

Resource persons include eminent professors from Inter University Accelerator Centre, New Delhi, Central University, Himachal Pradesh and industry experts.

Faculty who can attend:

Faculty handling first year Engineering courses especially Physics, Chemistry and Mathematics

Registration Fee:

Registration fee for the faculty of Spoke Institutions is FREE.

Registration fee for the faculty of other institutions is Rs.2,950.00 (inclusive of 18% GST).

The registration fee does not include accommodation charges. However, accommodation will be provided in the campus hostel on request based on availability.

DD may be drawn in favour of **Principal, RVCE**, payable at Bengaluru.

Last date for registration is 06-07-2019

Chief Patrons

Dr. M.K. Panduranga Setty, *President, RSST*

Advisory Committee

1. Dr. K.N. Subramanya, *Principal, RVCE*
2. Dr. M. Krishna, *Director-R&D, HoD-ME*
3. Dr. B.V. Uma,
Chief Coordinator, Margdarshan
4. Dr. M. Uttarakumari, *Professor,
EC, Coordinator, CoE-CME*
5. Dr. K. Sridevi, *HoD-Mathematics*
6. Dr. Sudha Kamath M.K., *HoD-Physics*
7. Dr. Raviraj Kusanur, *HoD-Chemistry*

Organizing Committee

1. Dr. D.N. Avadhani, *Assoc. Prof., Physics*
2. Dr. B.M. Rajesh, *Asst. Prof., Physics*
3. Dr. S. Shubha, *Asst. Prof., Physics*
4. Dr. M. Sridharan, *Asst. Prof., Chemistry*
5. Dr. R. Mahesh, *Asst. Prof., Chemistry*
6. Dr. G. Jayalatha, *Assoc.Prof., Mathematics*
7. Dr. Neeti Ghiya, *Assoc.Prof., Mathematics*
8. Dr. Savithri Shashidhar, *Assoc.Prof., Maths*
9. Dr. R. Prakash, *Asst. Prof., Mathematics*

Chief Coordinator

Dr. B.V. Uma

*Professor, Department of Electronics & Communication Engineering
R.V. College of Engineering, Bengaluru - 560 059
e-mail: umabv@rvce.edu.in; Phone: 9845593646*

For further information, please contact

Mr. R.B. Ravi Varma

*Project Office-Margadarshan
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**RV Educational Institutions
RV COLLEGE OF ENGINEERING®**

(Autonomous Institution Affiliated to VTU, Belagavi)

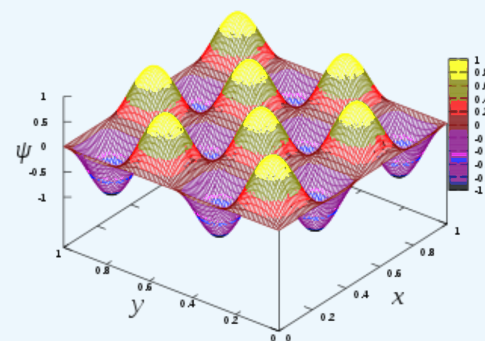
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**AICTE Sponsored Share & Mentor Institutions
(Margdarshan) Scheme**

**Six-Day Faculty Development Programme on
“Computational Science in Engineering”**



15 - 20 July, 2019

Organized by

RV COLLEGE OF ENGINEERING®

Bengaluru - 560 059

About RVCE

Rashtreeya Vidyalyaya College of Engineering (RVCE) established in 1963 is the flagship institution of Rashtreeya Sikshana Samithi Trust (RSST) and one of the earliest self-financing engineering colleges in the country. RVCE today is recognized as one of India's leading technical institutions. It is rated amongst the top five self-financing engineering colleges in the country. Several leading National English magazines have rated the institution as the best institute in the nation amongst self-financing institutions based on Return on Investment by a student. RVCE is the preferred destination for top ranking aspirants, both for UG and PG programs.

RVCE is an autonomous institution affiliated to Visvesvaraya Technological University (VTU) Belagavi. The curriculum for UG & PG programs are designed by Board of Studies and approved by the Academic Council. The institution offers 12 Bachelors and 19 Post-graduate programs. Fifteen departments are VTU recognized research centres for M.Sc (Engg.) and Ph.D. studies. Eleven UG programs and Ten Post-graduate programs are accredited by National Board of Accreditation (NBA).

The institution has students strength of about 5500 and 200 research scholars. The institution has more than 375 qualified faculty members. The placement in most of the departments is over 95%. The institution has to its credit over 1200 National and International Journal publications, 41 patents filed, 27 patents published, completed sponsored research and consultancy projects worth Rs. 25 crore. The institution has established Incubation Centre, Centre of Excellence in Macroelectronics, Cisco sponsored Centre of Excellence in Internet of Things, RVCE-Mercedes Benz Centre for Automotive Mechatronics, Toyota Kirloskar Motors sponsored Automotive workshop and RV-Bosch Rexroth Centre for Automation. The students have won awards and accolades in national and international competitions.

About Share & Mentor Institutions (Margdarshan) Scheme:

As a part of the above-cited AICTE sponsored “Share and Mentor Institutions (Margdarshan) scheme”, the Hub 'n Spoke System has been established by RV College of Engineering, Bengaluru as a Mentor within the existing facility to serve as the hub to guide and disperse knowledge to ten technical institutions to encourage best practices. The Hub 'n Spoke system allows for inter-hamlet information sharing, such as technical education, research and sharing of resources to the entire system. RV College of Engineering is expected to conduct programs for the technical upliftment of the member Institutions in terms of teaching learning process, research interaction between the hub and spoke for mutual benefits.

In line with the objectives, seven Guest Lectures at the member institute locations and one Faculty Development Programme at RVCE campus were organized for the benefit of faculty of the spoke institutions.

About FDP:

Teaching learning is being realigned itself with new tools and methods in the new educational scenario. Information and Communications Technology (ICT) can impact student learning when teachers are digitally literate and understand how to integrate it into curriculum. ICT tools open up wide arena of opportunities to improve the teaching learning process focusing on higher order thinking and autonomy of the learners. This FDP is focused on using open source software for scientific and mathematic computation. The program will help the faculty to explore the adoption of ICT tools in teaching Engineering courses thereby enhancing learning capability of students.

Objectives:

- To train faculty to adapt simulation based teaching in classroom to enhance learning capability of students.
- To aid students to understand difficult concepts and process by exploring 2D/3D models using ICT tools.
- To promote creativity in students by incorporating simulation based teaching.
- To increase rate of learning by including interactive session with the help of tools.

Topics to be covered:

Introduction to Python for scientific computation

- (i) Fourier series, Power Series, Bessel Functions, Polynomials, Legendre Functions, Spherical Harmonics, Numerical Differentiation, Solving Differential Equations: Runge-Kutta Integration.
- (ii) A Python programming environment for Solving Schrödinger's Equation: Numerical method to find the solutions and plot the results (wave functions or probability densities) for a particle in an infinite, finite, double finite, harmonic, Morse or Kronig–Penney finite potential energy well.
- (iii) Numerical Methods: Forced oscillation, RCL, Runge–Kutta Method.
- (iv) Plotting: Matplotlib, 2D Depiction, 3D Structure visualization (PyMol), Matrix math, Fourier transforms, ODEs, and other deep math topics, GUI Programming (PyChem).
- (v) Audio and Digital Signal Processing(DSP) in Python (NumPy and Scipy, Physics Simulations: Mass-Spring Problem, Mass Spring problem in 3D, Charged particle in Electric and Magnetic Fields.
- (vi) An Interactive Quantum Chemistry Programming Environment for Reference Implementations and Rapid Development:

Simulation and modelling using Scilab

- (i) Quantum Physics Simulation Using Scilab, Numerical Differentiation, Solving Differential Equations: for Solving Schrödinger's Equation, Runge-Kutta Integration.
- (ii) Numerical Methods: Forced oscillation ex: RCL.
- (iii) Plotting: Matplotlib, 2D Depiction, Matrix math, Fourier transforms, ODEs, and other deep math topics.
- (iv) XCOS: A toolbox for the modelling and simulation of dynamic (continuous and discrete) systems.

Easy Java Simulation

- (i) PhET: Interactive simulations for science and math, Interactive Illustrations, Explorations, and Problems for Introductory Physics.
- (ii) Physlet: Interactive Illustrations, Explorations, and Problems for Introductory Physics.
- (iii) Open Source Physics: It provides extensive resources for computational physics and physics simulations.

Hands on Training on computer interfaced experiments

- (i) Introduction and demonstration of open source expEYES device.
- (ii) Hands on Training using expEYES device

ACD/ChemSketch

A freeware drawing package that allows user to draw chemical structures including organics, organometallics, polymers, and Markush structures. It also includes features such as calculation of molecular properties, 2D and 3D structure cleaning and viewing, functionality for naming structures.

**Six-Day Faculty Development Programme on
“Computational Science in Engineering”**

Date: 15 - 20 July, 2019

Registration Form

Registration Form

Name _____

Designation _____

Qualification _____

Department _____

Institution _____

Gender ☐ M ☐ F
Category ☐ GM ☐ SC ☐ ST ☐ OTHERS

Address for Communication _____

Phone _____ E-mail _____

Registration Fee Details

DD No./Date _____

Amount _____

Name of the Bank/Branch _____

Place _____

Date _____

Applicant's Signature

Signature of the Head of Institution/
Sponsoring Authority
(for sponsored candidates)