^3 \right] = 0$$

Boundary Condition  $\rightarrow$   $\frac{dW}{d\eta}(0) = \frac{d\theta}{d\eta}(0) = 0, W(1) = 0, \frac{d\theta}{d\eta}(1) = -Bi\theta(1)$

11

meet.google.com/jry-csoi-xjx?authuser=1

10:19

Sanjeev Kumar

Priya Mathur

SHRUTHY MYSON 1942075

Aditya Kumar

Presentations (Sanjeev Kumar)

- Now days the insurance companies are still working on the traditional market system and that is based on the previous experiences of company as well as the survey made by that company.
- There may be some other factors also, but this traditional way is always helpful for the owner having negative credit while not helpful for the owner having positive credit. Therefore it is important that there may be a proper insurance premium so that owner having positive credit should get bonus while owner having negative credit should have mals.
- A model is designed here for the premium of car insurance which is based on the fuzzy inference system as its having a constant of partial membership as compared to Boolean logic.
- The input factors used in this model are, age of car, driving record from last year, geographical condition of area.

RAJASHRI PANDIT

Day 2\_FDP on "Computational Mathematics f...

Turn on captions Present now

Browser tabs: Inbox (1) - guptakrishn..., Information about Inte..., Poonima Group - Cale..., WhatsApp, Meet - Day 2\_FDP, FDP on Computational...

meet.google.com/jry-csoi-xjx?authuser=1

REC MR. AMIN TALH... and 132 more 10:33 You

Day 2\_FDP on "Computational Mathematics f...

Turn on captions Present now

Browser tabs: Regarding cer..., Inbox (32) - kr..., (1) WhatsApp, Meet - D..., Peer-reviewed, FDP on Comp..., IJAIR\_JOURNA..., scholar.goog...

meet.google.com/jry-csoi-xjx?authuser=1

REC Sanjay Kumar is presenting Yatendra Saini and 109 more 11:54 You

Day 2\_FDP on "Computational Mathematics f...

Turn on captions Sanjay Kumar is presenting

Meeting interface showing a presentation of MATLAB code in the Scilab console. The code includes matrix operations and a differential equation solution.

```

--> clear
--> a=zeros(3,3)
a =
0. 0. 0.
0. 0. 0.
0. 0. 0.
--> b=eye(3,3)
b =
1. 0. 0.
0. 1. 0.
0. 0. 1.
--> x1=1; y1=4; x2=10; y2=6;
--> dx=x2-x1; dy=y2-y1;
--> l=sqrt(dx^2 + dy^2)
l =
9.2195445
--> deff('z)=Euler(z,theta)', 'z'=exp(%i*theta)')

```

Participants listed on the right: Sanjay Kumar, Anupama Sharma, MR. AMIN TALHA BADRUL, mohit kumar aruk.



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## International Online Faculty Development Programme on Computational Mathematics for Engineers and Researchers

**July 10-12, 2020**

Organized by  
Department of Mathematics  
&  
Department of Computer Engineering  
Poornima Institute of Engineering & Technology, Jaipur

**CHIEF PATRON**  
Ar. Rahul Singhi  
(Director, Poornima Group, Jaipur)

**PATRON**  
Dr. Dinesh Goyal  
(Director, Poornima Institute of Engineering & Technology)

**PROGRAM CHAIR**  
Dr. Gautam Singh  
(Registrar, Poornima Institute of Engineering & Technology)

**CONVENER**  
Dr. Priya Mathur  
Associate Professor  
Department of Mathematics

**CO-CONVENER**  
Mr. Deepak Moud  
Dr. Krishna Kumar Gupta

**ORGANIZING COMMITTEE**

Dr. Amit Kumar Gupta  
Ms. Shruti Bijawat  
Mr. Abhishk Dadhich  
Ms. Pooja Sharma

Dr. O. P. Sikhwal  
Dr. Pran Nath Dadhich  
Dr. Sama Jain  
Mr. Sandeep Tuli

**CONTACT**  
Dr. Priya Mathur  
priya.mathur@poornima.org • 9929002065, 7790974955

**Timings:**  
Session 1: 10:00 am - 11:00 am  
Session 2: 11:00 am - 12:00 noon

**Tools**

- MATLAB
- R Programming
- Maple
- Sci lab

### DETAIL PLAN OF FDP

| Day-01   | Day-02   | Day-03   |
|--|--|--|
| <ul style="list-style-type: none"> <li>Computational modeling of engineering problems- a case study of automobile catalytic converter</li> <li>Basic statistics using R</li> </ul> | <ul style="list-style-type: none"> <li>Fuzzy logic and its applications</li> <li>How to use Sci Lab in Research</li> </ul> | <ul style="list-style-type: none"> <li>Development of computational skill using Maple</li> <li>Computational Mathematics using MATLAB</li> </ul> |

Note: 1) No Registration Fee    2) E-certificate will be provided to all the registered participants

Registration link will be open from 2 July 2020    <https://tinyurl.com/ybg6sn57>

EXPERTS



**Prof. O.D.Makinde**  
Stellenbosch University,  
South Africa



**Prof. Sanjeev Kumar**  
DBRAU, Agra



**Dr. Sanjay Kumar**  
GBPUAT, Pantnagar



**Dr. S R Mishra**  
S'O'A(Deemed to be University)  
Bhubaneswar



**Dr. Thirupatti Reddy**  
BVRIT, Narsapur Medak,  
Telangana