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Dr. N. Rajini, *Dean - FE, KARE*
Dr. M. Kameswari, *HoD - Mathematics, KARE*

PROGRAM COORDINATOR(S)

Mr. M. Matheswaran, *Asst. Prof., Mathematics*
Mr. P. Sundaresan, *Asst. Prof., Mathematics*

ORGANIZING COMMITTEE

Ms. A. Ahila, *Asst. Prof., Mathematics*
Dr. G. Chitra, *Asst. Prof., Mathematics*

TECHNICAL COMMITTEE

Dr. P. Karthick, *Asst. Prof., Mathematics*
Dr. K. Thangapandi, *Asst. Prof., Mathematics*

Resource Persons



Dr. Prakash R [PR]
Associate Professor,
Department of Mathematics,
RV College of Engineering, Bengaluru.



Dr. Niranjana P K [NP]
Assistant Professor,
Department of Mathematics,
RV College of Engineering, Bengaluru.



Dr. Saroj Kumar Dash [SK]
Assistant Professor,
Department of Mathematics,
VIT-Chennai.



Dr. Pradnya Gaonkar [PG]
Technical Lead,
Educational Technical Evangelist,
MathWorks, India.



Mr. Pratik Deshpande [PD]
Technical Lead,
Educational Technical Evangelist,
MathWorks, India.



One Week Faculty Development Program

On
VECTOR SPACES AND MULTI VARIABLE CALCULUS
USING MATLAB



17th – 21st July 2023

VENUE
Central Library - First Floor

SCHOOL OF FRESHMAN ENGINEERING
DEPARTMENT OF MATHEMATICS
KARE

GENESIS OF KARE

The parent Institute of KARE, Arulmigu Kalasalingam College of Engineering (AKCE) was started in 1984 by the veteran freedom fighter Kalvivalal T. KALASALINGAM under the Kalasalingam and Anandam Ammal Charities. It became a University when the MHRD of Government of India granted the University Status to it on 20th October 2006. The West Coast mountains, on whose foothills KARE is built, serves as an excellent backdrop to the high-rise structures of the University. The Mission of the University is "To produce technically competent and socially committed technocrats and administrators through quality education and research". KARE is the first institution in India offering special B.Tech programmes for the speech and hearing impaired students (SHIP). The University offers scores of B.Tech and M.Tech programmes, Research leading to PhD degree is available in all disciplines.

ABOUT FDP

This Faculty Development Program (FDP) aims at deliberation, sharing knowledge to the target audience about significance of MATLAB Tools and its applications, which can enable them to use it as a tool for solving real-life problems. In addition, this program provides an excellent opportunity to teach all engineering disciplines learn how to work with variables, data structures, loops, conditionals, functions, input and output, and application concepts within MATLAB. Also, it assists in using MATLAB efficiently to solve first year engineering mathematics problems and to visualize results differently, and hence it can be used by students to write mini projects.

Topics:

1. Matrices, Vector Spaces and Complex Variables [PR]
Matrices, Cayley-Hamilton Theorem, Diagonalization of matrices, Orthogonal transformation. Vector Spaces, Linear Transformation, Linearly dependent and Independent spaces. Analytic functions, Harmonic functions and their properties, conformal mappings, Mobius transformations and their properties.

2. One or Two Variable Calculus with Applications [NP]
Rolle's Theorem, Mean value Theorem, Limit, Continuity, Partial and Total Derivative, Maxima, Minima and Method of Lagrange multipliers, Integrals, Beta and Gamma functions. Complex Integration, Cauchy's Integral Theorem, Residue theorem.

3. ODE, Multiple Integration and Vector Calculus [SK]
Euler's equation, Second-order linear differential equations with constant coefficient and variables, Change of order of integration in double integrals, Applications involving cubes, Sphere. Gradient, curl and divergence, Theorems of Green, Gauss and Stoke's.

4. MATLAB GRADER AND SIMULINK [PG]
MATLAB Technical works, 2D, 3D plots, Documentation, data Import, Contour Integrals, Numerical differentiation & Integration, Integration around circles and semicircles, comments with codes to increase explainability, simulink calculus, mini projects.

5. Applications [PD]

Writing an algorithm in Engineering Mechanics, solving real-life applications in ODE by MATLAB.

PROGRAMME- SCHEDULE

Inaugural function on 17.07.23 at 9.00 - 9.30 am.

Date/Time	9.30-10.45 am	10.45-11.00 am	11.00-12.15 pm	12.15-1.45 pm	1.45-3.00 pm	3.00-3.15 pm	3.15-4.30 pm
17/07/23	PD	Tea Break	PD	Lunch	PG	Tea Break	PG
18/07/23	PD		PD		PG		PG
19/07/23	SK		SK		SK		SK
20/07/23	PR		PR		NP		NP
21/07/23	PR		PR		NP		NP

Registration Link:

<https://forms.gle/h3Jy1MAQQzdEJVQJ7>

Contact Person

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