ABOUT THE PROGRAMME:

Plasma (plasma state) is a quasineutral gas of charged and neutral particles which exhibits collective behaviour. Plasma processing is now indispensable to the fabrication of electronic components and is widely used in the aerospace industry, automotive, steel, biomedical, and toxic waste management.

Man-made low-energy highly collisional plasmas are particularly useful in materials processing applications. The outstanding properties of most plasmas applied to processing of materials are associated with non-equilibrium conditions. These properties present a challenge to the plasma scientist and an opportunity to the technologist across the globe.

Applications of plasma-based systems used to process materials, are diverse because of the broad range of plasma conditions, geometries, and excitation methods. The central scientific problem underlying plasma processing concerns the interaction of low-energy collisional plasmas with solid surfaces. The scientific underpinnings of plasma applications are multidisciplinary i,e., understanding this problem requires knowledge and expertise drawn from plasma physics, atomic physics, electrodynamics, condensed matter physics, chemistry, chemical engineering, electrical engineering, materials science and computer science/engineering. The diversity of applications and the multidisciplinary nature of science, scientific understanding lags technology. In the absence of a coordinated approach, the diversity of the applications and of the science tends to diffuse the focus of both.

The broad interdisciplinary nature of plasma processing is therefore, to be highlighted in the light of education issues, which addresses the challenges and opportunities in the area of plasma processing. It is thus, inevitable to provide some ideas starting from basics to emerging research trends to faculties for transferring knowledge to the young and budding talents of our nation

The objective of the programme is not only to bring all the academicians/scientists/technologist having overlapping interests on a common platform to share new ideas, experiences and knowledge in various aspects of plasma processing of materials but also to train faculties of different institutes. This programme will provide scope to the faculties to undertake multidisciplinary research in materials science using emerging trends of plasma technology.

WHO SHOULD ATTEND

Faculty from various AICTE approved Engineering Colleges/ Degree Science Colleges and Working Professionals from Industries/R&D and Other Organisations with Basic Degree in Physics/Applied Physics/Chemistry/Electronics and Telecommunications /Applied Electronics and Instrumentation Engg./Mechanical Engg./Civil Engg./Electrical Engg. or equivalent.

Registration Fee

Registration fee of Rs.500/- will be collected from the participants at the time of registration.

TA/DA

NO TA/DA will be provided to the participants. Local transport will be provided to the participants if required. College bus runs from Cuttack to the college via NH-5 which can be availed by the participants. Working Lunch and Snacks will be provided by the host Institute.

HOW TO APPLY

Application may be submitted in the format enclosed and shall be duly recommended/sponsored by the authority concerned. The same should reach the convener (by e-mail) on or before 12.12.2017. Participants are requested to inform the coordinators regarding the transport facility of C. V. Raman College which he/she would like to avail.

FOR FURTHER DETAILS CONTACT

Dr. Hiranmayee Mohapatra, 9437275893
Convener, Head & Asso. Prof., Department of Physics, hod_phy@cvrce.edu.in

Dr. Atala Bihari Panda, 9658049593, 89177665588, Co-Convener, Asst. Prof., Dept. of Physics , atalabit@gmail.com

Organising Committee Members:

Dr. S. Mohanta, Associate Professor
Dr. T. Badapanda, Associate Professor
Dr. S. Parida, Assistant Professor
Dr. A.P. Chakraverty, Assistant Professor
Dr. A. Bhola, Assistant Professor
Dr. S.K. Rout, Assistant Professor
Ms. I. Jena, Lab Assistant
Mr. O. Sharma, Lab Assistant

REGISTRATION FORM

For the Faculty Development programme on

"PLASMA PROCESSING OF MATERIALS: OPPORTUNITIES AND CHALLENGES"

18th DECEMBER to 23th DECEMBER 2017

Department of Physics

C. V. Raman College of Engineering, Bhubaneswar, Odisha, Pin- 752054

(USE CAPITAL LETTERS ONLY)

1. Name: _____

2. Date of Birth: _____3.Gender:(M/F)__

4. Designation: _____

5. Department:_____

6. Institution: _____

7. Academic Qualification:_____

8. Area of Specialization:_____

9. Job Experience in Years:_____

10. Mobile No:_____
11. Email id:_____
12. Address for correspondence:_____
_____
_____
Pin code:_____
13. Is transport required: (Y/N)

The information furnished above is true to the best of my knowledge. I agree to abide by the rules and regulations governing the course. If selected, I shall attend the course for the entire duration.

Place:

Date: **SIGNATURE OF THE APPLICANT**

RECOMMENDATION CERTIFICATE

Certified that

Mr/Mrs/Dr....., an employee of our institution, is hereby recommended for the FDP on "PLASMAPROCESSING OF MATERIALS: OPPORTUNITIES AND CHALLENGES", at C. V. Raman College of Engineering, Bhubaneswar during the period 18th Dec to 23rd Dec 2017.

He/She will be permitted to attend the course, if selected.

It is also certified that our institute is an AICTE approved /State Government recognised institution/R&D laboratories.

Place: Name and Signature

Date:

(Seal of the Head of the Institution)

IMPORTANT INFORMATION

Selection will be done on first come first serve basis.

Last date for receipt of application is 12.12.2017

Intimation of Selection to be communicated to the participants on or before **15.12.2017**

ADDRESS FOR CORRESPONDENCE

Dr. Hiranmayee Mohapatra, Convener
"FDP on PPMOC-2017", Department of Physics,
C.V. Raman College of Engineering, Mahura, Janla, Bhubaneswar-752054
Email: hiranmayee_in@yahoo.com
Phone (college): 0674-2460093, 2460043,
Mob. No. 09437275893,
09658049593,08917665588

ABOUT THE INSTUTUTION (CVRCE)

C. V. Raman College of Engineering (CVRCE), extending over 100 acres of beautiful land situated on the outskirts of Bhubaneswar, is a progressive institution in Odissa. It is setup to promote the highest standards of technical education in the state. The institute is approved by All India Council for Technical Education. It was declared Autonomous status under section 2(f) of UGC, ACT 1956. The institute is also accredited by NBA and certified by ISO . The institute is rated "A" Grade Engineering College by NAAC, UGC and also has become autonomous institute affiliated to Biju Patnaik University of Technology. The college aims at educating the students to become not only competent professional but also excellent human beings, who would contribute towards the welfare of the society and help in raising the quality of life of its people.

ABOUT THE DEPARTMENT OF PHYSCIS

The Department Physics takes care of foundation courses in Engineering Physics in the undergraduate level. Department of Physics of this college came into existence since its very inception in 1997. Apart from the academic load Department Physics is actively involved with research work in the field of Fiber Optics and Optoelectronics, Material Science, Plasma Physics, Particle Physics, Nanotechnology etc. Department of Physics has published around 50 papers in last 3 years. The Department is presently running two sponsored projects from CSIR and DST and is also having a MOBILE SCIENCE & TECHNOLOGY LABORATORY which promotes the science educations in rural high schools. The Department has opened post graduate course in Applied Physics with special papers in Fiber Optics & Optoelectronics, Plasma Physics and Material Science & Technology.

C.V. Raman College of Engineering, Bhubaneswar, Odisha

SPONSORS

FACULTY DEVELOPMENT PROGRAMME ON

"PLASMA PROCESSING OF MATERIALS: OPPORTUNITIES AND CHALLENGES"

18th December - 23rd December 2017

Convener

Dr. Hiranmayee Mohapatra

Co-Convener

Dr. Atala Bihari Panda

Organised by

Department of Physics

C.V. Raman College of Engineering,

Bhubaneswar, Odisha, India

Programme Details: Faculty Development Programme on "Plasma Processing of Materials: Opportunities and Challenges" by Department of Physics, C.V. Raman College of Engineering, Bhubaneswar

Time → Date ↓	10.30-11.30a.m.	11:30-11:45 am	11:45am-12:45 pm	12.45-1.45pm	1.45p.m.- 2.45p.m.	2:45-3:00 pm	3:00-4:00 pm
18.12.17	Inauguration & Popular Talk by **Prof. A K Das (Chief Guest)**	Tea Break	**Lect-1** Over view of course structure **Dr A B Panda**	Lunch Break	**Lect-2-** Basics of Plasma physics and classification: the processing plasmas **Dr I Banerjee**	Tea Break	**Lect-3**-Thermal & Non thermal Plasma processing **Dr I Banerjee**
19.12.17	**Lect-4-** Plasma spectroscopic diagnostics and correlation of process parameters in processing plasmas **Dr I Banerjee**		**Lect-5** - Fundamentals of vacuum system and introduction to plasma sources **Dr S K Mahapatra**		**Lect-6-** Design and development of low pressure plasma unit for synthesis of MOS capacitors **Dr S K Mahapatra**		**Lect-7**-Plasma Instabilities and its applications in accelerator development **Dr S K Mahapatra**
20.12.17	**Lect-8-** Plasma Processing for a green environment **Dr. S. P. Das**		**Lect-9-** Non-thermal plasmas for surface modification **Dr. S. P. Das**		**Lect-10-** Challenges on the path to fusion via Plasma **Dr.R.Paikaray**		**Lect-11-** (Continue) Challenges on the path to fusion via Plasma **Dr.R.Paikaray**
21.12.17	**Lect-12-** Electron cyclotron Resonance plasma based materials modification **Dr. T. Som**		**Lect-13** Cont: Electron cyclotron Resonance plasma based materials modification **Dr. T. Som**		**Lect-14-** Plasma and its application in material processing **Dr B B Nayak**		**Lect-15-** -(Continue) Plasma and its application in material processing **Dr B B Nayak**
22.12.17	**Lect-16** Plasma for Thin Films & Coatings **Dr. S. K. Pradhan**		**Lect-17** Materials characterisation and synthesis: role of plasma science and technology **Dr. B.S. Acharya**		**Hands on Experiment I** Arc plasma (Cu, Al electrodes) characterisation by optical emission spectroscopic method- **Dr S K Mohanta**		**Hands on Experiment II** Gas discharge analysis and plotting of Paschen curve- **Dr S K Mohanta**
23.12.17	**Lect-18** Building of Steady State Tokamak of India **Dr. S .Pradhan**		**Lect-19** Building of Steady State Tokamak of India **Dr.S. Pradhan**		Assessment (written Exam for internal participants) and Valedictory function **Dr. S. Pradhan (Chief Guest)**		

Prof. A K Das (Chief Guest): Former Vice Chancellor, Utkal University and Head, LASER and Plasma Technology Division, BARC, **Dr. S K Mahapatra**: Associate Professor Centre for Physical Science, School of Basic and Applied Sciences Central University of Punjab, Bhatinda-151001, Punjab, India, **Dr I Banerjee:** Associate Professor, School of Nano Sciences, Central University of Gujarat, Gujarat, India, **Dr. S. Das:** Professor**,** Dean School of Basic Sciences, Ravenshaw University, **Dr.R.Paikaray:** Professor & Head, Department of Physics, Ravenshaw University**, Dr. T. Som**: Professor, Institute of Physics, BBSR, **Dr B B Nayak:** Retd. Scientist, IMMT, BBSR & Professor, Department of AEI, C V Raman College of Engineering, **Dr. S. K. Pradhan,** Scientist-C, Advanced Materials Tech. Dept., IMMT**,**BBSR
Dr.B.S.Acharya: Retd Scientist, IMMT**, Dr.S.Pradhan(Chief Guest)** :Scientist-H- Institute of Plasma Research, Ahemadabad,**Dr A B Panda:** Asst. Prof., & **Dr S K Mohanta:** Asso. Prof., Department of Physics C V Raman College of Engineering.