

EXTENSION LECTURE PROGRAMME

2016 – 17



**Centre for Continuing Education
Indian Institute of Science
Bengaluru – 560 012**



Extension Lectures In Science and Engineering

By
The Faculty Members

INDIAN INSTITUTE OF SCIENCE, BANGALORE

Features

- One –hour lectures by the staff of the Institute on *current* and modern scientific development in educational and cultural centers.
- 📅 Series of lectures by different faculty members can be arranged at places nearby each other.
- ✓ We provide all facilities including transport accommodation and even projector and YOU, the host organization are NOT expected to bear any expenditure.
- 🗑 Arranged according to the convenience of the host organisations and the speakers.

*Use the form provided at the end for
making request for arranging lectures*

Preface

The Extension Lecture Series has been visualized to motivate the young children from schools and colleges to go for higher studies of their choice. By attending these lectures the students from different socio economic background get a chance to know the past, present and the recent developments in Science, Engineering, Medicine and Technology. The resource persons, faculties from different departments are going to different places and deliver these lectures. Though, the lectures are semi-scientific/technical mainly popular lectures.

With this in view, the Institute, under the Continuing Education Program has been organizing Extension Lectures by its faculty since 1990 in institutions of higher learning at the technical level, in Engineering and science colleges and in schools, public/cultural organizations, Doordarshan and All India Radio at the popular level. These extension lectures are expected to be of great help in the transfer of information on the latest scientific developments in this Institute and other organization in India and abroad. They are intended to popularize Science and through science bring about a transformation in the basic thinking from the traditional fatalistic attitude to a daring confidence in facing scientifically the challengers of the modern times.

These lectures are arranged not only in Bengaluru but also in centres in the entire state of Karnataka and sometimes even outside the state. Even though the majority of these are in English, lectures are also arranged in regional languages like Kannada/Hindi, if specific requests are received. Many of these lectures are supported by demonstration, slides, transparencies and models.

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About the Indian Institute of Science

The Indian Institute of Science was established in 1909, is a Deemed University one of the Centrally Funded Technical Institution functioning under the Department of Higher Education, Ministry of Human Resource Development, Government of India. The Institute is of higher learning, which pursues excellence in research and education in several fields of Science and Engineering, is perhaps the oldest and the finest center of its kind in India.

The Institute started functioning in 1911 and has completed 108 years of glorious existence. **Bharath Rathna Sir C V Raman, Padma Bhushan Homi Bhabha, Padma Vibhushan Vikram Sarabhai, G N Ramachandran, Padma Vibhushan S Dhawan, Padma Bhushan S Ramaseshan, Bharath Rathna C N R Rao, Padma Vibhushan R Chidambaram and Padma Vibhushan R Narasimha** have all been either past students or past faculty of the Institute. This Institute has a very-very high international rating in the academic world. It provides facilities for post-graduate research and advanced instruction in several important emerging areas of Science and Engineering. The Institute is also providing one of the best computing facilities in the country. The vast beautiful green wooded campus, in which more than forty academic departments and centers are located, provides a stimulating environment.

This Institute has introduced many innovations in research and instructional activities that contribute to the growth of Science and Technology in the country. Five new Masters degree programs, some of them very novel and of current value to the country were introduced recently. Particular mention may be made of the Masters degree program in Internet Science and Engineering. The innovative Young Fellowship Program in Science for young students at the +2 level and Young Engineering Fellowship Program for third year BE Students have received overwhelming response. Besides these, the Institute has undertaken and completed various challenging tasks. The Centre for Scientific and Industries Consultancy, the recently founded Society for Innovation and Development, Sir Dorabji Tata Centre for Tropical Diseases and Advanced Bio Energy Technology Society provide an effective interface with industry.

The Institute is aggressively pursuing interaction with Academic Institutions and Universities globally. In the last couple of years, many memoranda of Understanding have been signed with Universities in France, Australia, Germany, Singapore and many others countries, which provide for effective student-faculty interaction in research and training. The Institute is working in establishing Joint Research Programs between Institutions of higher leaning. The Institute has remained relatively small in size (both faculty and students) in spite of its growth in various academic activities over the last nine decades.

The following table briefly gives you various admission options currently available at the Institute

Programme	Faculty	Minium Qualification	Duration (Years)	Scholarship (Rs. Per month)	Mode of Admission
Ph.D	Science	B.E./B.Tech or equivalent MBBS., MVSC., M.Pharm.,	5	25,000/28,000	IISc Ent. Test/GATE/ Joint CSIR UGC- NET for JRF/ICMR/DBT/NBHM followed by Interview
Ph.D	Engg.	ME/M.Tech M.Sc (Engg) or equivalent + BE/B.Tech or equivalent	5	25,000/28,000	ME/M.Tech./ IISc Ent. Test/GATE/ Joint CSIR UGC- NET for JRF/ICMR/DBT followed by Interview
M.Tech (Res)	Engg.	BE/B.Tech	2	12,400	GATE/IISc Entrance Rest Followed by Interview
*E.R.P. Reg. Ph.D.	Science & Engineering	M.Sc/BE/ B.Tech or Equivalent	5	-	Interview only
Integrated Ph.D	Science	B.Sc or BVSc/ B.Pharm equivalent BSc.Ag.	5 + 2	16,000/25,000/28,000	IISc Ent. Test Followed by Interview
M.Tech	Engg.	BE/B.Tech/ M.Sc equivalent	2	12,400	Direct Admission and also (1) Based on GATE (2) A few courses has an Aptitude Test & Interview
M.Des	Engg.	BE/B.Tech/ B. Arch or equivalent	2	12,400	GASTE/CEED Followed by Desig Aptitude Test & Intervuew
M.Mgt	Engg.	BE/B.Tech or Eqyuvaleb	21 months	-	GATE/CAT/GMAT Followed by Group Discussion and Interview

*** Only for those working in R & D Organisations/ Industries**

For further details one can Write to : The Assistant Registrar (Academic)

**Indian Institute of Science,
Bengaluru 560 012**

**Phone 080 - 22932210, 22932977,
22932706 Fax: 080 - 23601413**

Email: ar@academic.admin.iisc.ernet.in

Note

1. Since these lectures are delivered on voluntary basis by our faculty in addition to their regular academic and research commitments, sometimes they may not be in a position to accept all invitations and deliver lectures. This is particularly true with some speakers with a higher number of requests. In order to help all organizations who request us to organize lectures, we seek your help. Kindly fill in the areas where you want lectures to be delivered in addition to the lecture numbers. In case we cannot meet your requirements on the specific lecture requests. We will try to arrange an alternative lecture from the identified area. Examples for areas are: Lasers, Computers, Energy, Superconductors, Communication, Satellite, Genetics, Crystals and Water Resources.
2. Since the faculty members have many commitments, they normally schedule the requests of lectures in different places. Normally tolerances are provided in the schedule prepared by our speakers; but when delays exceed these tolerances, they and others are put into inconveniences; hence it is desirable to maintain punctuality as far as possible, so that their schedule is not upset.
3. It will be helpful to us if you can kindly arrange to receive the speaker from bus/railway stations on arrival, as many may not be familiar with places.
4. Cancellation of lectures, if any. May kindly be intimated to the speaker concerned directly with a copy to the convener through telegrams/ e-mail well in advance so as to minimize hardship.
5. Kindly identify a maximum of lectures per speaker only.

EXTENSION LECTURE PROGRAM FOR 2016 - 2017

Sl. No.	Subject	Name, Department Telephone Nos. and Email address	Level of Lecture College / High School	Language	Place of the Lecture
1	Computers: Past Present & Future	Dr. Shivaprakash N C Chief Research Scientist Dept. of Instrumentation (O) 22932242 @ 23601270 email: shiv@iap.iisc.ernet.in	Any Level	English/ Kannada	Any Place
2	Indian Science & Scientists				
3	Our Universe				
4	Einstein				
5	X-rays and its Applications				
6	Introduction to Cryogenics	Mr. Durgesh S Nadig Principal Research Scientist, (CCT) 22933080 (O), 9242869430 email: nadig@ccf.iisc.ernet.in	Any Level	English/ Kannada	Any Place
7	Cryogenic Treatment on Metals				
8	Drug Design using X-ray Crystallography	Dr. Nethaji M Chief Research Scientist Dept. of I P C. 22933350 (O), 23510383 @ 09449638266 (M) Email: mnetaji@ipc.iisc.ernet.in	Any Level	English	Any Place
9	X-Ray Crystallography: An Efficient Tool to Understand Chemistry				
10	Chemists, Chemistry and X-ray Crystallography				
11	Bio Technology of DNA Cleaving				
12	Pollution - a Serious Threat Nature				
13	Chemistry of Batteries				
14	Electrochemistry and Applications	Prof. Munichandraiah N Dept. of I P C. 22933183 (O), Email: muni@ipc.iisc.ernet.in	Any Level	English	Any Place
15	Electrochemical Energy Conversion				
16	Energy Crisis and Role of Batteries				

17	I C Engines	<p>Dr. R Thirumaleswara Naik</p> <p>Dept. of M E 22932960/ 2331(O), Fax: +91 80 23600648 Email: rtnaik@mecheng.iisc.ernet.in</p>	Any Level	English	Any Place
18	Combustion bio-fuels				
19	Automobiles				
20	Renewable energy				
21	Transportation Engineering				
22	Pollution Control				
23	Character Development				
24	Embedded System	<p>Dr. Rathna G N Principal Research Scientist, Dept. of EE., 22933167(O) Email: rathna@ee.iisc.ernet.in</p>	Any Level	English	Any Place
25	Home Automation				
26	Signal Processing Applications				
27	Image Processing Applications				
28	Wireless Sensor Networks				
29	Carbon - A Wonderful Element in Nature	<p>Dr. Prasad Vishnubhotla Chief Research Scientist, Dept. of Physics 22933338(O), 9482969399(M) 23451002® Email: vishnu@physics.iisc.ernet.in</p>	College/ High School	English/ Kannada	Any Place
30	Green House Effect and Global Warming				
31	A Journey Through the Conductivity of Materials				
32	Superconductivity				
33	Plastics and Polymers				
34	Nanotechnology				
35	Basic of Electronics				
36	The Universe - Our Solar System				
37	The Development of Periodic Table of Elements				
38	Science's 10 Most Beautiful Physics Experiments				
39	Production and Measurement of Low Temperatures				

40	Applications of Microwaves and its Radiation Effects			
41	Nanomaterials – Synthesis and Applications			
42	Electron Field Emission from Materials & Composites			
43	Electromagnetic Waves-Generation and Applications			
44	Project Management			
45	Strategic Management			
46	Business Systems Analysis			
47	Intellectual Property Management			
48	Patent Management			
49	Technical Communication			
50	Managing and Organizing Innovation for the Knowledge Economy			
	Leadership and Management in Universities			
51	Managing Technological Development	Dr. Parameshwar P Iyer Principal Research Scientist Dept.of MS. 22932448 / 23340134 (O), 23502278 ® 9886102448 (M) email: piyer@mgmt.iisc.erner.in	College/ High School	English/ Kannada
52	Value Chain Analysis in the Pharmaceutical Industry			Any Place
53	Bio - Diesel Energy for the Future			
54	Entrepreneurship Management			
55	Writing a Business Plan			
56	How to Manage Technology			
57	Career Planning Option			
58	The Systems Approach			

59	Radiation: Units, Measurement and Safety Aspects	<p>Mr. Raghuram P T Senior Scientific Officer Dept. of Chemical Engineering 22932319(O), 23372781® 9449638267 (M) email:ptr@chemeng.iisc.erner.in</p>	Any Level	English	Any Place
60	Nuclear Energy Scenario				
61	Gas liquid Reactions : Model Development				
62	X rays in Bio-Med Field				
63	Fermenter Design				
64	Food Safety and Preservation Technique				
65	Hazardous Pollution Management	<p>Mr. P T Raghuram & Dr. Suneetha T B Asst. Prof. Biotechnology, Acharya Institute of Technology, 9980820935 (M) Email:suneethatb@acharya.ac.in</p>	Join Lecture	English	Any Place
66	Multimedia Applications	<p>Dr. Anandi Giridharan Senior Scientific Officer, Dept. of ECE, 9341324901(M), Email: anandi@ece.iisc.ernet.in</p>	College	English	Any Place
67	Transport Layer		College		
68	Markup Language		School/College		
69	Internet A Protocol and Subnetting		College		
70	Introduction to Internet		School		
71	Recent Advances in Ultra High Voltage Transmission	<p>Dr.Subba Reddy B Principal Research Scientist HVL, Dept. of EE 22932550(O), email: reddy@ee.iisc.erner.in</p>	Engineering. College	English	Any Place
72	Applications of Mass Spectrometry in Proteomics and Metabolomics	<p>Prof. Utpal Tatu Professor Dept. of BC., 9945567901(M), email: tatu@biochem.iisc.ernet.in</p>	Any Level	English	Any Place
73	Drug Discovery: My Perceptions with Anti-Protozoan Drug Development				
74	Applications of Proteomics in Basic Science and applied Research				

75	The Need for Animal Diseases Diagnosis and Treatment in Rural India				
76	How do Proteins Fold in the Cell?				
77	Molecular Basis of Heart Failure	<p>Dr. N Ravi Sundaresan Asst. Prof. Dept. of MCB., 22932068(O), Fax:91 80 23602697 mail: rsundaresan@mcbliisc.ernet.in</p>	Any Level	English	Any Place
78	Aging and Aging-related Diseases				
79	Transgenic Technology in Cardiovascular Research				
80	Diabetes and Heart Failure				
81	Why we age?				

Please fill up this form appropriately and post it to

**The CONVENOR
Extension Lecture Program
Centre for Continuing Education
Indian Institute of Science
Bengaluru – 560 012**

Request for arranging Extension Lecture

a. Lecture requested in the order of preference (Maximum of two per faculty)

Name of the Speaker	Lecture SL. Nos.	Date Convenient*
1	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
2	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>
3	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>

b. Language: English Kannada

c. Suitable Time: Any Time

d. In the event of the above speakers unable to give the lectures are you interested in

organizing alternative lectures in the related area? YES No

Physics <input type="checkbox"/>	Chemistry <input type="checkbox"/>	Mathematics <input type="checkbox"/>
Computer Science: <input type="checkbox"/>	Laser <input type="checkbox"/>	Civil Engg. <input type="checkbox"/>
Water <input type="checkbox"/>	Genetics <input type="checkbox"/>	Energy <input type="checkbox"/>
Communication <input type="checkbox"/>	Other (Please Specify)	

e. Can the lecture be arranged at place on

Sunday?	YES <input type="checkbox"/>	NO <input type="checkbox"/>
Saturday?	YES <input type="checkbox"/>	NO <input type="checkbox"/>
Monday to Friday after 5 p.m.?	YES <input type="checkbox"/>	NO <input type="checkbox"/>

About the Institution

1. If your School /College/Organisation is in Bengaluru city, indicate its approximate location and routes to reach it,
2. If your School/College/Organisation is outside Bengaluru city, but within the Bengaluru District the most convenient route to be taken to reach your place:
 - a). In Bus:
 - b) In Car:
3. If your School/College/Organisation is outside Bengaluru District, kindly give us the details of Bus and Train timings to travel to your place and to return to Bengaluru.

Bus: Duration of Journey:
Bus Timings:
Return Bus Timings:

Train: Duration of Journey:
Train Timings:
Return Train Timings:

4. What would be the type of audience for the lecture? Students or Teachers or Public?
5. How many persons may attend the lecture? (Estimated number)
6. If it becomes necessary for our faculty member to halt at your place can you arrange for his Accommodation? YES NO
7. Will you be able to provide for the lecture
 - a). Overhead Projector? YES No
 - b). 35 mm Slide Projector YES NO
 - c). LCD Projector? YES NO
8. Person to be contacted at your School/College/Organisation
9. Full address of your School/College/Organisation
10. Telephone No.

Date:

Signature
Head of the Institution

For further details please contact

Dr. M Netaji
Convener
Extension Lecture Program
Centre for Continuing Education
Indian Institute of Science
Bengaluru – 560 012

Shri V Sreenivasaiah
Officer-in-Charge
Centre for Continuing Education
Indian Institute of Science
Bengaluru – 560 012

BOOK POST

To