

Two Week Summer Training Program

15th May – 27th May, 2017

Organized by



Department of Physics
(DST-FIST Sponsored)

School of Science & Humanities

Sathyabama University

Chennai-119

About the University

Sathyabama University (A Christian Minority Institution) formerly known as Sathyabama Engineering College was established in 1987 by Dr. Jeppiaar. It is a premier institute imparting knowledge in the areas of engineering, science, technology and education. The University offers 27 programmes at UG level and 41 programmes at PG level in all disciplines. The University has excellent infrastructure facilities including modern laboratories, library with multimedia facilities, internet and other general amenities. University has written a special page in the history of space research on 22nd June, 2016 with the launch of "SATHYABAMASAT" in association with ISRO. The launch of

"SATHYABAMASAT" and accolades received in world platforms is a specimen. Our motto is "TOGETHER FOR BETTER TOMORROW" and our mantra of Success is "LEARN TODAY and LEAD TOMORROW". We practice and teach to our students that "JOY OF LIVING IS IN JOY OF GIVING". The University aims to be the destiny of efficient and responsible technocrats those are fit enough to serve the industry and society.

Objective

The objective of the program is to expose interested students to research environment. The selected students will be guided by our faculty.

Eligibility

- Students of B.Sc/M.Sc Physics & Chemistry; BE/BTech students interested in Materials Science.
- Minimum 60% (or equivalent) in overall grades.
- You are requested to go through the web pages link given below at each faculty profile to check with their research interests. http://128.199.210.168/sbu_staff_profiles/sosh/

Benefit

Participants get exposed to some of the recent research areas with the hands on training at our DST-FIST Sponsored Physics lab. This can propel the aspiring participants to take up their research career in future. They will be given a participation certificate.

Travel/ Food: They can avail our university buses and food at free of cost.

Accommodation: Limited accommodation will be provided on first come first serve basis.

Training Duration: Two Weeks

How to Apply

- Send the filled-in registration form to the email id: msundare.deanscience@sathyabamauniversity.ac.in
- The registration amount Rs.1000/- is to be paid through DD with the name “The Registrar, Sathyabama University” payable at Chennai.
- Limited participants (20).

Faculty Profile

1. **Thrust Area:** Computational Materials Science-mechanical, transport properties; hard materials, intermetallics, refractory, spintronic, superconducting, semiconducting materials

Research Group: Dr.M.Sundareswari, Dr.D.S.Jayalakshmi.

Contact Person: Dr.M.Sundareswari

Email: sundare65@gmail.com

2. **Thrust Area:** Crystal Growth and Characterization

Research Group: Dr. A. Joseph Arul Pragasam,
Dr. P. Malliga, Dr. Helen Merina Albert,
Dr. Amirtha Sher Gill.

Contact Person: Dr. A. Joseph Arul Pragasam

Email: drjapphy@gmail.com

3. **Thrust Area:** Biophysics and bioinformatics, Structural bioinformatics Molecular modeling and drug design

Research Group: Dr.Xavier Suresh

Contact Person: Dr.Xavier Suresh

Email: xaviersuresh@gmail.com

4. **Thrust Area:** Ultrasonic studies of binary and ternary liquid mixtures and polymer solutions. Polymer nano composite materials.

Research Group: Dr.S.Ravichandran, Dr. C. Senthamil Selvi.

Contact Person: Dr.S.Ravichandran

Email: drsravichandran68@gmail.com

5. **Thrust Area:** Thin films and its characterization

Research Group: Dr.C.Ramesh kumar

Contact Person: Dr.C.Ramesh kumar

Email: cramkum@gmail.com

6. **Thrust Area:** Nano materials Synthesis and its characterization and Dielectric Studies

Research Group: Dr.K. Vijayanand, Dr.R.Sampathkumar

Contact Person: Dr.K. Vijayanand

Email: anandkvijai@gmail.com

7. **Thrust Area:** Mineralogy, Radiation and petro physics

Research Group: Dr.S.Murugesan

Contact Person: Dr.S.Murugesan

Email: binunair.phd@gmail.com



SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

School of Science & Humanities

Department of Physics



Two Weeks Summer Training program for UG/PG students of Physics Aspirants

Schedule

Day	Scheduled Dates	Thrust Area	Topics to be covered	Co-ordinators & Signature
1	15-05-2017	Crystal Growth – Synthesis at room temperature	Growth of Crystals – Slow Evaporation	Dr. Helen Merina Albert Dr. P. Malliga
2	16-05-2017	Crystal Growth – Synthesis at High Temperature	Growth of Crystals from Melt – High Temp using Bridgman Technique (FIST Facility*)	Dr. Amirdha Sher Gill & Mr.E.Viswanathan
3	17-05-2017	Thin films and Nano Bubbles – Synthesis and Characterization	Synthesis, Characterization SEM, FTIR, UV, XRD Applications	Dr.C.Ramesh Kumar
4	18-05-2017	Nano Material characterization	Green Synthesis, Properties and Applications of Nanomaterials; Demo on synthesis	Dr.K.Vijaiand
5	19-05-2017	Ultrasonic studies & Polymer Composites	Composites – Synthesis with Demo and Properties	Dr.S.Ravichandran & Dr.C.Senthamil Selvi
6	20-05-2017	Mineralogy, Radiation and petro physics	Minerals – Importance, Characterization thru Spectroscopy; Demo- Environmental Radioactivity by IGCAR Scientists	Dr.S.Murugesan
7 & 8	22-05-2017 – 23-05-2017	Computational Materials Science	Band Structure Study - An overview and Hands on Training using wien2k code (FIST Facility*)	Dr.M.Sundareswari Dr.D.S.Jaylakshmi Ms.M.Manjula & Mr.E.Viswanathan
9	24-05-2017	Crystal Characterization	FTIR and Thermal Analysis (FIST Facility*)	Dr.Joseph Arul Prakasam
10	25-05-2017	Nano Material Synthesis & characterization	Dielectric Polymer Nanocomposites; Demo on synthesis	Dr.R.Sampath Kumar
11	26-05-2017	Bio Material – Synthesis and Characterization	Bio Materials – Synthesis and Characterization Techniques	Ms.Anita Lett
12	27-05-2017	Bio Physics	Molecular Modeling and Drug Design	Dr.Xavier Suresh

Detailed schedule

Day 1 - 2 (15th and 16th May)

Programme		
8.00 am – 9.30 am	Registration & Inauguration	
Thrust area: Crystal Growth		
Day 1 (15th May)		
Time	Course plan	Co-ordinator & Signature
9.30 – 10.30	Different Techniques in Crystal Growth and Hands on Training on Growth	Dr. Helen Merina Albert Dr. P. Malliga
10.45-11.45		
11.45 – 12.45	Introduction to Crystal Growth Techniques, Practical Demonstration on Crystallization	
1.45 – 3.30		

Day 2 (16th May)		
Time	Course plan	Co-ordinator & Signature
9.30 – 10.30	High Temperature Crystal Growth – Introduction	Dr. Amirdha Sher Gill Mr.E.Viswanathan
10.45-11.45	Growth from Melt – OFZ and	
11.45 – 12.45	Bridgmann Technique	
1.45 – 3.30	Practical Demo on FIST Facility - Instrumentation	

D Day 3 (17th May)

Thrust area: Thin Films and Nano Bubble – Synthesis and Characterization		
Time	Course plan	Co-ordinator & Signature
9.30 – 10.30	Introduction	Dr.C.Ramesh Kumar
10.45-11.45	Synthesis Techniques	
11.45 – 12.45	Characterization Procedure	
1.45 – 3.30	Practical	

Day 4 (18th May)

Thrust area: Nano Material Characterisation		
Time	Course plan	Co-ordinator & Signature
9.30 – 10.30	Introduction to Nanomaterial,	Dr. K.Vijaianand
10.45-11.45	Properties of Nanomaterials	
11.45 – 12.45	Application of Nanomaterials	
1.45 – 3.30	Practical Demo for Nano Synthesis	

Day 5 (19th May)

Thrust area: Ultrasonic studies & Polymer Composites		
Time	Course plan	Co-ordiantors & Signature
9.30 – 10.30	Introduction – Fabrication – Demo and Applications of FRP Composites	Dr.S.Ravichandran Dr.C.Senthamil Selvi
10.45-11.45		
11.45 – 12.45	Ultrasonic Studies – Binary and Ternary Systems	
1.45 – 3.30		

Day 6 (20th May)

Thrust area:		
Time	Course plan	Co-ordiantors & Signature
9.30 – 10.30	Minerals Importance and Characterization Through Spectroscopy	Dr.S.Murugesan Dr.K.Sivasubramanian, Radiological Safety Division, IGCAR
10.45-11.45		
11.45 – 12.45	Radioactivity – Environmental Demo - Radioactivity	
1.45 – 3.30		

Day 7 (22nd May)

Thrust area:		
Time	Course plan	Co-ordiantors & Signature
9.30 – 10.30	Overview of Band Structure Calculations and Theoretical Investigations on Energy Harvesting Materials Structural, Electronic, Magnetic, transport and Bonding Properties of Intermetallics Ductile – Brittle Analysis Band Structure Study Using Wien2k – Demo – using High Performance Computing System	Dr.M.Sundareswari Dr.D.S.Jaylakshmi Ms.M.Manjula Ms.S.Krishnaveni Mr.E.Viswanathan
10.45-11.45		
11.45 – 12.45		
1.45 – 3.30		

Day 8 (23rd may)

Thrust area:		
Time	Course plan	Co-ordiantors & Signature
9.30 – 10.30	Superhard Materials – First Principles Investigation Hands on Training using Wien2k code-Metal, Semiconductor & insulator and the related properties.	Dr.M.Sundareswari Dr.D.S.Jaylakshmi Ms.M.Manjula Ms.S.Krishnaveni Mr.E.Viswanathan
10.45-11.45		
11.45 – 12.45		
1.45 – 3.30		

Day 9 (24th May)

Thrust area:		
Time	Course plan	Co-ordiantors & Signature
9.30 – 10.30	FTIR Characterization	Dr.Joseph Arul Prakasam
10.45-11.45		
11.45 – 12.45	Thermal Analysis	
1.45 – 3.30		

Day 10 (25th May)

Thrust area:		
Time	Course plan	Co-ordiantors & Signature
9.30 – 10.30	Introduction to Dielectric Polymer Nanocomposites	Dr.R.Sampath Kumar
10.45-11.45		
11.45 – 12.45	Synthesis of Dielectric Polymer Nanocomposites - Demo	
1.45 – 3.30		

Day 11 (26th May)

Thrust area:		
Time	Course plan	Co-ordiantors & Signature
9.30 – 10.30	Introduction to BioMaterials	Ms.Anita Lett
10.45-11.45	Synthesis - Methods	
11.45 – 12.45	Characterization Techniques	
1.45 – 3.30	Demo - Synthesis	

Day 12 (27th May)

Thrust area:		
Time	Course plan	Co-ordiantors & Signature
9.30 – 10.30	Introduction to Bio Physics and Molecular Modeling	Dr.Xavier Suresh
10.45-11.45		
11.45 – 12.45	Molecular Visualization	
1.45 – 3.30	Molecular Docking with hands on training	

Two Weeks Summer Training Program 2017 (May 15 – 27)

Registration Form

1. Name of the candidate :
2. Gender : Male / Female
3. Contact Number(Personal) :
4. Email Id :
5. Name of the College/Institution :
6. Parent/Guardian Name :
7. Contact Number (Parent/Guardian):
8. Overall % (Main subjects) till previous semester :
9. Name of the HoD :
10. Consent of the HoD (Office seal) with signature :
11. Whether accommodation is needed :

Date:

Signature of the Candidate

Note:

- Please send the filled-in registration form along with a copy of your CV to msundare.deanscience@sathyabamauniversity.ac.in
- Last date to apply: 30.04.2017 Confirmation to the selected candidates: 1st Week of May
- Registration fee: Rs. 1000 through DD with the name "The Registrar, Sathyabama University" payable at Chennai.