

DST-INSPIRE INTERNSHIP SCIENCE CAMP - 2013



Department of Science & Technology
Govt. of India

In association with



Jagadis Bose National Science Talent Search
Govt. of West Bengal

Science Camp Entitled:

“Learning Science”

July 16 – 20, 2013

At JB Centre of Excellence for Student – Scientists

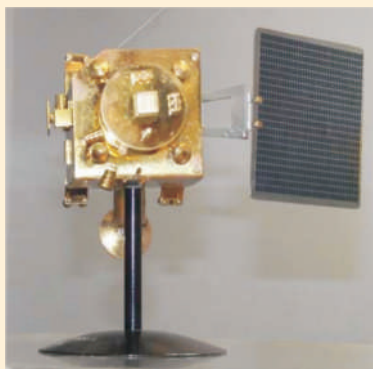


Jagadis Bose National Science Talent Search,
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“Learning Science”

About JBNSTS

Jagadis Bose National Science Talent Search (JBNSTS), Kolkata was conceptualized in 1958 by visionaries such as Dr. B C Roy, Sir J J Ghandy and others to commemorate the Birth Centenary Celebration of India’s first modern scientist, Acharya J C Bose. The program was inaugurated by Pandit Jawaharlal Nehru. JBNSTS is an autonomous institute promoted by the Department of Higher Education, Government of West Bengal. It is administered by a Governing Body with representatives from the State Government, academia and industry. Since 1961, JBNSTS is awarding the prestigious Jagadis Bose Scholarships to selected group of undergraduate students of science, engineering and medicine.



In the last five decades, JBNSTS has grown to become a premiere institute of non-formal science education in the eastern and northeastern States of India with the objective towards pursuit of excellence through motivation, identification and nurture of young talented science students. It helps students to realize the importance of excellence in the scientific world and try to cultivate this in their own lives as students of science. JBNSTS also encourages students towards the learning of basic sciences and inculcates scientific spirit in the minds of young high school and undergraduate students. Focus has been given on unconventional and dynamic methods of non-formal accelerated learning through “out-of-class” activities, which have led to the recognition of intellectually sensitive and inquisitive minds. Since 2004, JBNSTS has launched an innovative middle school science Teachers Training Program which has brought into its ambit motivated teachers from the districts of West Bengal. JBNSTS has developed

science kits and distributed to the teachers for demonstrating scientific principles to the middle school students in the classroom. The financial support for most of the activities of JBNSTS is provided by the Department of Higher Education & Department of Science & Technology, Government of West Bengal. In addition, Council of Scientific & Industrial Research (CSIR), Department of Science & Technology (DST), Government of India & Industries also collaborates with JBNSTS activities.

About DST-INSPIRE Program

Innovation in Science Pursuit for Inspired REsearch (INSPIRE) is an innovative programme being implemented by the Department of Science and Technology (DST), Govt. of India. The basic objective of INSPIRE is to communicate to the youth of the country the excitement of creative pursuit of science, attract talent to the study of science at an early age and thus build the required critical human resource pool for strengthening and expanding the Science & Technology System and Research & Development base. Under the INSPIRE project ‘Scheme for Early Attraction of Talents for Science’ (SEATS) is a program to inspire talented Science students (*top 1% performers in class-X board examination*) into basic science streams.



A striking feature of the programme is that it does not believe in conducting competitive exams for identification of talent at any level. It believes in and relies on the efficacy of the existing educational structure for identification of talent and builds on opportunities that can be derived within the systems.

Science camps are a great way for children to explore the principles and methods of scientific research and strive to get young people interested in science at an early age. They are based on concepts of facilitated self-learning, holistic education, group activities, exchange of cross-cultural ideas, motivation towards independent thought and action and forming life-long friendships with similar minded people and established scientists. Leadership, passion and appreciation of the nature around us are invaluable characteristics for future scientists, and the Science Camp activities strive to encourage these traits.



Organizing Committee

Academic Committee:

Prof. (Dr.) Papiya Nandy, Hony. Director, JBNSTS
Dr. Paromita Roy, Dy. Director, JBNSTS
Dr. Abhijit Kar, Scientific Officer, JBNSTS
Dr. Smarajit Manna, Student Advisor, JBNSTS

Camp Coordinators:

Shri Joydip Das, Asst. Director (Admin), JBNSTS
Shri Dipankar Sarkar, JBNSTS

Mentors

Dr. Papiya Nandy

Professor & Hony. Director, JBNSTS and
UGC Emeritus Fellow, Department of Physics
Jadavpur University, Kolkata

Dr. Anuradha Mukhopadhyay

Professor & Vice Chancellor
Kazi Nazrul University, Asansol, Burdwan

Shri Samar Bagchi

President
Kishore Bharati Development Society, Kolkata

Dr. Somak Raychaudhury

Professor and Head
Department of Physics
Presidency University, Kolkata

Dr. Ashesh Nandy

Center for Interdisciplinary Research and Education,
Kolkata

Dr. Abhijit Chakrabarti

Professor, Structural Genomics Division
Saha Institute of Nuclear Physics, Kolkata

Dr. G. P. Das

Senior Professor, Department of Material Science
Indian Association for the Cultivation of Science, Kolkata

Dr. Ajoy Kumar Ray

Professor & Vice Chancellor
Bengal Engg. and Science University, Shibpur, Howrah



Dr. Kaushik Das

Professor, Department of Chemistry
Jadavpur University, Kolkata

Dr. Subhrangsu Aditya

School of Bio Science & Engineering
and School of Cognitive Science
Jadavpur University, Kolkata

Dr. Bimalendu Bhusan Bhattacharya

INAE Distinguished Professor
S.N. Bose National Centre for Basic Sciences, Kolkata

Dr. Chandrakant Aribam Sharma

Assistant Professor, Department of Mathematics
Indian Institute of Science Education and Research, Mohali

Dr. Subhash Basak

Senior Research Associate Adjunct Professor
Natural Resources Research Institute
Department of Biochemistry & Molecular Biology
University of Minnesota, Duluth, USA

Dr. Paromita Roy

Deputy Director, JBNSTS

Dr. Abhijit Kar

Scientific Officer, JBNSTS

Dr. Smarajit Manna

Student Advisor, JBNSTS

“Learning Science”

CAMP RULES

Welcome to the Science Camp “Learning Science”

Here you will have a unique experience of learning science through active interaction with great scientists and be encouraged to share your ideas with others. No test / grade-only learning science in a different way.

General Instructions:

- The camp hours are from **09:00 a.m. to 6:00 p.m.** You are to attend all the sessions in your school uniform. **MOBILE PHONES MUST BE KEPT IN SWITCHED OFF MODE DURING ALL ACADEMIC SESSIONS.**
- Each participant has to make registration twice daily, once in the morning and other in the afternoon before starting of post lunch session.
- All the participants will be divided into groups. There will be a group leader for each group selected by group members of each group. On **20th July, 2013**, there will be a session for Project Presentation by the participating students. Each group has to prepare a scientific project and will have to present in front of the judges bench during 02:00 p.m. – 05:00 p.m. on that day. Each group will get 10 minutes for presentation and 5 minutes for discussions.
- You will not be given any home work, but you are expected to interact freely with the experts, your group members and other groups.
- SUBMISSION OF ALL DOCUMENTS AND REIMBURSEMENT WILL BE MADE FROM **REGISTRATION DESK ONLY.**

Submission of important documents:

- You are required to submit an attested copy of your 10th Standard Board Examination Mark Sheet, held in 2013 and filled-in STUDENT'S INFORMATION SHEET during the afternoon registration on **16th July, 2013.**
- All students of the Science Camp will receive a library membership of British Council Library (BCL) (with 1 year validity). During that period you will be able to borrow book(s) from BCL and search/ read books online. You will be given a 'Registration Form' (**16th July, 2013**) for the library membership which you need to fill up and submit to us on **17th July, 2013 during afternoon registration.**
- Travel bills (local, as per norms) are to be submitted on **19th July, 2013 during morning registration.**
- You are required to fill up the FEED BACK SHEET and submit it on **20th July, 2013 during afternoon registration.**

Reimbursements:

- Reimbursement for Travel expenses and BCL membership card distribution will be made on **20th July, 2013 during 01.00 p.m. to 02.00 p.m.**
- On the last day i.e. **20th July, 2013** you will receive the **Participation Certificate.**

Name of the participating schools:

- | | |
|---|---|
| ● Modern English Academy, Barrackpore, Kolkata | ● Don Bosco School, Park Circus, Kolkata |
| ● St. Jude's High School, Madhyamgram, Kolkata | ● The Future Foundation School, Kolkata |
| ● Dolna Day School, Kolkata | ● Modern High School for Girls', Kolkata |
| ● B.D. Memorial International, Kolkata | ● Garden High School, Kolkata |
| ● Khalsa Model Sr. Secondary School, Baranagar, Kolkata | ● The Heritage School, Kolkata |
| ● Salt Lake School, Kolkata | ● Adamas International School, Belghoria, Kolkata |
| ● St. Augustine's Day School, Kolkata | ● Apeejay School, Salt Lake, Kolkata |
| ● La Martiniere for Girls, Kolkata | ● Apeejay School, Park Street, Kolkata |
| ● Vivekananda Mission School, Joka, Kolkata | ● South Point High School, Kolkata |
| ● Don Bosco High School, Liluah, Howrah | ● Delhi Public School, Newtown, Kolkata |
| ● Loreto House, Kolkata | ● Calcutta Girls' High School, Kolkata |



BRIEF INTRODUCTION TO THE EXPERTS

DR. PAPIYA NANDY

Dr. Papiya Nandy received her Masters degrees in Physics from University of Calcutta and University of California at Santa Barbara and Ph.D. on Liquid Crystals from Kent State University, USA. Her post-doctoral work was in Experimental Biophysics from Max Planck Institute, Göttingen, Germany. Later she was Associate Professor of Physics in University of Ulm, Germany. She joined Physics department in Jadavpur University and besides teaching for more than 35 years in the Science and Engineering faculties, she was and still is in charge of several research projects. Her field of research encompasses membrane biophysics, numerical analysis of DNA and protein sequences and application of Nanomaterials in ceramics and bio systems. She has more than hundred research publications in peer reviewed journals and 3 patent awards. She has guided 12 Ph.D. Thesis and 20 Masters Thesis. She is currently the Emeritus Fellow of Jadavpur University and the Honorary Director of JBNSTS, of which she is a scholar from the first batch in 1960. Here her objective is to make JBNSTS a vibrant and dynamic institute and to motivate, identify and nurture young talented science students and establish the base of scientific enquiry and culture of tomorrow.

DR. ANURADHA MUKHOPADHYAY

Dr. Mukhopadhyay graduated from Presidency College, Kolkata & did her M.Sc. in physics from Science College, Calcutta University (having won a national scholarship for B.Sc. results). She did pre-doctoral research in University of Aarhus, Denmark and subsequently in Sheffield University, UK where she worked on X-ray diffraction studies of crystals. She completed her Ph.D. from Indian Association for the Cultivation of Science, Calcutta University and joined Jadavpur University as lecturer in the Dept of Physics in 1990. Her subjects of interest are X-ray Crystallography & Liquid Crystals. She has edited two special issues of a Journal, supervised the Ph.D. work of several students and published about forty five papers in International Research Journals. She has participated in many National & International Conference /Seminars and is presently the Vice-Chancellor of Kazi Nazrul University, Asansol, W.B.

SHRI SAMAR BAGCHI

Shri Bagchi is presently the President of Kishore Bharati Development Society. He is the former Director of Birla Industrial & Technological Museum and at that time another 5 science museums in eastern India were under his jurisdiction. He is connected with science popularization and is a board member of several educational institutions. Shri Bagchi has organized the popular science quiz program “Quest” in Doordarshan from 1983 – 88. In 1992, he has got National Award for his contribution in Science Popularization through Mass Medium. He is a member of the Advisory Committee in NCERT and Council of Science & Technology, Govt. of W. Bengal. He is also an environmental & social activist.

DR. SOMAK RAYCHAUDHURY

Dr. Somak Raychaudhury is a JBNSTS scholar of the 1980 batch, and it was on a JBNSTS trip that he was inspired to become an Astrophysicist. He is currently the Acting Dean of Science and the Head of the department of Physics at Presidency University. He graduated from Presidency College, after which he studied Physics at Trinity College, University of Oxford, and did his PhD in Astrophysics at the University of Cambridge. He then moved to Harvard University in Cambridge, Massachusetts, where he was part of the team that built the Chandra X-Ray Observatory, now in orbit in Space. He was also a member of the faculty at the Inter-University Centre for Astronomy and Astrophysics(IUCAA), Pune, for several years, before moving to the School of Physics and Astronomy at the University of Birmingham, UK. Dr Raychaudhury has been Professor of Physics at Presidency University since 2012.

DR. ASHESH NANDY

Dr. Ashesh Nandy is currently associated with Center for Interdisciplinary Research and Education, Kolkata. He did his B.Sc. and M.Sc. in Physics from Calcutta University and received his Ph.D. from University of California, Santa Barbara, USA. He was a postdoctoral fellow of Syracuse University, U.S.A. and Max Planck Institute, Göttingen, Germany. He was associated with the Computer Division of Lipton India Ltd and was Head, Indian Institute of Chemical Biology, Kolkata, and a Visiting Scientist for several years at School of Environmental Science, Jadavpur University. He was a recipient of several scholarships: Earle C Anthony Fellowship from University of California, Max Planck Institute Fellowship and is a JBNSTS scholar of the first batch. His current research interest focuses on bioinformatics. He has been honoured by being elected a Member of the International Academy of Mathematical Chemistry.

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DR. ABHIJIT CHAKRABARTI

Dr. Abhijit Chakrabarti is presently a Professor, Structural Genomics Division, Saha Institute of Nuclear Physics, Kolkata. He is also the Head, Centre for Advanced Research & Education (CARE) at SINP. He did his M.Sc. in Chemistry in 1984 from Calcutta University and Ph.D. in 1990 from Indian Institute of Science, Bangalore. His research interests lie on Membrane Biophysics (Organization, transbilayer asymmetry and distribution of cell surface membrane proteins and lipids) and Proteomics in Blood Disorders (Red cells, platelet and B cell implicated in haematological disorder using 2DGE and MALDI ToF/ToF mass spectrometry). Dr. Chakrabarti has published a number of research articles in national and international peer reviewed journals.

DR. GOUR P. DAS

Dr. Gour P. Das is a condensed matter physicist working as a Senior Professor in the Indian Association for the Cultivation of Science (IACS) Kolkata. His research interests span a wide cross-section in the area of solid state physics and materials science, particularly on electronic structure of alloys, interfaces, clusters, and nanostructured materials. More recently his focus is on application areas in materials science and devices, such as hydrogen storage materials and spintronics materials.

After graduating from Calcutta University he had obtained his Ph.D. in Physics from Bombay University. He did his post-doctoral research in the Max Planck Institute for Solid State Research in Stuttgart. He served as Senior Scientist in Bhabha Atomic Research Centre (BARC) Bombay and as visiting scientist in several institutes abroad such as Max Planck Institute Stuttgart (Germany), Virginia Commonwealth University, Richmond (USA), Institute of Materials Research, Sendai (Japan) etc. Prof. Das is well known for his efforts in popularizing science amongst students and has been delivering popular level scientific lectures to students both in India and abroad. He is a mentor of the INSPIRE programme of the Department of Science & Technology.

DR. PAROMITA ROY

Dr. Paromita Roy did her Bachelors in Psychology (with special emphasis in family counseling), as well as Masters in Industrial Psychology and Organizational Behavior from Delhi University. She received her PhD from Delhi University in Clinical Psychology and worked in the field “Schizophrenia” from Delhi University. Dr. Roy has extensive field experience in the area of clinical psychology. Her expertise is in educational psychology, soft skill training, human resource development, curriculum planning, strategy development, pedagogy, teacher training and student counseling. She has been with JBNSTS since 1993. Her focus is on educational paradigms with a socio-holistic view.

DR. AJAY KR. RAY

Dr. Ajay Kumar Ray joined Bengal Engineering and Science University, Shibpur as its Vice Chancellor in 2009. Before that he was a Professor and Head, School of Medical Science and Technology, IIT Kharagpur. He did his B.E from Bengal Engineering College, Shibpur, followed by M. Tech. and Ph.D. from IIT Kharagpur. He joined IIT Kharagpur as Faculty in 1980. Dr. Ray has several research and consultancy projects, sponsored by several agencies like DRDO, DAE, DST, INDAL, Intel Corporation and so on. He was the co inventor of six US patents jointly with Intel Corporation. He is the Chief Investigator of Texas Instruments sponsored project, conducted at IIT Kharagpur and he, along with other team members have filed five USA patents jointly with Texas Instruments. Dr. Ray was also associated with the University of Southampton U.K. He has co-authored about 115 research papers in International journals and Conferences and has authored five books His current research interest includes Medical Imaging and Image Processing, Pattern Recognition and Machine Intelligence.

DR. KAUSHIK DAS

Dr. Das is presently a Professor, Department of Chemistry, Jadavpur University. He did his M.Sc. & Ph.D.(Sc) from Jadavpur University and Diploma in Statistical Quality Control and Operations Research (SQC&OR) from Indian Statistical Institute, Kolkata. He has an industrial exposure with Hindustan Lever Ltd. & Chloride India Ltd. Dr. Das joined Jadavpur University as Faculty in 1984. His research interest lies in the field of Electrochemistry & Solution Thermodynamics.

DR. SUBHRANGSU ADITYA

Subhrangsu Aditya, M.B.B.S. from NRS Medical College (2000), senior JBNSTS scholar (1995) is currently pursuing his research at School of Bio Science & Engineering, Jadavpur University. Besides, he is a guest faculty for the M. Phil. Course in Cognitive Science in the School of Cognitive Science, Jadavpur University and Advanced Diploma Course in Stress Management in the Center for Counselling Services and Studies in Self-Development, Jadavpur University. He is an associate member of SAMIKSHANI Centre for Psychoanalytical Studies and Mental Therapy. He has publications in various international journals and conference proceedings. Dr. Aditya has authored a bilingual book entitled “Ragaragir paristhiti kibhabe samlano jay” (“Managing anger provoking situations”) published from Jadavpur University Press (JUP), 2012 and book chapters (such as “Ethical Issues in Mental Health Services from Consumers' Perspective” published in the book Ethical Issues in Mental Health Services, 2009; “Determinants of Perception: A Neurophysiological Perspective” published in the book “Determinants of Perception”, 2009). He participated as a resource person in the UGC Sponsored Refresher Course

“Art and Science of Mechatronics and its Application in Robotics” held at Jadavpur University. He has presented his work in several forums and his current areas of interest are Cognitive Neuroscience, Biosignal Processing, Artificial Intelligence, Psychological Counselling, Stress Management, Cyber-relationship etc.

DR. B.B. BHATTACHARYA

Dr. Bimalendu Bhusan Bhattacharya did his B.Sc. (Physics) and M.Sc. (Geophysics) from Banaras Hindu University and Ph.D (Physico-Mathematical Sciences) from Leningrad State University, USSR (Presently St. Petersburg University, Russia). His some of the major research interests is Geoelectromagnetism, Mining Geophysics, Engineering Geophysics, Environmental Geophysics and Interpretation of Geophysical Data using Nonlinear Inversion, Computer Simulation and Modeling. He has done pioneering work during Indian Antarctica Expedition as leader. He has worked as Scientist in National Geophysical Research Institute (NGRI), Hyderabad and Director in Indian School of Mines (ISM), Dhanbad. Currently he is Emeritus Professor (CSIR Emeritus Scientist) and INAE Distinguished Professor in S. N. Bose National Centre for Basic Sciences, Kolkata. He has worked different parts of the globe and held distinguished positions such as Visiting Professor, Department of Physics in University of Alberta Edmonton, Canada, Leader, Fourth Scientific Indian Antarctica Expedition, Government of India; Visiting Professor (Fulbright) Department of Geology & Geophysics in University of Wisconsin, Madison Wisconsin, USA and Guest Faculty in Bengal Engineering and Science University, Sibpur, Howrah, W.B. Among many distinguished awards, he has got National Mineral Award, Dept. of Mines, Govt. of India, Distinguished Service Award Indian School of Mines, Dr. Coggin Brown Gold Medal on Earth Sciences, MGMI; Decennial Award, Association of Exploration Geophysicists, ect. He is Member of the Editorial Committee of The Journal of Geological Society of India, Recipient of Distinguished Professor's Chair by Indian National Academy of Engineering (INAE).

DR. CHANDRAKANT ARIBAM SHARMA

Dr. Chandrakant Aribam Sharma is presently Assistant Professor, Department of Mathematics, Indian Institute of Science Education and Research (IISER), Mohali. He did his Masters from IIT, Kanpur in 2003 and Ph.D. from Tata Institute of Fundamental Research, Mumbai in 2009 and his Ph.D. thesis was awarded as the 'Best Thesis' of TIFR that year. During 2009-2012, he worked at Heidelberg University as Post Doctoral Fellow. His research interest lies in Symmetries arising from Number Theory. He is a Junior JBNSTS scholar of 1995 batch from Kendriya Vidyalaya, Longjing, Manipur.

DR. SUBHASH BASAK

Dr. Basak is presently the Senior Research Associate Adjunct Professor, Natural Resources Research Institute, Dept. of Biochemistry & Molecular Biology, University of Minnesota, Duluth, USA. He did his BS in Chemistry, MS in Biochemistry & Ph.D. in Biochemistry from Calcutta University. He is also the President of the International Society for Mathematical Chemistry. Apart from that he is a member of several international societies. His research interest lies in the development of topological indices as molecular descriptors; Computer-assisted prediction of chemical genotoxicity; Structure-activity relationship (SAR) in drug design and environmental chemistry; Chemical graph theory and topology; Predictive toxicology and Mathematical chemistry. Dr. Basak has published a number of research articles in peer reviewed journals and also supervised several R&D projects. He is one of the members of the JBNSTS Advisory Board.

DR. ABHIJIT KAR

Dr. Abhijit Kar received his PhD (Science-Chemistry & Material Science) from Jadavpur University. Dr. Kar carried out his post doctoral research in different parts of the world e.g., South Korea, Switzerland etc. He has also worked as visiting scientist at Ruhr Universität, Germany. His current research interest includes application of nanotechnology for micro-electronics, thin film and nanomultilayer structure for advanced materials. He has expertise on different materials characterization using electron microscopic techniques and simulating materials property. He has published 33 research papers in SCI Journals and authoring book chapter on Transmission Electron Microscopy. He serves as reviewer of many International Peer Reviewed Journals and Editorial Board Member of Journals from Science Publishing group. He is recipient of National Scholarship, CSIR SRF, Scientist Fellow-CSIR etc. He has been honored as most distinguished person by Marquis Who's Who in the world, USA-2008. He is currently working as Scientific Officer of JBNSTS and looking after different academic and research activities and laboratory set up of JBNSTS.

DR. SMARAJIT MANNA

Dr. Smarajit Manna is currently the Student advisor, JBNSTS. He got his Ph. D degree from Jadavpur University. His area of research interest is biophysics more precisely the dynamics of cell membranes including ion channels. He has six research publications in international journals. He loves to pursue research as well as to interact with the students.

“Learning Science”

Day to Day Program

Day 1 : Tuesday, July 16, 2013

- 09:00 a.m. – 10:00 a.m. Registration
10:00 a.m. – 11:30 a.m. Welcome Address by the Director, JBNSTS and Orientation of participants
11:30 a.m. – 01:00 p.m. **“On the Road to Science”**
Prof. Anuradha Mukhopadhyay, Professor and Vice Chancellor Kazi Nazrul University, Burdwan
01:00 p.m. – 02:00 p.m. Lunch followed by rest
02:00 p.m. – 04:00 p.m. **“Demonstration of Science Experiment”**
Shri Samar Bagchi, President, Kishore Bharati Development Society, Kolkata
04:00 p.m. – 05:00 p.m. **BCL Forum**
05:00 p.m. – 06:00 p.m. **Summing up Session**

Day 2 : Wednesday, July 17, 2013

- 09:00 a.m. – 10:00 a.m. Registration
10:00 a.m. – 11:30 a.m. **“How to find black holes”**
Dr. Somak Raychaudhury, Professor, Dept. of Physics, Presidency University, Kolkata
11:30 a.m. – 01:00 p.m. **“Team Spirit ”**
Dr. Ashesh Nandy, Center for Interdisciplinary Research and Education, Kolkata
01:00 p.m. – 02:00 p.m. Lunch followed by rest
02:00 p.m. – 05:00 p.m. **“Spectroscopy, Microscopy, Properties of Fundamental Elements” –**
Hands on activity at JBNSTS Laboratory – **Dr. Abhijit Kar**, Scientific Officer, JBNSTS & **Dr. Smarajit Manna**, Student Advisor, JBNSTS
05:00 p.m. – 06:00 p.m. **Summing up Session**

Day 3 : Thursday, July 18, 2013

- 09:00 a.m. – 10:00 a.m. Registration
10:00 a.m. – 11:30 a.m. **“Protein, Proteins, Proteomics”**
Dr. Abhijit Chakrabarti, Professor, Structural Genomics Division, Saha Institute of Nuclear Physics, Kolkata
11:30 a.m. – 01:00 p.m. **“The quantum revolution and the Nano world”**
Dr. G. P. Das, Senior Professor, Dept. of Material Science, Indian Association for the Cultivation of Science, Kolkata
01:00 p.m. – 02:00 p.m. Lunch followed by rest
02:00 p.m. – 05:00 p.m. **“Spectroscopy, Microscopy, Properties of Fundamental Elements” –**
Hands on activity at JBNSTS Laboratory - **Dr. Abhijit Kar**, Scientific Officer, JBNSTS & **Dr. Smarajit Manna**, Student Advisor, JBNSTS
02:00 p.m. – 04:00 p.m. **“Parents' Counseling”**
Dr. Paromita Roy, Deputy Director, JBNSTS
05:00 p.m. – 06:00 p.m. **Summing up Session**

Day 4 : Friday, July 19, 2013

- 09:00 a.m. – 10:00 a.m. Registration
10:00 a.m. – 11:30 a.m. **Motivational Lecture**
Dr. Ajoy Kumar Ray, Professor and Vice Chancellor Bengal Engg and Science University, Shibpur
11:30 a.m. – 01:00 p.m. **“A Rational Approach to Electrochemistry”**
Dr. Kaushik Das, Professor, Dept. of Chemistry, Jadavpur University, Kolkata
01:00 p.m. – 02:00 p.m. Lunch followed by rest
02:00 p.m. – 03:30 p.m. **“How to choose your career?”**
Dr. Subhrangsu Aditya, School of Bio Science & Engineering and School of Cognitive Science, Jadavpur University, Kolkata
03:30 p.m. – 05:00 p.m. **“Exploration Antarctica: Science & Adventure”**
Dr. Bimalendu Bhusan Bhattacharya, INAE Distinguished Professor S.N. Bose National Centre for Basic Sciences, Salt Lake, Kolkata
05:00 p.m. – 06:00 p.m. **Summing up Session**

Day 5 : Saturday, July 20, 2013

- 09:00 a.m. – 10:00 a.m. Registration
10:00 a.m. – 11:30 a.m. **“Measuring distances by prime numbers”**
Dr. Chandrakant Aribam Sharma, Assistant Professor, Dept. of Mathematics, Indian Institute of Science Education and Research, Mohali
11:30 a.m. – 01:00 p.m. **“Mathematics and Chemistry: Unlikely partners or effective soul mates?”**
Dr. Subhash Basak, Senior Research Associate Adjunct Professor Natural Resources Research Institute, Dept. of Biochemistry & Molecular Biology, University of Minnesota, Duluth, USA
01:00 p.m. – 02:00 p.m. Lunch followed by rest
02:00 p.m. – 05:00 p.m. **Project Presentation**
05:00 p.m. – 06:00 p.m. **Summing up Session**