



# BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Avalahalli, Doddaballapur Main Road, Bengaluru - 560064

## OPENCOURSE2019-20(ODD)

October 22-26, 2019

**Date:** 16-10-2019

<b>Department:PHYSICS</b>		
Title of the Open Course	Novel Materials for Current Technological Trends – NMCTT – OP-2019	
Targeted Students from Branches (Tick)	ECE/EET/EEE/ME/CSE/ISE/MCA/CV	
Registration Fee	Rs. 300 /-	
No. of students expected	20-25	
Venue	Advanced Materials Research Lab, R & D Center, BSN block	
Software/Hardware Tools used	Projector, Quantum Espresso software (For Quantum computational analysis), crystallographica search match, Molecular visualization software, Fullprof etc.,	
Delivery Methods (e.g.: ppt presentation, chalk & talk, simulation, videos, project, etc.)	PPT presentation, Video streaming and hands on experience to learn software's for molecular modeling and implementing that in their materials design.	
Assessment Methods (e.g.: Quiz, test, mini-project, report submission, etc.)	Quiz and Test.	
Open Course Chief Coordinator Details (One Point Contact)	Name	<b>Dr. Daruka Prasad B</b>
	Mobile No.	9535100437
	Email ID	darukap@bmsit.in
Internal Resource 1 Person Details	Name	<b>Dr. Dhananjaya N</b>
	Designation	Associate Professor & HoD, Dept. Physics
	Mobile Number	9036840280
Internal Resource 2	Name	<b>Dr. Kavitha C</b>
	Designation	Assistant Professor Dept. Physics
	Mobile Number	9008303399



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Internal Resource 3	Name	<b>Dr. Basavaraj R B</b>
	Designation	Assistant Professor Dept. Physics
	Mobile Number	9916475750
Internal Resource 4	Name	<b>Dr. Daruka Prasad B</b>
	Designation	Assistant Professor Dept. Physics
	Mobile Number	9535100437
Internal Resource 5	Name	<b>Dr. Jyothi Roy Choudhuri</b>
	Designation	Assistant Professor Dept. Chemistry
	Mobile Number	8296799794
External Resource Person Details (Please use additional rows for multiple resource persons)	Name	Nil
	Designation	
	Company/Organization	
	Mobile Number	
Curriculum Gaps: (Please indicate the gaps in terms of POs/PSOs)	<ul style="list-style-type: none"> <li>➤ Students don't learn the basics of the materials and the interactions in the molecular level to map their applications to the advanced materials.</li> <li>➤ Our department having the strengths to educate the students in the materials properties analysis specifically to Nanomaterials for Display, LEDs, Energy storage, battery, forensic etc.,</li> <li>➤ Existing research lab where the students can have the hands on experience of preparing and characterizing the materials of their interest in nano level.</li> <li>➤ This topic covers the wider range of student's group, irrespective of their engineering stream.</li> <li>➤ This topic covers the advancement in the materials which showed the paths towards the needs of the world such as energy crisis, food and water challenges including the advancements such as artificial intelligence and machine learning.</li> </ul>	



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Abstract (Brief Details with less than 250 words)	Multifunctional, hybrid and nanomaterials showed vital role in extending their ability to advanced applications in many fields such as Display devices, Medical diagnostics, Nanoelectronics, Forensic Science, industry revolution and agricultural revolutions etc., to cater the needs of human beings. This open course aims in familiarizing the participants with various advanced materials, ability to tune materials properties and making them to be functionalized based on their needs. Students of multidisciplinary fields are most welcome to join this course.
Open Course Outcomes	<b>CO-1</b> Apply advanced mathematical techniques to model and solve materials engineering problems using Quantum espresso
	<b>CO-2</b> Identify engineering systems, variables, and parameters to provide the incites of interaction among materials, specific to nanoelectronics and photonics
	<b>CO-3</b> Extract engineering requirements from relevant materials aspects and Standards such as CIE, CCT, JCPDS, J-O analysis, QE etc., Few case studies will be discussed.
	<b>CO-4</b> Computational techniques of materials modelling, bringing them to lab scale to prepare and to apply them for some applications such as energy storage and usage, nanoscale device applications and future challenges and fate of novel materials.



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<b>CO-PO Mapping</b>														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	✓	✓												
CO2		✓	✓											
CO3				✓										
CO4					✓		✓							
Ciii														

Signature of the Chief-Coordinator

Head of the Department



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DEPARTMENT OF PHYSICS  
Tentative schedule of Open Course On "Novel Materials for Current Technological Trends-  
(SMCTT-OC-2019)"  
From 22<sup>nd</sup> October 2019 to 26<sup>th</sup> October 2019

Date	09.00am-11.00am	11.00 am-11.15 am	11.15am-11.50am	1.15 pm-2.00pm
22/10/2019 Day 1	Registration and inauguration of Open course Followed by a talk Speaker: Dr. Dhanaajaya Title: Novel materials for solar cell applications. (CO1, CO2)		Speaker: Dr. Kavitha C Title: Multiple functionality of Nano carbon allotrope: laboratory to real world applications. (CO1, CO3 & CO4)	Speaker: Dr. Daruka Prasad B Title: Physico-chemical properties of Nano-oxides & their future perspectives. (CO1, CO3, CO4)
23/10/2019 Day 2	Speaker: Dr. Govila Roy Chandrab Title: Designing of anode materials for Li-ion battery applications. (CO1, CO2, CO4)	Tea Break	Lab Visit	Speaker: Dr. Basavaraj B B Title: Nanomaterials for display and forensic applications. (CO1, CO3, CO4)
24/10/2019 Day 3	Speaker: Dr. Daruka Prasad B Title: Physico-chemical properties of Nano-sensors & their future perspectives. (CO1, CO2, CO4)		Speaker: Dr. Kavitha C Title: Multiple functionality of Nano carbon allotrope: laboratory to real world applications. (CO1, CO3 & CO4)	Speaker: Dr. Basavaraj B B Title: Nanomaterials for display and forensic applications. (CO1, CO3, CO4)
25/10/2019 Day 4	Speaker: Dr. Daruka Prasad B Title: Physico-chemical properties of Nano-sensors & their future perspectives. (CO1, CO2, CO4)		Speaker: Dr. Basavaraj B B Title: Nanomaterials for display and forensic applications. (CO1, CO3 & CO4)	Lab Visit
26/10/2019 Day 5	Speaker: Dr. Kavitha C Title: Multiple functionality of Nano carbon allotrope: laboratory to real world applications. (CO1, CO3 & CO4)		Validictory	

STAFF IN-CHARGE: HOD Physics  
Shot on OnePlus  
By Dr. Basavaraj

