

## 12.1 NATIONAL CONVENTION

The National Convention of an Engineering Division is the apex technical activity of the Division itself, which is organized annually to a place decided by the Division Board and subsequently approved by the CATE and the Council.

### 12.1.1 Objective

The National Convention, sponsored by a Division, is the apex activity held once a year aiming at achievement of technical and professional growth through intensive technical content and mutual interaction. A National Convention shall seek to achieve maximum involvement and participation of members and non-members as well. This is the activity, which also aims at establishing liaison between the Institution, its members and the policy makers. The organization of a National Convention, therefore, requires full attention of the Host Centre and a long-term planning with adequate support from the Headquarters and concerned Division Board.

### 12.1.2 Nomenclature

This activity shall be designated in the following style.

*Sixteenth National Convention of Environmental Engineers*

*Or*

*Sixteenth National Convention of Metallurgical and Materials Engineers*

### 12.1.3 Programme Outline

A National Convention shall be a multi-activity capsule comprising the following elements.

- National Seminar
- Memorial Lecture
- State-of-the-art Lecture
- Felicitation of Eminent Engineers
- Technical Visit and Technical Exhibition
- Workshop/Round Table/Panel Discussion
- Division Board Meeting

### 12.1.4 Planning

Proposal for holding a National Convention will emanate from a Centre and shall be processed by the concerned Division Board and the final decision shall be taken by CATE/Council.

The Centre desiring to hold the National Convention shall submit the proposal to the concerned Division Board **at least six months prior** to the proposed dates of the Convention. The proposal shall contain the following for consideration of the Board.

- Venue (city/town)

- Dates
- Theme of the National Seminar
- Other activities (Workshop/Round Table/Panel Discussion) to be held concurrently with the Convention.

### **12.1.5 Responsibility**

The primary responsibility for planning and organizing a National Convention shall rest with the Host Centre. Implicit support of the Chairman of the concerned Division Board and the Headquarters will be available.

For smoothness in organization of this national event, the Host Centre shall constitute the following Committees.

- National Advisory Committee
- Organizing Committee

#### **National Advisory Committee**

This Committee comprises President of IEI as its Chairman, the Chairman of the Division Board as its Co-chairman and a Corporate Member (attached to the Centre and the Division) as its Convenor.

The members of the Committee shall be nominated by the Host Centre from amongst persons of all-India status and shall include all members of the concerned Division Board and the Honorary Secretary of the Host Centre (if he is not the Convenor).

This Committee shall provide guidance for structuring the technical programmes, selection of Session Chairmen, Keynote Speakers, State-of-the-art and Memorial Lectures' Speakers and the persons to be honoured at the Convention under the banner 'Felicitation of Eminent Engineers'.

This Committee may not meet frequently and the suggestions of the members may be made through correspondence only.

#### **Organizing Committee**

The Organizing Committee shall be constituted with the Chairman of the Host Centre as its Chairman and one Corporate Member (attached to the Host Centre and the Division) as the Organizing Secretary. The members of the Committee shall include local Corporate Members.

To make this Committee effective, representatives of the government departments, public bodies, industries, educational institutions, etc should be co-opted in it.

This Committee shall be responsible for all works related to the Convention.

The Chairman of the concerned Division Board and the Headquarters shall be kept informed about major details of the programme as may be finalized by the Organizing Committee from time to time.

### **12.1.6 Resource Mobilization**

The Organizing Committee shall plan resource mobilization and the income may comprise the following :

- Grant from the Division Board
- Registration fees to be paid by delegates
- Contributions of other organizations as Patrons, Co-sponsors, Collaborators, Donors or Associates
- Charges collected from the advertisers in the Seminar Volume/Souvenir, published by the Host Centre
- Technical Exhibition

### **12.1.7 Convention Document**

Essential documentation in the form of preprints of article should be brought out in advance. A publication containing the proceedings and recommendations is desirable. The Host Centre may also publish a souvenir on the occasion.

### **12.1.8 Programme Structure**

The duration of National Convention may be two or three days and the programme shall include the following.

**Inaugural Session** to have:

- Welcome Address by the Chairman of the Host Centre
- Address by the President, IEI (if present)
- Address on the theme of National Seminar by the Convenor
- Address by the Chairman of the Division Board
- Address by the Special Guests (if any)
- Inaugural Address by the Chief Guest
- Felicitations of Eminent Engineers
- Presentation of IEI Young Engineers Award (if any)
- Vote of thanks by the Organizing Secretary/Honorary Secretary of the Host Centre

**This session shall be presided over by the Chairman, Division Board.**

**Memorial Lecture** and **State-of-the-art** Lecture shall follow the Inaugural Session.

**Technical Sessions** of the National Seminar

**Workshop or other technical events.**

**Valedictory/Concluding Session** to have:

- Welcome Address by the Chairman of the Host Centre or the Technical Committee
- Reporting on the Technical Sessions by Rapporteurs/Session Chairmen
- Finalization of Recommendations
- Vote of thanks by the Organizing Secretary/Honorary Secretary

*This session shall be presided over by the Chairman of the Host Centre* and the Chairmen of the Technical Sessions shall be present on the dais. For each Technical session, there shall be one Chairman, one Co-chairman (Optional) and one Rapporteur.

#### **12.1.9 Publicity**

Publicity for a National Convention shall be made primarily through the IEI News and the Division Part of the Journal of Institution. The Host Centre may, however, adopt other avenues for publicity of the Convention at the national and state levels by contacting various government departments, public bodies, industries, educational institutions, etc.

Participation should also be initiated from foreign societies with which the Institution has bilateral agreements or any other formal relationship. The Host Centre should send 25 copies of the "First Information Brochure" to the Headquarters for necessary action.

#### **12.1.10 Selection of Articles for National Seminar.**

The persons desirous of presenting articles may be advised to submit synopses of their articles to the Host Centre.

A Technical Committee shall be constituted by the Organizing Committee to scrutinize the synopses of the articles as may be received from authors. The decision of the Technical Committee shall be communicated to those authors whose synopses are accepted and they shall submit the full text with all tables, diagrams, etc to the Host Centre well ahead of the dates of National Convention.

#### **12.1.11 Annual Paper Meeting**

Adequate instructions shall be communicated to the authors by the Headquarters so as to have the articles with uniformity in respect of notation, symbols, etc.

Articles received and screened by the Headquarters should be presented at the Annual Paper Meeting. The list of authors with their addresses and titles of the articles shall be sent by the Headquarters to the Organizing Committee. The authors shall be contacted by the Headquarters and also by the Organizing Committee.

The Officer of the Technical Department attending the National Convention shall also assist the Host Centre for the successful conduct of the Convention and prepare a report for the perusal of the Chairman of the Division Board.

#### **12.1.12 General**

The Host Centre must send a complete report on the suggested pattern and a few photographs within 15 days from the date of culmination of National Convention to the Headquarters for the purpose of publishing the same in IEI News.

**SEATING PLAN FOR NATIONAL CONVENTIONS**

**A. Inaugural Session**

1	2	3	4	5	6	7
Organizing Secretary	Chairman, Organizing Committee	Chairman, Division Board	President, IEI	Chief Guest	Convenor, Technical Committee	Honorary Secretary, Host Centre

**B. Valedictory / Concluding Session**

1	2	3	4	5	6	7
Organizing Secretary	Chairman, Host Centre	Chairman, Technical Committee	Chairman, Division Board	Chairman, Organizing Committee	Convenor, Technical Committee	Honorary Secretary, Host Centre

**SAMPLE INVITATION CARDS FOR NATIONAL CONVENTION**

**A. Inaugural Session**

The Chairman and the Members of ..... Engineering Division Board and the Chairman and the ..... Members of the Committee of the ..... Centre of The Institution of Engineers (India) request the pleasure of your company at the Inaugural Session of the.....National Convention of ..... Engineers at ..... (venue) at..... am/pm on .....(date) .

..... has kindly consented to be the Chief Guest and to inaugurate the ..... National Convention of ..... Engineers.

R.S.V.P.  
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**MEMORIAL LECTURES AT NATIONAL CONVENTIONS**

Engineering Division	Name of Lecture	
AG	Rathindra Nath Tagore Memorial Lecture	
AR	T S Narayana Rao Memorial Lecture	
AS	Dr Vikram Sarabhai Memorial Lecture	
CH	Acharya Prafulla Chandra Ray Memorial Lecture	
CP	M S Ramanujam Memorial Lecture	
CV	Dr K L Rao Memorial Lecture	
EL	M S Thacker Memorial Lecture	
EN	N V Modak Memorial Lecture	
ET	Prof S K Mitra Memorial Lecture	
MC	Dr S C Bhattacharyya Memorial Lecture*	Simultaneously
	Dr S P Luthra Memorial Lecture	
MM	V Subramony Memorial Lecture	
MN	Prof S K Bose Memorial Lecture	
MR	T B Bose Memorial Lecture	
PR	F W Taylor Memorial Lecture	Simultaneously
	G C Sen Memorial Lecture	
TX	S N Bhaduri Memorial Lecture	Alternate year
	Dr B K Chakrabarti Memorial Lecture	

\*Against the J P Jain Endowment Fund

#### **RATHINDRANATH TAGORE MEMORIAL LECTURE**

Rathindranath is the son of poet Rabindranath Tagore. He was born in Calcutta on the 27<sup>th</sup> November 1888. He was one of the first batches of five students at Santiniketan in 1901. Educated at Santiniketan and also privately under the guidance of his illustrious father, he was initiated to the rural development work at Sriniketan. He went to the USA for higher studies and training in agriculture as his father thought it would help him to work in rural India better. Rathindranath graduated in Agriculture from University of Illinois, U S A in 1910 and specialized in rural craft besides agriculture. He travelled extensively in England and the U S A in 1912 to gather experiences in agricultural extension work. He played a leading role in establishing agricultural and rural extension centre at Sriniketan. In 1921, Rathindranath became the General Secretary of Visva Bharati Society. He became the first Vice-Chancellor of Visva Bharati in 1951 when it was incorporated as a Central University. He retired in 1953 for reasons of health.

He is considered as the first and foremost Agricultural Engineer of the country. He was also a well-known artist, craftsman, and author of several books. He breathed his last on the 3<sup>rd</sup> June 1961.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Agricultural Engineers.**

#### **T S NARAYANA RAO MEMORIAL LECTURE**

T S Narayana Rao was born on the 7<sup>th</sup> February 1907 in a pastoral family at Arkera, near Mysore City. He graduated in Civil Engineering in 1931 from the Government Engineering College of the erstwhile Mysore State. As an apprentice engineer, he worked in Madras with M/s Gannon Dunkerley & Company and subsequently shifted to Bangalore to work under the personal guidance of the late Lakshmi Narasappa, a reputed Government Architect. He participated in the construction of the Town Hall, Municipal Offices, and other highly acclaimed structures in Bangalore.

Backed by a few years of intensive experience in architecture and having an educational commitment to engineering, he felt that it was appropriate to fuse the complementary disciplines of architecture and engineering through private practice. He started practising as a Consulting Architect and Engineer in 1933 and took the risk inherent in starting a new venture totally foreign at that time to the private sector.

Narayana Rao had the rare privilege of constructing buildings of which Shri Krishna Weaving Mills, Mysore Vegetable Oil Products, Rashtriya Vidyalaya and St Joseph's College Observatory deserve special mention. His work reflected a genetic blend of the architect and engineer in him. His success as a builder and architect was in no small measure due to his capacity to execute masonry, carpentry and plumbing works himself.

He was associated with several Engineering Institutions, ISI (now BIS), etc. As a man, he was highly principled and self disciplined. His honesty and integrity sought expression in his exemplary conduct and behaviour. His services as a man and as a professional are even remembered today with respect.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Architectural Engineers.**

#### **DR VIKRAM SARABHAI MEMORIAL LECTURE**

Dr Vikram Sarabhai was not only an imaginative and creative scientist but also a pioneering industrialist and astute planner. He made significant contributions in the field of cosmic ray physics and in the development of nuclear power and space programmes. He took up the nuclear programmes with a challenge and added fresh dimensions to the space research programmes in 1966 when he became the Chairman of the Atomic Energy Commission.

Dr Sarabhai was born on 12<sup>th</sup> August, 1919 at Ahmedabad in a rich industrialist family. His early education was in a private school and Gujarat College at Ahmedabad. He then went to Cambridge, England and from St John's College obtained his Tripos in 1939. He came back to India and started research work in the field of cosmic rays with Sir C V Raman at the Indian Institute of Science, Bangalore. In 1945, he went back to Cambridge to carry out further research on cosmic rays and there in 1947 obtained Ph.D. Degree. It was as early as 1942, Dr Sarabhai conceived the idea of starting the Physical Research Laboratory in Ahmedabad. Soon after his return from Cambridge in 1947, Sarabhai started looking for a place for this project. He got a few rooms at the M G Science Institute to start the laboratory and the laboratory was formally opened in April 1954. Dr Sarabhai made the Physical Research Laboratory virtually the cradle of the Indian Space Programme.

Dr Sarabhai not only encouraged science but also devoted a good deal of time to industry. For over 15 years, he nurtured a pharmaceutical industry.

Dr Sarabhai helped to build the Ahmedabad Textile Industry's Research Association (ATIRA) in 1947. During 1949-56, he remained an Honorary Director of ATIRA. In 1962, he helped to found the Indian Institute of Management at Ahmedabad and during 1962-65, he remained an Honorary Director of this Institute.

Today the success of space programmes in our country is largely owing to the groundwork prepared by him in this regard. Due to his efforts only, India could launch its first satellite, Aryabhata just three and half years after his death.

Dr Sarabhai was a world-renowned figure in the field of space research. He was awarded Bhatnagar Memorial Award for Physics in 1962; Padma Bhushan in 1966 and posthumously Padma Vibhushan. He was elected the Vice-President and Chairman of the U N Conference on peaceful uses of outer space in 1968. He also presided over the Fourteenth General Conference of the International Atomic Energy Agency. Dr Sarabhai died on December 30, 1971 at the age of 52 when he was at the peak of his achievements.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Aerospace Engineers.**

#### **ACHARYA PRAFULLA CHANDRA RAY MEMORIAL LECTURE**

Acharya Prafulla Chandra Ray was born on 2<sup>nd</sup> August, 1861 in a village in the District of Jessore (now in Bangladesh). After studying for two years at Metropolitan College, Calcutta, he received a scholarship from the University of Edinburgh where he obtained a B Sc degree in 1885 and two years later, a D Sc degree for his research in inorganic chemistry. In 1889, he got a special appointment as a Lecturer at Presidency College, Calcutta and became Professor of Chemistry soon.

Sir Andrew Pedlar, the then Principal of Presidency College and himself a Chemist encouraged Ray to pursue research and with Pedlar's help, Ray raised funds to equip a reasonably good chemistry research laboratory and began a search for some of the missing elements in the periodic table. He managed to precipitate mercurous nitrite, a compound that had been regarded as unstable in crystalline form. For several years thereafter, he and his students carried out a systematic exploration of the properties of mercury salts and a range of nitrite compounds. His findings of an enquiry into the adulteration of oil and ghee were published in 1894 in the Journal of Asiatic Society and the publication was highly acclaimed.

He remained with Presidency College until 1916 when Sir Asutosh Mukherjee summoned him to the University College of Science, Calcutta. There, he continued his teaching and research for next two decades long after he became eligible to retire. His students included Dr Meghanad Saha, Dr P C Mahalanobis and Prof S N Bose.

Ray's first volume of History of Hindu Chemistry was published in 1902 and the second, in 1908. He was known as the Father of Indian Chemistry. He was knighted in 1919.

Ray was instrumental in laying foundation of chemical and allied industries in India. He motivated to start the Bengal Chemical and Pharmaceutical Works Ltd in 1901. The Bengal Pottery Works, the Calcutta Soap Works, the Bengal Enamel Works and the Bengal Canning and Condiment Works are his creations. These industries, during the next few decades, provided hundreds of technical managers to the industrial establishments all over India. The Jadavpur Technical Institute established in 1921 (developed now into Jadavpur University) had Acharya Ray as its founder President. He formed the Indian Chemical Manufacturers' Association (ICMA) in 1938.

Intellectual regeneration, industrial development, economic freedom, social reforms and political advancement of the country -- all made equally strong appeal to him, as did his teaching and research. Having abandoned western dress and manners on his return to India in 1889, he actively promoted the ideals of traditional Indian culture. He played a significant role in independence movement and motivated his colleagues and students for greater participation in it. He donated all his earnings to students, workers, laboratories and scientific organizations. He expired in Calcutta on 16<sup>th</sup> June, 1944 at the age of 83.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Chemical Engineers.**

#### **MS RAMANUJAM MEMORIAL LECTURE**

Born in 1887, Srinivasa Ramanujam was brought up in an orthodox traditional south Indian environment. He was an enigma to his teachers even at school because of his prodigious memory and unusual mathematical talent, which began to show, even before he was ten. That was the age when he topped the whole district at the primary examination and this procured him a half-fee concession at Town high School, Kumbakonam,. He passed the Matriculation examination of the University of Madras in December 1903, secured a first class, and earned for himself the Subramaniam scholarship in the FA (First Examination in Arts) class at Government College, Kumbakonam.

His research marched on undeterred by environmental factors-physical, personal, economic or social; magic squares, continued fractions, hypergeometric series, properties of numbers-prime as well as composite, partition of numbers, elliptic integrals and several other such regions of mathematics engaged his thought. He recorded his results in his notebooks. Exact facsimiles of these notebooks have now, since 1957, been published in two volumes by the cooperative efforts of the University of Madras, the Tata Institute of Fundamental Research and Sir Dorabji Tata Trust.

Though Ramanujam accepted a clerk's appointment in the office of the Madras Port Trust, his mathematical work did not slacken. His first contribution to the Journal of the Indian Mathematical Society appeared in 1911. Ramanujam was brought to the University of Madras as a Research Scholar on 1<sup>st</sup> May, 1913 at the age of 26.

Ramanujam thus became a professional mathematician and remained as such for the rest of his short life. He began a correspondence with Prof G H Hardy, the then Fellow of Trinity College, Cambridge and his first historic letter to Prof Hardy in January 1913 contained an attachment of 120 theism all originally discovered by him. Thereafter, he was invited to England in March 1914.

Ramanujam spent four very fruitful years at Cambridge, fruitful certainly to him, but more so to the world of mathematics, published 27 papers, seven of them jointly with Prof Hardy. In 1918, he was elected Fellow of the Royal Society and in the same year was elected Fellow of Trinity College, both honours coming as the first to any Indian. The University of Madras rose to the occasion and made a permanent provision for Ramanujam by granting him an unconditional allowance of £ 250 a year for five years from 1<sup>st</sup> April, 1919.

Unfortunately, Ramanujam had to spend the fifth year of his stay in England in nursing homes and sanatoria. He returned to India in April 1919 and continued to suffer from his incurable illness. All the time his mind was totally absorbed in mathematics. Thus, arose the so called Lost Notebook of Ramanujam, which contains 100 pages of writing and has in it a treasure house of about 600 fascinating results. Ramanujam's discoveries and flights of intuition were contained in the four notebooks and also his 32 published papers as well as in the three Quarterly Reports, which he had submitted to the University of Madras in 1913-14. These had thrilled mathematicians the world over. More than two hundred research papers had been published as a result of his discoveries. Later Ramanujam died at the unexpected age of 32.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Computer Engineers.**  
**DR K L RAO MEMORIAL LECTURE**

Dr Kanuru Lakshmana Rao was born on 15<sup>th</sup> July, 1902. After passing his Intermediate Examination in Science from the University of Madras, he took the B E Degree in Civil Engineering with Honours from the College of Engineering, Guindy in 1925.

His first appointment was as Assistant Engineer in the Visakhapatnam District Board in 1926. He subsequently worked in the College of Engineering, Rangoon and Guindy, and later in the Cauvery – Mettur project. During this period he also qualified for the M Sc (Eng) Degree of the University of Madras by research, being the first recipient of a research degree in engineering from that University. In 1939, he proceeded to England to specialize in reinforced concrete and obtained his Ph D Degree from the University of Birmingham.

Between 1943 and 1945, he was employed as a Senior Lecturer in Loughborough Engineering College, England. On his return to India in 1946, he was appointed by the Madras Government as Design Engineer in the Ramapadasagar Project and in 1951 joined the Central Water and Power Commission at New Delhi as Director (Dams). In 1954, he became Chief Engineer (Planning & Designs), and then became a Member (Designs and Research) in the same Commission.

During these later years, Dr Rao was closely associated with major dam projects in this country, notably Lower Bhavani, Tungabhadra, Hirakud, Malampuzha, Kosi and Umtru and with flood control on the Brahmaputra River at Dibrugarh. His personal contributions to these projects are acknowledged as outstanding.



Dr Rao is the author of a well known standard work 'Calculation, Designs and Testing of Reinforced Concrete' published by Sir Isaac Pitman & Sons. His contributions to technical journals are numerous. Dr Rao joined the Institution as a member in 1947 and became its President for two sessions (1958-1960). He was also a Minister of Government of India.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Civil Engineers.**

#### **MS THACKER MEMORIAL LECTURE**

Prof M S Thacker who was Director of the Indian Institute of Science, Bangalore, was appointed Director General of the Council of Scientific and Industrial Research, Government of India, in succession to the late Sir S S Bhatnagar.

Prof Thacker was the Chairman of the Electrical Section of the Institution, and the Section had vastly expanded under his vivid leadership.

Prof Thacker was the Chairman of the Mysore Centre and later the President of the Institution for 1955-56. He represented the Institution, at the Third Conference of Engineering Institutions of the Commonwealth in London in June 1954, and the Indian National Committee at the Sectional Meeting of the World Power Conference in Rio de Janeiro, Brazil, in July-August 1954. He was also the Chairman of the Papers Committee for the selection of articles from India for the Fifth World Power Conference held in Vienna, Austria in July 1956. He expired on July 6, 1979.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Electrical Engineers.**

#### **N V MODAK MEMORIAL LECTURE**

N V Modak received his early education in the Government High School and Fergusson College, and then joined the College of Engineering, Poona and received his BE (Civil) from the University of Bombay in 1911. He then served the Bombay Government until 1918, and then proceeded to England on a State Technical Scholarship for special work in municipal and sanitary engineering.

On his return to India, he was appointed as an Executive Engineer in the Indian Service of Railway Engineers and posted to G I P Railway as Sanitary Engineer. Subsequently his services were requisitioned by the BB & CI Railway as a Consulting Engineer to prepare a Sewerage scheme for Dohad Station. From 1930, he was with the Bombay Municipality, first as Deputy City Engineer and then Hydraulic Engineer and in 1934, he was promoted to the responsible position of City Engineer to the Bombay Municipal Corporation.

His activities in the promotion of engineering profession have been very wide and extensive. He had been the Chairman of the Bombay Centre of the Institution of Engineers (India), and the President of the Bombay Engineering Congress. He was a Fellow of the University of Bombay, a member of its Syndicate and Dean of the Faculty of Engineering. He was also a member of the Advisory Committee of the Poona Engineering College and of the Governing Board of the Victoria Jubilee Technical Institute, Bombay, a member of the Institution of Civil Engineers and the Institution of Municipal and Country Engineers, London and a Fellow of the Royal Sanitary Institute of London.

He was elected as President of The Institution of Engineers (India) by the Council for the year 1940-41 and was re-elected for a second term for the year 1941-42. He was the first member to receive such an honour.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Environmental Engineers.**

#### **PROF S K MITRA MEMORIAL LECTURE**

A renowned scientist, an excellent lecturer and a reputed author, Prof Sisir Kumar Mitra is a pioneer in the field of radio-physics and ionosphere research in the country.

Born in Calcutta on October 24, 1890, Sisir Kumar Mitra had his initial insights into the field of scientific research and development during his stint in Presidency College, Calcutta where he came in close contact with Sir J C Bose and Acharya P C Roy. Sir J C Bose's equipment for the generation and detection of Herizian waves had left in him an indelible interest in radio physics – a faculty he cultivated later in life.

In 1916, the University College of Science was founded and Mitra joined the Department of Physics. He began researches on the diffraction and interference of light and in 1919 obtained the D Sc Degree from the University of Calcutta.

In 1920, he joined the University of Sorbonne where he worked for the determination of wavelength standards of the copper spectrum and received the Doctorate Degree in 1923. Later, he joined the Institute of Radium to work under Madame Curie and subsequently joined the University of Nancy. On his return to India, he was appointed Khaira Professor of Physics in the University College of Science, Calcutta.

While developing teaching and research facilities in the University, he also took active interest in the development of broadcasting in India. His proposal for the establishment of a Radio Research Board was accepted by the newly formed Council of Scientific and Industrial Research, and he was appointed as its first Chairman and continued in this position until 1948.

Prof Mitra's greatest contribution to scientific knowledge was in the field of ionosphere. His ideas and guidance was at the root of most of the contributions made by the Ionosphere Laboratory of Calcutta. His findings on upper atmosphere ionisation and night sky luminescence was presented in a treatise 'Active Nitrogen – A New Theory' in 1945.

After his retirement from University service in November 1955, he was appointed Professor Emeritus of the University of Calcutta. Subsequently he assumed the Administratorship of the Board of Secondary Education of the State of West Bengal and was instrumental in the introduction of Higher Secondary Syllabus in the State.

In 1958, he was elected as a Fellow of the Royal Society, London for his contribution to the study of upper atmospheric phenomena. He was the recipient of the King George V Silver Jubilee Medal in 1935, Joy Kissen Mukherjee Gold Medal of the Indian Association for the Cultivation of Science in 1943, Science Congress (Calcutta) Medal of the Asiatic Society in 1956 and Sir Devaprasad Sarabadhikary Gold Medal of Calcutta University in 1961.

He held many responsible positions including : President, Asiatic Society of Bengal (1951-52); General President, Indian Science Congress (1955) and President, National Institute of Sciences of India (1956-58). He was a member of the Indian National Committee for the International Geophysical Year and was in the Editorial Board of a number of Indian and foreign scientific journals.

Prof Mitra received Padmabhushan in 1962 and in the same year was appointed National Research Professor in Physics by the Government of India.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Electronics and Telecommunication Engineers.**

#### **DR S C BHATTACHARYYA MEMORIAL LECTURE**

Dr S C Bhattacharya, born on 20<sup>th</sup> August, 1894, passed M Sc in Mathematics from University of Calcutta in 1919 and obtained the degree in both mechanical and electrical engineering in 1921 from the Bengal Technical Institute. Almost simultaneously, he passed the final examination in mechanical engineering from the City and Guilds, London. Subsequently, he went to Germany and obtained the degree in mechanical engineering from Berlin Technical University in 1926, and Dr Ing from the same University in 1928. He stood first in his degree examination in mechanical engineering at National Council of Education, Bengal, as well as at the Berlin Technical University.

India was then reverberating with the spirit of nationalism and Dr Bhattacharya, after his return from Germany, had no hesitation in responding to the call of the nation and joining the National Council of Education, Bengal as a teacher in mechanical engineering ignoring tempting offers from other reputed engineering colleges. His entire career was thereafter devoted and dedicated to the service of NCE, Bengal and Jadavpur University and in planning and implementing his ideas in the development of human resources in mechanical engineering till his retirement as Professor and Head of the Department of Mechanical Engineering in 1959. He acted as Vice Chancellor of Jadavpur University for a short period. After his retirement, he was made Professor Emeritus of Jadavpur University.

Dr Bhattacharyya excelled in whatever subject he touched, be it thermodynamics or applied mechanics, theory of mechanics or strength of materials, machine design or machine tools.

He was not only a pioneer in introducing and advancing mechanical engineering education in the country but also a pioneer Indian author of such engineering text books as 'Engineering Thermodynamics', 'Machine Design', 'Machine Tools', etc. Besides being a teacher par excellence during his entire service career, he was associated with various indigenous industries as technical consultant. He left behind an academic legacy virtually beyond comprehension.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Mechanical Engineers.**

#### **DR S P LUTHRA MEMORIAL LECTURE**

Dr S P Luthra, born on 1<sup>st</sup> April , 1912, after a brilliant academic career in India was awarded a Government of India Overseas Scholarship for higher studies and research at the Imperial College of Science and Technology, London and obtained the Ph. D Degree in Mechanical Engineering in 1949. Earlier, he had received the B Sc (Engg) Degree of Punjab University in 1937 and worked at the North West Railway Mechanical Workshop at Lahore; Punjab PWD, Hydro Electric Branch; Shaw Wallace & Co Ltd; Siemens India Ltd. and VDJH Technical Institute, Lahore.

In 1949, Dr Luthra joined Delhi Polytechnic (now Delhi College of Engineering) as Head of the Mechanical Engineering Department. He was also Visiting Professor at the University of Wisconsin, USA, under the Technical Co-operation Mission. Later, he joined the Indian Institute of Technology, Delhi, as Professor and Head of the Department of Applied Mechanics and held the positions of Dean of Students, Dean of Examination, Dean of Faculty of Engineering, and Dean of Administration and finally became its Director. During his professional career, Dr Luthra was connected with various professional, educational and scientific organizations. He was member of the Board of Governors, IIT, Delhi; Chairman, Board of Governors, Garge College for Women, New Delhi; Chairman, World Conference in Industrial Tribology, New Delhi; and President of the Indian Society for Industrial Tribology.

Dr Luthra was also a recipient of the President of India Award for Best Teacher in Technical Education in 1979 and the prestigious award by the Prime Minister of India for meritorious service rendered to the IIT, Delhi, on the occasion of its Silver Jubilee in 1986, and a silver medal by the President of India for meritorious services rendered to the Indian Institute of Science, Bangalore, on the occasion of its Diamond Jubilee in 1986.

Dr Luthra had long association with the Institution of Engineers (India) having joined it as Corporate Member in 1944. He had served on the Council for 12 years and was Chairman of the Delhi State Centre of the Institution. He expired on 24<sup>th</sup> July , 1993.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Mechanical Engineers.**

#### **V SUBRAMONY MEMORIAL LECTURE**

Hailing from a well-known family in Quilon, V Subramony had his early education in Quilon before joining Banaras Hindu University for the Graduate Course in Metallurgical Engineering. After graduation, he had his initial training in the USSR and had visited Steel Plants in Japan, West Germany and the U.S.A.

He had a rich and varied career in steel. Joining the Bhilai Steel Plant in 1956, he rose steadily, occupying the posts of Superintendent (Blast Furnaces), Chief Superintendent (Iron Zone), Assistant General Superintendent (Technical Development) and Deputy General Superintendent (DGS). As DGS, he looked after the plant operations and was instrumental in bringing about a number of technological improvements that resulted in higher productivity. He was associated with the expansion of Bhilai Steel Plant to four million tons.

Shri Subramony joined SAIL Headquarters as General Manager (Operations) in June 1978, and subsequently he took over as Director (Technical) in January 1981. On 30<sup>th</sup> April, 1982, he assumed charge as Managing Director, Rourkela Steel Plant. He was also Director, MECON; Nagarjuna Steel Ltd, Hyderabad and Director, Fertilizer Association of India, New Delhi. He was conferred the 'Distinguished Alumni Award' by Banaras Hindu University on the 15<sup>th</sup> November, 1983.

Shri Subramony introduced several new management techniques, which ultimately resulted in the Rourkela Steel Plant turning the corner. He won the hearts of everyone by his sense of values, enthusiasm and fairness. A high performer, he was the pride of many. A rising star was cut short cruelly by a quirk of fate on 23<sup>rd</sup> January, 1986.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Metallurgical and Materials Engineers.**

#### **PROF S K BOSE MEMORIAL LECTURE**

Prof. S K Bose was born on 7<sup>th</sup> October , 1900 in Burdwan district of West Bengal. After passing his matriculation examination in 1917, he was admitted to Presidency College, Calcutta and secured first position in his B Sc (Geology

Hons) examination in 1921. He continued his study in M Sc (Geology) for one year only. Later, he switched over to mining, joined the Sanctoria Colliery, and took apprentice training.

In 1923, Prof Bose joined the Royal School of Mines, London, under Government of India Scholarship. He passed the ARSM (Mining) examination in 1927 and was placed first in first class. During his period of study abroad, he travelled Europe and visited some large mines in Belgium, Netherlands, Germany and France. He joined as first Professor of Mining at Indian School of Mines (ISM), Dhanbad in 1927. Later, he became Head of the bifurcated Department of Metal Mining and Surveying. He devoted his entire career at ISM, Dhanbad and retired from there in 1956.

After retirement from ISM, he served NCDC in the capacity of Officer on Special Duty (Training) for one year. During his service at ISM, he visited many minefields in India as well as abroad. It is remarkable that most of his visits were undertaken at his own expenses. He visited Ceylon in 1932, South Africa in 1934, and Japan, North Korea, Mongolia and China in 1936 to observe important mines in those countries. He often used to contribute some state-of-the-art short notes to the local weekly 'The New Sketch'.

Through his publication in this weekly, he stressed the need for establishing a Government College of Mining Engineering, similar in status and model to the Royal School of Mines in England and Japan. This eventually led to a resolution being passed by Indian National Congress.

In another publication in one of the special issues of the same weekly on 'Mining and Civilization', he emphasized the importance of the part played by mining and geological education in the industrial development of the world and improvement of the social conditions of mankind. He expired on 15<sup>th</sup> January, 1968.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Mining Engineers.**

#### **T B BOSE MEMORIAL LECTURE**

Rear Admiral T B Bose in 1938 started his career as Lieutenant in the Royal Indian Navy and was appointed an Officer on the dockyard staff. He took special interest in the apprentices assigned to the Dockyard of Engineer Cadets to pass out the I M M T S "Dufferin".

Admiral Bose was Principal Officer, Mercantile Marine Department at Calcutta in 1952. Right from the time the new D M E T Course was inaugurated in 1949, he identified himself with the new system of training, gave it his full support and, until his retirement from service and even afterwards, became a guiding spirit.

In 1957, when he was Chief Surveyor to Government of India, he was appointed Chairman of a Committee to advise Government on the indigenization of ship-ancillaries. The assignment involved considerable touring, data collection and discussions with shipyards and industrial enterprises. The Report of the Committee led to the formation of a Marine Engineering Division of the then I S I (now BIS) and to the setting up of an indigenous development cell at the Hindustan Shipyard, Vishakapatnam.

Admiral Bose was largely responsible for the development of Naval College of Engineering at Lonavala. Even though he had retired from the Navy, Naval Headquarters had a very high regard for his sagacity and expertise and valued his advice greatly. Even after his retirement from service, he took keen interest in the development of marine engineering and was a constant source of inspiration to all at the Ministry in New Delhi and at the new shipyard at Cochin.

As Vice President of the Institute of Marine Engineers, London, he was a beacon light to the marine engineers of India. In spite of the high offices he held, he was easily accessible to young marine engineers who found his guidance invaluable. Admiral Bose, during his professional career, was closely involved in shipping, ports, shipbuilding, and ship repair and state policy pertaining to these sectors.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Marine Engineers.**

#### **F W TAYLOR MEMORIAL LECTURE**

Inventor and engineer, Frederick Winslow Taylor was born on 20<sup>th</sup> March, 1856 at Philadelphia, the USA.

Educated at preparatory schools at Pennsylvania and New Hampshire, Taylor entered apprenticeship in the trades of pattern maker and machinist in Philadelphia in 1875. In 1878, he was employed by the Midvale Steel Company in their

machine shop. In 1881, he introduced his method of increasing the efficiency of production by close observation of individual workers, identifying and eliminating wasted time and redundant motion. He earned a degree in 1883 from the Stevens Institute of Technology, and in 1884, he was elevated to the position of Chief Engineer at Midvale. In 1890, he became the General Manager of the Manufacturing Investment Company. He subsequently became consultant in management in a number of organizations. Having dedicated about forty years in the improvement of production techniques and productivity, Taylor earned the distinction of being the father of modern scientific management. He expired on 21<sup>st</sup> March, 1915.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Production Engineers.**

#### **G C SEN MEMORIAL LECTURE**

Gopal Chandra Sen, graduated in mechanical engineering from College of Engineering and Technology, Jadavpur in 1933 and gathered first-hand experience for two years, first in a private firm and then in a distinguished workshop in Howrah. He joined the National Council of Education, Bengal as Instructor in 1935 and became Lecturer in 1940. In 1946, he went on a Government scholarship to the USA for higher studies in engineering. He got the degree of Master's of Science in Engineering from the University of Michigan. On return, he resumed teaching at Jadavpur University and became Professor of Mechanical Engineering in 1952. In June 1969, he was appointed Dean of the Faculty of Engineering and from August 1970 until his demise on the 30<sup>th</sup> December 1970, he was the Vice-Chancellor of Jadavpur University.

Prof Sen was the pioneer in India of the teaching of production engineering and was the author of a number of very useful books including text book on the Principles of Machine Tools and Metal Cutting, which are adored in many universities abroad. Prof Sen belonged to that vanishing 'tribe' of teachers who would take up teaching as dedication rather than profession. He was a disciplinarian with a difference.

Apart from his academic brilliance, he was a poet and an artist – one who was an expert in drawing and an adept in drawing pen pictures.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Production Engineers.**

#### **S N BHADURI MEMORIAL LECTURE**

S N Bhaduri obtained his M Sc Degree in Statistics from University of Calcutta and thereafter started working in the field of Statistical Quality Control (SQC) and its application in textile mills.

After gaining considerable experience in the above-mentioned field, he joined ATIRA, Ahmedabad and developed a well-organized team of SQC personnel. He undertook the dual responsibility of training textile mill personnel of western part of the country in SQC and process control techniques and their applications in the mills.

Adaptation and implementation of the aforesaid techniques not only improved the quality of textile products but also immensely increased the popularity and value of the same in overseas market. Though he was a pioneer in the field of application of SQC and allied techniques in textile mills, he also took keen interest in mechanical processing of textile fibres and development of the same, including textile machines.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Textile Engineers ( to be delivered in alternate year).**

#### **DR B K CHAKRABARTI MEMORIAL LECTURE**

Dr B K Chakrabarti, an outstanding scholar and researcher, obtained his M.Sc. Degree in Pure Physics from Calcutta University and made commendable research contributions in the fields of optics and spectrometry. He then took up teaching assignment for a short period, and later joined Indian Central Jute Committee (ICJC) (Later named as JTRL and currently known as NIRJAFT) at Tollygunge, Calcutta as a scientist and devoted himself in research and made outstanding contributions in the fields of textile physics and statistical quality control. Thereafter, he obtained his Ph.D. Degree from the University of Calcutta. He also evaluated jute yarn diameter subsequently at ICJC and later joined Institute of Jute Technology (IJT) as Professor and Head, Department of Textile Science and developed a unique silver irregularity tester and introduced 2:1 doubling in the gills in jute finisher drawing machines. He went to the UK on Ghosh Fellowship and was honoured with Fellowship of the Textile Institute, Manchester. Before leaving IJT, he

became Principal for a short stint. After retiring from IIT, Dr Chakrabarti became Technial Advisor to a number of jute factories in and around West Bengal.

**In memory of his dedicated service, The Institution of Engineers (India) instituted an Annual Memorial Lecture in his name during the National Convention of Textile Engineers (to be delivered in alternate year).**