

HAND BOOK 2012



**METROLOGY SOCIETY OF INDIA
NEW DELHI**

HAND BOOK 2012



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FOREWORD

Metrology is the science of measurement, embracing both experimental and theoretical determinations at any level of uncertainty in any field of science and technology. The role of Metrology is important in our modern life, ranging from daily needs of day to day to the frontier areas of science and technology. It is with pleasure that we present this 5th edition of the handbook of Metrology Society of India (MSI). It is meant to provide MSI members, users of metrology and the other concerned with a simple yet comprehensive source of information on constitution, rules, regulation and details of all the members of the society.

It is the continuous efforts of MSI to propagate Metrology through conferences, workshops, trainings and other activities. It also provides opportunities to its members to enhance their knowledge by exposing them to special lectures organized periodically. A research journal, MAPAN-Journal of Metrology Society of India is being published quarterly dedicated to the measurement science since 1985. MSI has also started a Newsletter which is a quarterly publication dedicated to the events of metrology from the year 2011.

The main purpose of this handbook is to increase awareness of metrology and to establish a common metrological understanding and frame of reference by propagating the aims and objectives of the Society. Since metrology evolves in line with scientific and technological advances it is necessary to update and enhance "MSI-Handbook" to take account of this evolution. I am very confident that this new edition of MSI Hand Book will prove to be useful and valuable document for its members.

A team comprising of Mr. Anil Kumar, Sukhvir Singh, Saood Ahmad, Gautam Mandal, Harish Kumar and Jagmohan Kapur have put all their efforts and hard work to bring out this edition of 2012. On behalf of the Executive Council, I would like to put on record our appreciation for their sincere efforts.

R. C. Budhani
President

PREFACE

Metrology Society of India has published HAND BOOK in the years 1999, 2002, 2004 and 2007 consisting of a list of members alongwith their addresses and other details, rules & regulations and other important information related to the Society. The purpose was to have a document for active interaction amongst the members of the Society. The HAND BOOK was found very useful, hence the present Executive Council suggested to revise and publish "HAND BOOK-2012".

Efforts have been made to update all the relevant information in this Hand Book. While every care has been taken to incorporate the latest information, there may be some inadvertent errors in a few cases. It is requested that any error or omission may be brought to the notice of the General Secretary, MSI, so that they may be rectified in the subsequent edition.

The editors wish to express sincere gratitude to Prof. R. C. Budhani, President, MSI for his constant guidance and valuable suggestions at all stages of publishing this Hand Book. The editors are also thankful to Dr. V. N Ojha, General Secretary, MSI, members of the Executive Council and different committees for their enormous help and assistance provided by them in collection of various information. The support from all the members of the society is gratefully acknowledged.

The editors welcome suggestions from members for the improvement in the scope and contents of this Hand Book.

**Anil Kumar
Sukhvir Singh
Saood Ahmad
Goutam Mandal
Harish Kumar**

RECENT SUCCESSES OF MSI

In the 19th General Body Meeting held on 25th January, 2008, it was resolved that MSI would be pan Indian:

1. International conferences may be held every three years at NPL, New Delhi but the annual national conference may be held by rotation and through the process of bidding as has been done in the other societies in the country.
2. MAPAN should be published by the International Publishers by SPRINGER Inc., New Delhi.
3. MSI should have branches in the different parts of the country.

It is a great satisfaction that within the span of three years, we have been able to implement all these promises. We had AdMet - 2011 and Admet 2012 were held at Bangalore and Pune respectively. International Conference AdMet-2013 is scheduled to be held at NPL, New Delhi.

From 1st January, 2012, publication of MAPAN- JMSI, including printing, will be the overall responsibility of M/s SPRINGER Inc, New Delhi. Meanwhile, we have started publication of MSI NEWSLETTER from 2011. Through this letter, we have created a common platform to establish two-way communications among the MSI members to address the challenging needs of Metrology. As the precision measurement or Metrology aims at reducing the variety in industrial products, interchangeability of component parts and sub-systems and ensuring the quality and reliability of the product, we have to revitalize and improve the Forum in spreading the awareness of the importance of Metrology to the grass root level in the entire country - Laboratories, Industries, Academic Institutions and Universities. We have started branches MSI (SR), MSI (ER) and now MSI (WR) and in future, we hope to do MSI (NR) also. Finally, it may be remembered that the subject of Metrology is not taught in schools or colleges but the importance of the field is understood widely. We have inducted many new student members in the recent years to encourage the formation of student chapter. A new SI chart was released and distributed free of cost among the students and other stake holders.

A.K. Bandyopadhyay

*Vice President and Chairman, Publication Committee
Editor In Chief, MAPAN*

INTRODUCTION

Metrology is the science of precision measurements, plays a vital role in the technological, industrial and economical development of the country. The technological process starts with research and development followed by industrial production, market transaction and finally the products reaching the consumer inside or outside the country. In this chain, precision measurements are needed in R & D activities, for the inspection of materials/components/sub-systems and quality control during the product process and then during the testing and evaluation of the final product for performance and reliability.

Standardization which aims at reducing the variety in industrial products, interchangeability of component parts and sub-systems and finally, ensuring the quality and reliability is also based on precision measurements. Similarly, consumer protection in trade and commerce as well as in public health and safety measures also requires use of precision instruments. It is often said that status of industrial advancement of a country can be judged by the status of metrology in the country. Development of measurement science is also instrumental sometimes in generating new techniques of production, in facilitating innovations and their subsequent utilization. Thus adequate metrological facilities and infrastructure are a pre-requisite for technological & industrial development. The techniques of measurements are getting more and more sophistication with the advance of technology and today, the latest scientific concepts are being utilized in metrology.

Metrology Society of India was instituted in 1984 and registered under Registration of the Society Act XXI of 1860 keeping the above views. Its main objective is to provide a platform on which metrologists could meet and exchange their views and experiences. It also interacts with industries requiring application of metrology, science and sophisticated instrumentation was almost absent. All the persons engaged in and connected with metrology may become the members of the Society. This Society has broadly six types of membership depending upon their experiences in the field of metrology as follows :

- i. Honorary Fellow
- ii. Fellow
- iii. Member
- iv. Associate Member
- v. Student Member
- vi. Corporate Member

At present, the society has 4 Honorary Fellows, 207 Fellows, 893 Members, 181 Associate members 194 Student members and 126 Corporate members. The Society functions through four advisory committees namely (a) Programme Committee, (b) Membership Committee, (c) Publication & Information Committee and (d) Education Committee. The objectives of these committees are as follows:

- a. Programme Committee: This committee is responsible for making programmes on different type of academic activities of MSI such as organization of international and national conferences, seminars and workshops etc. Till now, 7 International and 27 conferences/workshops have been organized by MSI. A series of popular lectures on metrology have been held. Eminent scientists, technologists and industrialists have already delivered the lectures in this series.
- b. Membership Committee: This committee is responsible to enroll the new members for MSI. It examines the applications received for different types of membership and recommends to EC for approval. It also maintains the membership register.
- c. Publication & Information Committee: This committee is mainly responsible for quarterly publication of 'MAPAN- Journal of Metrology Society of India' exclusively dedicated to Measurement Science. The articles are being published after refereeing. Since 2006, the publication of MAPAN-JMSI is officially associated with National Physical Laboratory, New Delhi. Now the full contents of the journal is available on the website of the Society. The committee is also responsible for "Information" base publication of the Society e.g. publication of HAND BOOK, Information Brochure and Proceedings of different Workshops and Courses, conducted by the Society. In addition, it has the responsibility for maintenance and updating of the web site of the Society.
- d. Education Committee: This committee is responsible for preparing the syllabus to organize different training courses on various fields of metrology.

The MSI is also having the southern regional branch. It has its office in Bangalore and has been working well. At present, 60 members are registered with this branch.

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Prof. R.C. Budhani	:	2010 - 2012

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Member	M 021	RAM, Gurmej
Member	M 114	BHATIA, M.R.
Member	M 115	ROBERT, Opolot John
Member	M 123	CELESTINE, Charles H.
Member	M 145	SINGH, Ghasita
Member	M 191	SINGH, Harikesh
Member	M 210	VIRDI, S.S.
Member	M 258	BORODOLOI, R.P.
Member	M 262	VARGHESE, Kurain;
Member	M 364	MASCARENTHAS, C. Leo
Member	M 341	SHARMA, Ashok Kumar
Member	M 343	SHARMA, Vinod

Member	M 345	PONNIAH, M. David
Member	M 372	DATTARAM, Manohar Redkar
Member	M 373	MURTHY, L. Srinivasa
Member	M 374	GOYAL, Rajnish
Member	M 376	SINGH, Madan
Member	M 398	DAKSHINAMURTHY, C.S.
Member	M 406	KANNAN, T.R.
Member	M 419	MADANGOPAL, A.V.
Member	M 421	SESHASAYAN, K.
Member	M 423	PAUL, A.K.
Member	M 427	VEERAGHAVAN, V.S.
Member	M 430	ANANTH, M
Member	M 439	SRINIVASA, N.
Member	M 444	VEERARAGHAVAN, R.
Member	M 458	SOMAN, Biju
Member	M 469	GURUNATH, M. N.
Member	M 479	SEETHARAMARAO, T.
Member	M 482	VIJAY, Kumar P.
Member	M 499	VENKATARAMANI, N.

Member	M 499	VENKATARAMANI, N.
Member	M 505	PARASURAMAN, Gopal Krishan
Member	M 514	CHOPRA, Anil
Member	M 523	ARORA, Sunita (Ms)
Member	M 527	SHARMA, Shashi (Ms)
Member	M 548	RISHI, Swanand Nagesh
Member	M 550	MEHTA, A.K.
Member	M 560	RAMESH, S.
Member	M 556	SHARMA, Saket
Member	M 654	MOHAMMAD Islam
Member	M 578	PATEL, Yunus V.
Member	M 594	MAHAMED, Anwar
Member	M 595	SRINIVASA, H.
Member	M 603	RAO, T. Ganeshwar
Member	M 627	MOHAMMAD Shahid
Member	M 636	SUDARSAN, B.
Member	M 637	SAILASH Kumar T.
Member	M 639	SIVANANDAN, Sunil
Member	M 640	GURUPRASAD, A.

Member	M 641	RAMESH, M. P.
Member	M 644	CHANDRASEKARAN, G
Member	M 645	SINGH, Shailendra Kumar
Member	M 647	BHARDWAJ, Dinesh
Member	M 655	GURU, Ravindra Nath
Member	M 665	BHASKAR, Yelchuru
Member	M 666	JAYARAM, N.
Member	M 661	TANWAR, S. Kumar
Member	M 676	TANWAR, Gurdial
Member	M 679	PURUSHOTTAM, P. Karandikar
Member	M 681	KIRTI KIRAN, M.N.
Member	M 682	ARABHAVI, M.B.
Member	M 684	REDDY, D. Venkta Ranga
Member	M 685	SINGH, Jasbir
Member	M 687	SINGH, Khem
Member	M 683	SINGH, Gurcharan Jit
Member	M 691	JOSHI, Micky Dushyant
Member	M 692	PREM, Prakash
Member	M 694	RAO, Suresh

Member	M 696	SINGH, Niranjan
Member	M 699	SINGH, Amar
Member	M 700	BHATNAGAR, Anuj Swarup
Member	M 707	PANWAR, V.V.S.
Member	M 710	PUTAMBEKAR, Uday Narayaa
Member	M 712	PUROHIT, Sachin Suhas
Member	M 713	SANDEEP, Kumar
Member	M 714	KUKDE, Sadanand Anant
Member	M 725	KULKARNI, Manohar Mahadeo
Member	M 726	BARMAN, Swapan
Member	M 728	SINGH, Ajay Veer
Member	M 731	RAO, S. Venugopal
Member	M 736	RAMBABU, P.
Member	M 749	MIT TAL, Susheel
Member	M 754	DEVASTHALE, Viraj
Member	M 755	KAPIL, J.C.
Member	M 753	VIRENDRA, Kumar
Member	M 756	SHARMA, Neeraj
Member	M 757	KILETI, Pradeep Kumar

Member	M 758	SAHEBRAO, Kadam Sitaram
Member	M 759	KAMALEKAR, Anandrao Vithoba
Member	M 760	GUPTA, NK
Member	M 761	JOSEPH, Leena (Ms)
Member	M 762	TRIPATHI, Sudesh H.
Member	M 764	SYED, Fazil
Member	M 766	RAMACHANDRA, Iyer Ramank
Member	M 767	PRASAD, Guru
Member	M 768	SHARMA, Diksha (Ms.)
Member	M 771	GOPAN, C.K.
Member	M 774	BADWAIK, Sanjay Raghunathaji
Member	M 776	RAJ, Kuldeep
Member	M 777	PRAKASH, Ved
Member	M 778	PATIL, Rajendra Laxman
Member	M 779	MEENAKSHI, A.S.
Member	M 780	MAJUMDER, Sumit
Member	M 781	DESWAL, Rajesh
Member	M 782	HASIJA, Anirudh
Member	M 783	Mathe, Prema Kumar

Member	M 786	PONRAM, R. Ashok;
Member	M 787	RASHMI
Member	M 784	DUTTA, Samik
Member	M 785	Zanpure, Anuja Mukund
Member	M 788	SINGH, Rajendra
Member	M 789	DAS, Tarit Baran
Member	M 790	KUMAR, Ajay
Member	M 791	SUBAIR, A. Mohamed Abdul Kader
Member	M 793	SAXENA, Mohit
Member	M 794	NAG, Sanjib Kumar
Member	M 795	CHAUHAN, Sippy Kalra
Member	M 796	MUKHERJEE, Souren Kumar
Member	M 797	DASGUPTA, Susovan
Member	M 798	DUTTA, Moumitra Sil
Member	M 799	DAS, Avijit
Member	M 800	BHATTACHARYYA, Debashis
Member	M 801	SARKAR, Susanta
Member	M 802	SIVAGURU, V.
Member	M 803	GHOSAL, Prakash

Member	M 804	GHOSH, Amal Kumar
Member	M 805	CHATTERJEE, Pradip Kumar
Member	M 806	BASU, Samar
Member	M 807	BHATTACHARYA, Shiladitya
Member	M 808	SADHUKHAN, Suwendu
Member	M 809	KANRAR, Surajit
Member	M 810	NASKAR, Shantanu Kumar
Member	M 811	Roy, Ajoy Kumar
Member	M 812	MAHANT, A.K.
Member	M 813	SINGH, Sunil Kumar
Member	M 814	PANYAM, Vinatha Sumanth
Member	M 815	Ravindra, Anuradha
Member	M 816	KULKARNI, D.B.
Member	M 817	Mhatre, Sachin G.V.
Member	M 818	VERMA, Angad
Member	M 820	ANWAR, KM Mostafa Anwar
Member	M 821	KHAN, Mala
Member	M 823	SINGH, Sujit Kumar
Member	M 824	CHOADHARY, Ashim

Member	M 825	RAO, Sudha VM
Member	M 826	MOITRA, Shashi
Member	M 831	AGGARWAL, Shankar Gopala
Member	M 832	Muchhal, Nitin
Member	M 833	Gupta, Kiran
Member	M 834	KAMBOJ, Vivek
Member	M 835	JAIN, Gaurav
Member	M 836	SINGH, Chatar
Assoc. Member	AM 149	SARDAR, Ashwini Kumar Singh
Assoc. Member	AM 150	Sharma, Dalip
Hon. Fellow	HF 012	MCOILLAN, Stephen
Hon. Fellow	HF 013	HOSSAIN M. Kamal

RULES AND REGULATIONS

1. Definitions

In the regulations unless the context otherwise requires,

- (a) "Society" means Metrology Society of India.
- (b) "Council" means the Executive Council of the Metrology Society of India.
- (c) "Member" means Honorary Fellow, Fellow, Member, Associate Member, Student Member or Corporate Member of the Metrology Society of India.
- (d) "President", "Vice-President", "General Secretary", "Joint Secretary" and "Treasurer" mean respectively the President, Vice-President, General Secretary, Joint Secretary and Treasurer of Metrology Society of India.

2. Registered Office

The registered office of the Society shall be in the N.P.L. premises, Dr. K.S. Krishnan Marg, New Delhi - 110 012.

3. Aims and Objects

The Aims and Objects of the Society shall be as stated in the Memorandum of Association.

4. Membership

4.1 Eligibility

Membership of the Society shall be open to individuals without distinction of sex, race or nationality and to recognised bodies who subscribe to the aims and objects of the Society.

4.2 Limit to the number of members

The Society may have unlimited number of members.

4.3 Patrons

The Society may have Patrons to further its cause. A Patron shall be an individual with a record of meritorious service to any public cause and shall be enrolled only by invitation of the Council and his prior consent.

A Patron may also be enrolled by virtue of the office he holds, but in such a case, he shall cease to be a Patron when he relinquishes his office.

4.4 *Classes of Membership*

There shall be six classes of membership of the Society namely,

- i. Honorary Fellow
- ii. Fellow
- iii. Member
- iv. Associate Member
- v. Student Member
- vi. Corporate Member

4.5 *Qualifications*

The qualifications for the various classes of membership and mode of enrolment shall be governed by the following guidelines :

4.5.1. *Honorary Fellow:*

Honorary Fellow shall be an individual of outstanding professional distinction in the field of metrology or his/her admission will be conducive to the best interest of the society and shall be enrolled only by invitation of the Council and his prior consent. Such enrolments may not exceed five per year and the total number of Honorary Fellows shall not exceed 5 per cent of the total membership except in the formative stage.

4.5.2. *Fellow:*

An individual who is actively engaged in any field of metrology may become a Fellow by nomination from minimum two existing Fellow Members, one as proposer and second as supporter, provided that he/she satisfies the conditions stated under sub clauses A, B and C of 4.5.2.1

4.5.2.1.

A. *Minimum academic qualifications and experience*

A1

- i. He/she is a post-graduate in any field of engineering or has a Ph.D. degree in science or possesses an equivalent qualification as approved by the Council from time to time and

- ii. Has been engaged in any field of metrology for at least 15 years.
- or

A2

- i. He/she is a graduate in any field of engineering or a postgraduate in science or possesses an equivalent qualification as approved by the Council from time to time and
 - ii. Has been engaged in any field of metrology for at least 18 years.
- or

A3

- i. He/she is a graduate or three years diploma holder or possesses an equivalent qualification as approved by the Council from time to time and
 - ii. Has been engaged in any field of metrology for at least 21 years.
- And

B. *Contribution in the field of Metrology*

He/she has made significant contribution in any field of metrology as evidenced by :

- (a) Papers, technical reports, and books published.
- (b) Innovation in design of experiments, instruments or equipment.
- (c) Formation of specification for metrological instruments test methods or products.
- (d) Installation and repair of metrological instruments.
- (e) Design, manufacture and marketing of metrological instruments.
- (f) Teaching of metrology.
- (g) Total quality management.

And/or

- C. He/she has acquired such a position in the field of metrology that his/her admission as a Fellow will be conducive to the best interest of the Society.

4.5.2.2. *The council decides to enroll him/her as a Fellow.*

4.5.3. *Member:*

Any individual actively engaged in any field of metrology may become Member on application to the Council provided that

4.5.3.1. he/she

- A.
 - i. is Ph.D. in Science/Technology.
 - ii. has been engaged in any field of Metrology.

or

- B.
 - i. is post graduate in Science/Technology.
 - ii. has been engaged in any field of metrology for at least three years.
- C.
 - i. is Graduate or three year Diploma Holder or possesses an equivalent qualification as approved by the Council from time to time.
 - ii. has been engaged in any field of metrology for at least 5 years

or

- D.
 - i. has good educational background
 - ii. has 10 years of professional experience inclusive of some significant contribution in the field of metrology viz. research, development & design, planning, manufacture and marketing, repairs and maintenance, quality assurance, teaching and other allied assignment in the profession.

4.5.3.2. the Council decides to enrol him/her as Member.

4.5.4. *Associate Member:*

Any individual engaged in any field of metrology may become an Associate Member for period of maximum 5 years on application to the Council provided that

4.5.4.1. he/she

- A. is a Graduate or three year Diploma Holder or possesses an equivalent qualification as approved by the Council from time to time.

or

- B. i. has good educational background
- ii. has 5 years of professional experience in any field of metrology viz. research, planning, development & design, manufacture & marketing, quality assurance, repairs and maintenance, teaching and other allied assignment in the profession.

4.5.4.2. The Council decides to enroll him as Associate Member

4.5.4.3. Associate membership may be upgraded to the membership after 5 years residency on application and payment of the difference of the subscription.

4.5.5. Student Member :

Any individual may become a student member on application to the Council provided that he/she is a student of B.Sc., Diploma, B.E., B.Tech., M.Sc., Ph.D. and has interest in Metrology. Their membership tannure will be limited to their Course duration.

4.5.6. Corporate Member :

Any Public or private institution, Govt. Deptt., research laboratory or professional body, academic institution or organisation or firm engaged in activities related to metrology such as measurement standards, calibration, testing standardisaion, quality control, manufacture or supply of any type of measurement standard or a test/measuring instrument or equipment etc. may become a Corporate Member on application to the Council provided that the Council decides to enroll it as a Corporate Member. They shall have the right to nominate its representative for correspondence and vote. They shall have the right to change their nominee any time.

4.5.7. An individual, on application may in special case, also be enrolled as Fellow, Member or an Associate Member by virtue of the office he/she held/holds and was/is actively engaged in the field of metrology, provided the Council so decides.

4.5.8. The membership of an individual may be upgraded, on application, provided he/she fulfills the qualifications for the class of membership applied for and the Council so decides.

4.6. Fee and Subscription

4.6.1. Subscription of Fellows, Members, Associate Members, Student Members and Corporate Members shall be as follows :

<i>Class of Membership</i>	<i>Life Subscription</i>	
	<i>Indian Member (INR)</i>	<i>Foreign Member (US\$)</i>
Fellow	2,500	125
Member	2,000	100
Associate Member	1,000	50
Student Member	100 per annum	5 per annum
Corporate Member	10,000	300

4.6.2. The subscription from Student Member shall be collected for full duration of the course at the time of enrollement. For Ph.D. students, the subscription shall be collected for 3 years. In case, he completes his Ph.D. before 3 years and applies for full membership, the excess subscription paid by him will be adjusted against the subscription applied for full membership.

4.6.3. No admission fee or subscription shall be payable by the Patrons and the Honorary Fellows.

4.7. Rights & Privileges

4.7.1. Rights and privileges of Honorary Fellows, subject to the condition given in clause 4.7.2. of Fellows, Members, Associate Members, Student Members and Corporate Members shall be as follows :

- i. To be present in General Body meeting of Society,
- ii. To submit proposals to the Society,
- iii. To elect and be elected in any election of the Society,
- iv. To vote in General Body meeting of the Society by a single non-transferable vote,
- v. To use the Library, Information Centre or Museum/Exposition subject to such regulations as prescribed by the Council,
- vi. To attend and to offer papers and communications to be read in the symposia, colloquia, seminars etc. subject to such regulations as prescribed for symposia, colloquia, seminars, etc.,

- vii. To avail of any such facility or concession as may be pre-scribed from time to time by the Council,
- viii. To use, after his/her name, the abbreviated designation of his/her class, during his continuance as member, as follows:

<i>Class of Membership</i>	<i>Abbreviated Designation</i>
Honorary Fellow	Hon. F.M.S.I.
Fellow	F.M.S.I.
Member	M.M.S.I.
Associate Member	A.M.M.S.I.
Student Member	S.M.S.I.
Corporate Member	C.M.M.S.I.

- ix. To resign from the Society provided such resignations are sent to the Council and accepted by it, and
 - x. Every Member of any class shall be under obligation to abide by the Memorandum of Association and Regulations of the Society.
- 4.7.2. Honorary Fellows shall have all the above rights and privileges except those given in (iii) and (iv) of clause 4.7.1.

4.8. Cessation of Membership

- 4.8.1. A member of any class shall cease to be a member if he/she voluntarily resigns and the Council accepts his/her resignation.
- 4.8.2. A member of any class shall cease to be a member when his/her membership is terminated by the Society for any act which is deemed to be prejudicial to the interest of the Society. However, membership shall not be terminated unless the member is given a reasonable opportunity to explain his/her position in the matter.

No membership shall be terminated unless the Council decides to do so by two third majority of the members present.

5. Management of the Society.

5.1. Maintenance of Membership Register

A classwise membership register shall be maintained.

5.2. *Organization*

The Society shall have two main organs namely : (i) General Body, and (ii) Executive Council.

5.3. *General Body*

All the members of the Society irrespective of their class shall constitute the General Body.

5.4. *Meeting of the General Body*

General Body shall meet at least once in a year and shall transact the following business at its annual meeting :

- i. consider and approve the annual report of the Society presented by the General Secretary,
- ii. consider and adopt the Audited Statement of Accounts for the previous year,
- iii. consider the Resolutions and Amendments, referred to it by the Council or by any member of the Society,
- iv. appoint auditors for the ensuing year, and
- v. transact such other business as may be brought forward with the permission of the Chair.

5.5. *Special General Body Meeting*

Special General Body meetings may be called by the President or General Secretary in consultation with the President or it may be requisitioned by one-third of the members of the General Body or fifty members, whichever is less.

5.6. *Executive Council*

5.6.1. Executive Council shall consist of at the most twenty one members out of which sixteen shall be elected members and the remaining five may be co-opted by the Council.

5.6.2. Executive Council shall be composed of the following

President	1
Vice-Presidents	2
General Secretary	1
Joint Secretary	1
Treasurer	1
Members	10

5.6.3. The Chairmen of the branches established by the Society as per provision of 5.13 shall be ex-officio members of the Executive Council.

5.6.4. Executive Council may meet as many times as exigencies demand, however, the Council shall meet at least three times in a year.

5.6.5. The tenure of the Executive Council shall be two years.

5.7. Election

5.7.1. The election of various office bearers of the Executive Council, as stipulated in clause 5.6.1 shall be held once in two years.

5.7.2. The election shall be held in the General Body meeting, the agenda for which includes "Election" as a specified item.

5.7.3. No candidate shall be entitled to contest for more than one post.

5.7.4. The election process shall be conducted and completed by a Returning Officer, duly appointed by the Council, as follows:

- a. The Returning Officer shall issue a notification for the election about three months in advance, announcing details of date and time for:
 - i. filing the nominations in a prescribed form,
 - ii. scrutiny,
 - iii. withdrawals, and
 - iv. elections.
- b. The nomination shall be proposed by one member and seconded by at least two members, all of whom are eligible for voting. The consent of the candidate with his signature and date shall accompany the nomination form which shall be complete in all respects.
- c. Time gap between the last date of filing the nominations and the date of election shall not be less than one month.
- d. A period of fifteen days shall be given for withdrawal of nominations.
- e. The final list of the candidates, after withdrawal along with a complete list of members, a ballot paper bearing a serial number and signature of the Returning Officer for vote, shall be sent to every member at least ten days before the date of election.

- f. Votes can be cast in person or through postal ballots; postal ballots shall reach Returning Officer before the closing time of the election.
- g. The votes cast by the members in person shall be by secret ballot.
- h. Every candidate shall be allowed to authorise one person to be present during the counting process.
- i. The Returning Officer shall, after the completion of counting process, announce the results of election and communicate the same in writing to the Executive Council.
- j. A defeated candidate shall have the right to appeal against an election result within fifteen days after the announcement of the election results. If the Returning Officer finds reasonable merit in the appeal, recounting shall be permitted by him in the presence of the candidate or the person authorized by him. For this purpose, all the votes shall be properly sealed and kept in custody of the Returning Officer for a period of three months.

5.8. *Quorum*

5.8.1. The quorum for the General Body shall be 1/5th of the total number of members on rolls or fifty members, whichever is less. In the absence of a quorum the General Body may adjourn for half an hour. Adjourned meeting may then be held which shall require no quorum.

5.8.2. The quorum for the Executive Council meeting shall be six members, however, if the quorum is not complete the meeting shall be adjourned for half an hour. Adjourned meeting may then be held which shall require no quorum.

5.9. *Powers and Functions of the Executive Council*

Subject to the provisions of these Rules and Regulations as well as the directions of the General Body at its Annual or Special meetings, the Council shall have all powers to carry on the business of the Society and take necessary action to further the aims and objects of the Society. In addition the Council shall have the following powers :

- i. to manage all the finances of the Society including the raising of funds and incurring expenditure for special purposes,

- ii. To superintend and coordinate the work of (a) the branches of the Society, (b) Library, (c) Information Centre, (d) Museum/Exposition, (e) Publications and (f) any other activity of the Society,
- iii. To take legal action in conformity with the provision of the societies Registration Act XXI of 1860 for recovery of any sums or reparations due from members of any class, who after receiving due notice of their liabilities have refused or failed to discharge them,
- iv. to co-opt members as per provision of 5.6.1. and to fill up any vacancies occurring between two successive elections,
- v. to appoint salaried and honorary staff,
- vi. to appoint panels or sub-committees for specific purposes, and
- vii. to do such other things as are conducive to the achievement of the aims and objects of the Society.

5.10. Powers and Duties of Office Bearers

5.10.1. The President shall

- i. preside over all the meetings of the Council and the General Body,
- ii. have the powers to sanction expenditure incurred for the activities of the Society in any emergency, to be subsequently ratified by the Council, and
- iii. ensure that the records and other affairs of the Society are kept in order.

5.10.2. In the absence of the President, one of the Vice-Presidents authorized by the Council, shall exercise all the powers and duties of the President

5.10.3. The General Secretary shall

- i. have the power to convene the meetings of the Council and General Body in consultation with the President, or in his absence the Vice-President,
- ii. prepare the Minutes of the meetings,
- iii. conduct the correspondence,
- iv. present the annual reports and audited accounts to the General Body at its meetings,

v. file suits on matters relating to or affecting the Society. (All suits against the Society will be filed in the name of the General Secretary).

5.10.4. The Joint Secretary shall

- i. assist the General Secretary,
- ii. discharge all such functions as are assigned, from time to time, by the Council, and
- iii. exercise all the powers and discharge all the duties of the General Secretary in his absence, with due authorisation by the Council.

5.10.5. The Treasurer shall

- i. be responsible for all sums of money which, from time to time, are received by the Society,
- ii. deposit the money and maintain the accounts in the bank,
- iii. maintain all day to day accounts of expenditure and receipt,
- iv. receive all payments to the Society and make all payments towards the expenditure as sanctioned by the Council,
- v. present the quarterly and annual accounts to the Council, and
- vi. get the accounts audited annually.

5.11. Meeting Notices

Notices of at least ten days shall be given for the Executive Council meetings, thirty days for the General Body meetings, fifteen days for special General Body meetings and three months for the General Body meetings in which elections are to be held.

5.12. Finances

5.12.1. The funds of the Society shall consist of subscriptions, donations, grants and income from other sources.

5.12.2. The Society shall have the right to purchase or to take on lease or in exchange, to hire or otherwise, any real or personal property which may be freehold or lease hold or to sell, let out, mortgage, dispose off or turn to account all or any of the property or assets of the Society as may be thought expedient in the interest of the Society.

5.12.3. The income and property of the Society, whensoever derived

shall be used solely towards the promotion of the aims and objects of the Society and no portion thereof shall be paid or transferred directly or indirectly by way of dividend, bonus or otherwise howsoever, by way of profit to the members of the Society, provided that nothing herein shall prevent the payment in good faith, or remuneration to any officer or servant of the Society, or to any member of the Society, or other person, in return for any services actually rendered to the Society provided further that no member of the Council shall be appointed to any salaried office or any office paid by fees and that no remuneration shall be given to any member of such Council except as aforesaid.

5.12.4. True accounts shall be kept for the sums of money received and expended by the Society.

5.12.5. All sums of money shall be deposited in the account of the Society with the scheduled bank as approved by the Council.

5.12.6. All cheques issued by the Society shall require the signature of the Treasurer and additionally either of the President, one of the Vice-Presidents or the General Secretary. Provided that in the absence of the Treasurer, the General Secretary and either the President or one of the Vice-Presidents, may sign with proper notification to the bank and the Council.

5.12.7. The Treasure may have, at any one time a maximum of Rs. 1,000/- (one thousand only) with him as cash in hand.

5.12.8. The Executive Council shall review and decide the delegation of the financial powers to various office bearers of the Council from time to time.

5.12.9. Financial year of the Society shall be from 1st April to 31st March of the next year.

5.13. Branches of the Society

5.13.1. For furtherance of the aims and objects of the Society, the Council may, in response to request addressed to the Society, approve the opening and establishing of Branches to serve specific geographical areas. Such a request shall be signed by at least seven members of the Society, normally residing in or employed within the geographical area alongwith a list of 25 members.

5.13.2. Each Branch of the Society shall have a Charter which shall contain

the name, location, geographical area covered and date upon which the Charter was granted. It shall also bear the name and signature of the President and the General Secretary of the Society.

5.13.3. Each Branch shall conduct its affairs in accordance with the present and special regulations made for this purpose by the Council.

5.14. Amendments

5.14.1. For amendments to the Memorandum of Association of the Society, provisions of section 12 and 12(A) of the Societies Registration Act XXI of 1860 shall be applicable.

5.14.2. Amendments to the Rules and Regulations may be proposed by means of a petition signed by at least ten per cent of the qualified members.

5.14.3. The amendment shall be adopted only after the resolution has been ratified by the General Body with simple majority of the members on rolls of the Society.

6. Annual list of Executive Council (Sec.4 of the Act).

Once in every year a list of the office bearers and members of the Executive Council shall be filed with the Registrar of Societies, Delhi, as required under Section 4 of the Societies Registration Act, of 1860, as applicable to the Union Territory of Delhi.

7. Legal Proceedings (Section 6 of the Act)

The Society may sue or be sued in the name of the General Secretary as per provision laid down under Sec. 6 of the S.R. Act, 1860, as applicable to the Union Territory of Delhi.

8. Dissolution and Adjustment of Affairs

If the Society need to be dissolved it shall be dissolved as per provisions laid down under Section 13 and 14 of the S.R. Act of 1860 as applicable to the Union Territory of Delhi.

9. Application of the Act

All the provisions under all the sections of the Societies Registration Act of 1860, as applicable to the Union Territory of Delhi, shall apply to this Society.

10. Essentiality Certificate

Certified that this is the correct copy of the Rules and Regulations of the Society.

Sd/
(Mahavir Singh)
Treasurer

Sd/
(V.N. Ojha)
General Secretary

Sd/
(A.K. Bandhopadhyay)
President

Sd'-
(R.C. Budhani)
President

- Notes :
1. Clauses 4.4 to 5.6.2 were amended in 1990.
 2. The increase in Life Subscription w.e.f. 1.4.2007 was approved by 18th General Body. (held on 25th January 2007).
 3. Clause 4.6 'Fee and Subscription' amended.
 4. Clauses 4.7, 4.7.1, 4.7.2 and 4.7.3 deleted. Subsequently, 4.8 & 4.9 become 4.7 & 4.8 respectively.
 5. Clause 4.8.2 amended.
 6. Appendix 1 and Appendix 2 deleted.
 7. Clause 4.4 was amended. respectively.

Special Regulations for a Branch of Metrology Society of India

In pursuant of Clauses 5.13.1 and 5.13.3 of rule 5.13 of the Rules and Regulations of the Society, the following Regulations, for conducting the affairs of a Branch of the Society, are made.

1. These regulations shall be called SPECIAL REGULATIONS FOR BRANCHES (1996).
2. Definitions
 - a. Council means the Executive Council of Metrology Society of India.
 - b. Society means Metrology Society of India.
 - c. Good member means a member who is paying his subscriptions regularly and not conducting or cause to be conducting any activity detrimental to the interests of the Society.
 - d. General Body means the General Body of the Society.
 - e. Branch means the Branch of Metrology Society of India hereafter shall be called as Chapter.
3. The Council, in the best interests of the Society, may modify, add or delete any part of these Special Regulations.
4. Addition or deletion shall have to be got approved by the General Body of the Society in its immediately next meeting.
5. These Regulations shall be applicable to every Chapter of the Society from the date on which the Council decides to open the Chapter.
6. Every Chapter shall have a Charter which shall contain the name, location, geographical area(s) covered and date upon which such Charter was granted and shall bear the names and signatures of the President and the General Secretary of the Society.
7. Name of the Chapter shall be the full name of the Society followed by the name of the city where the Chapter is located.
8. The geographical area, which the Chapter is to serve, shall be specified at the time of opening the Chapter.

9. The Council, in the best interests of the Society, may alter the limits of such area on a later date with mutual understanding of the concerned Chapter/Chapters, but in case of any dispute the decision of the General Body shall be final.
10. Every Chapter shall conduct its affairs in accordance with the present Rules and Regulations along with these Special Regulations and any other bye-laws framed by the Chapter, provided these bye-laws have been approved by the Council.
11. The affairs of the Chapter shall be governed by an Executive Committee. The Executive Committee of the Chapter shall consist of a Chairman, two Vice Chairmen, a Secretary, a Joint Secretary, a Treasurer and such number of members as may be provided by the bye-laws of the Chapter.
12. All office-bearers including the members of the Executive of the Branch shall be elected every two years at the meeting of the General Body of the Chapter.
13. The Executive Committee of the Chapter shall meet at least two times in a year.
14. All official correspondence of Chapter shall be on its standard letter head, which shall conform to the format of the standard letter head of the Society.
15. Any office-bearer including the member of the Council, or any other member so authorised by the President, shall be entitled to attend the meeting of the Executive Committee of any Chapter.
16. The Chairman of the Chapter or any other member so authorised by the Chairman shall represent the Chapter in the Council.
17. Every office-bearer of the Chapter shall have similar powers and duties as the corresponding office-bearer of the Council of the Society as described in Rule 5.10 of the Rules and Regulations of the Society.
18. The Secretary of each Chapter shall forward to the General Secretary of the Society audited accounts including reports of all the meetings at the end of each financial year of the Society but not later than 30th June of every year for preparing a consolidated

report and statement of accounts for submission to statutory authorities.

19. The Chapters are authorised to retain 50 percent of the subscription of the members enrolled by them. The Society in turn shall provide MAPAN-Journal of Metrology Society of India to each of its good member.
20. The Chapters are authorised to raise funds for specific purpose with the prior approval of the Council. However 50 percent of the balance shall be sent to the Society.
21. Every Chapter shall manage all its expenses from its share of subscription or any fund raised for a specific purpose.
22. In very special circumstances, with the approval of the Council, the Society may provide one time financial assistance of Rs. 10,000 for opening of the Chapter.
23. The Council may at its discretion and/or due to any of the following reasons, close a Chapter after giving it a notice of three months and considering any explanation, the Society or the concerned Chapter may tender :
 - i. Failure of the Chapter to hold at least two meetings of its Executive Committee in a year and/or any other activity promoting the cause of metrology; and
 - ii. Conducting any activity declared by the Council to be detrimental to the interest of the Society.

Memorandum of Association

1. The name of the organization shall be "Metrology Society of India" (herein after called the Society).
2. The registered office of the Society shall be in the N.P.L. premises, Dr. K.S. Krishnan Marg, New Delhi - 110 012.
3. The Aims and Objects of the Society shall be:
 - (i) To provide a forum for exchange of ideas, opinions and experiences of persons and agencies connected with metrology.

- (ii) To promote awareness, appreciation and understanding of various aspects of metrology.
 - (iii) To advance knowledge and education in scientific, industrial and legal metrology.
 - (iv) To organise lectures, seminars, colloquia, conferences, workshops and expositions on metrology.
 - (v) To set up and maintain a library, information centre and museum connected with metrology.
 - (vi) To design, participate in, conduct and sponsor courses on scientific, industrial and legal metrology.
 - (vii) To publish transactions, proceedings, journals, reports and such other publications as may be found desirable.
 - (viii) To co-operate and co-ordinate with Government and other organisations with a view to promote a national measurement system.
 - (ix) To advise and assist the Government in formulating legislative and other measures to further the growth of metrology in the country.
 - (x) To collaborate and co-operate with the national bodies of other countries and international organisations connected with metrology.
 - (xi) To uphold, protect and advance the interests of the persons engaged in metrology.
 - (xii) To do all such other lawful things as are incidental or conducive to the attainment of the above aims & objects of the Society.
 - (xiii) All the income of the Society shall be utilised for the promotion of above aims and objects.
4. The Society shall have the power to do all lawful acts, deeds and things as are incidental or conducive to the furtherance and attainment of the above aims and objects.
5. The names, addresses occupations and designations of the present members of the Executive Council to whom the management of the Society is entrusted as required under Section 2 of the Societies Registration Act of 1860, as applicable to the Union Territory of Delhi are as follows:-

<i>S. Name</i>		<i>Address</i>	<i>Occupation</i>	<i>Designation</i>
<i>No</i>				<i>in the Society</i>
1	2	3	4	5
1.	Prof. R.C. Bhudhani	National Physical Laboratory New Delhi - 110 012	Director	President
2.	Dr. A.K. Bandyopadhyay	-do-	Scientist	Vice-President
3.	Dr. P. Banerjee	-do-	Ex-Scientist	Vice-President
4.	Dr. V.N. Ojha	-do-	Scientist	General Secretary
5.	Dr. Sanjay Yadav	-do-	Scientist	Jt. Secretary
6.	Dr. Mahavir Singh	-do-	Scientist	Treasurer
7.	Mr. Anil Kumar	-do-	Scientist	Member
8.	Dr. A.K. Aggarwal	-do-	Ex-Scientist	Member
9.	Dr. Rina Sharma	-do-	Scientist	Member
10.	Dr. Sukhvir Singh	-do-	Scientist	Member
11.	Dr. P.C. Jain	-do-	Ex-Scientist	Member
12.	Mr. Anil Suri	-do-	Pr. T.O.	Member

6. All the incomes, earnings, movable or immovable properties of the Society shall be solely utilised and applied towards the promotions of its aims and objects only as set forth in this Memorandum of Association and no portion thereof shall be paid or transferred directly or indirectly by way of dividends, bonus, profit or in any manner whatsoever, to the present or past members of the Society or to any persons claiming through anyone or more of the present or the past members. No member of the Society shall have any personal claim on any movable and/or immovable properties of the Society or make any profit, whatsoever, by virtues of his membership.

REGIONAL BRANCHES (2012)

(1) **Name-** Metrology Society of India (SR)

Location - Electronic Test and Development Center(ETDC),
Bangalore

Geographical Area - Southern India

President : Dr. Hema Khurana, Senior Director, ETDC ,
Bangalore

Vice Presidents : Shri P.V. Shashi Kumar, CMTI, Bangalore
Mr. Jaison Isaac, Fluke Calibration, Bangalore

General Secretary : Shri. R.Sadananda Murthy, CEO, Sushma
Industries Calibration Centre, Bangalore

Treasurer : Shri G. Nagabhusan, ETDC, Bangalore

(2) **Name-** Metrology Society of India (ER)

Location- Central Mechanical Engineering Reserch Institute
(CMERI), Durgapur

Geographical Area- Eastern India

President : Dr. Ranjan Sen, Chief scientists, CMERI

Vice Presidents : Mr. B.R. Meena, Director Genaeral , NTH
Mr. B N Guha

General Secretary : Prof. Amol Kumar Ghosh

Treasurer : Mr. Shantanu Kumar Naskar

(3) **Name-** Metrology Society of India (WR)

Location- The Automotive Research association of India, Pune

Geographical Area- Western India

President : Dr. S.R. Marathe, Director, ARAI

Vice Presidents : Mr. Ramani Iyer, Mr. Arun Kudale

General Secretary : Mr. Prasad Betgeri

Treasurer : Ms. Kirti Pinglikar

PUBLICATIONS

a) MAPAN-JOURNAL OF METROLOGY SOCIETY OF INDIA

MAPAN-Journal of Metrology Society of India is a quarterly publication. It is exclusively devoted to Metrology (Scientific, Industrial or Legal). The Metrology Society of India (MSI) invites the submission of research communication or technical article on topics of current interest. Original work, tutorials and survey papers, which contribute to new knowledge or understanding of any metrology principle, method or technique are welcome. The journal has been included in major data bases like Thomson, Reuters, Copernion etc.

Papers are considered for publication on the clear understanding that they have not been published previously or submitted to another journal for publication. Further, they will not be sent for publication elsewhere, if published in MAPAN -JMSI. Papers should be clearly written in English and sent in duplicate to :

b) MSI NEWSLETTER

A quarterly publication of MSI NEWSLETTER is another important publication of Metrology Society of India which was started from 2011. This letter will help in establishing a two way communication among the MSI members to address the challenging needs of Metrology.

c) SI Chart

The International System of Units (SI System of Measurement) Chart has been prepared and printed with the help of NPL Former Scientists Forum and distributed to the stake holders.

d) Books

All the recent AdMet procceings are available in the <http://www.metrologyindia.org>

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Elements of the Manuscripts:

- ◆ A cover sheet consists of a short title, name, affiliation and address of all authors.
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- ◆ An optional acknowledgement.
- ◆ A list of references in proper format.
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b) Dr. Sanjay Yadav, Managing Editor, MAPAN-JMSI

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MSI newsletter

Metrology Society of India

Vol. 2, No. 2, April 2012

Highlights of this issue

Editorial Committee in Terms of
Constitutional Structure of Metrology
Dr. H.C. Kandpal



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National Conference on Advances in Metrology- AdMet 2012

The 3rd Annual National Conference on Advances in Metrology, organized jointly by Metrology Society of India, National Physical Laboratory (NPL), CSIR, and Automotive Research Association of India (ARAI) was held during February 9, 2012 at NPL, Pune. The theme of the AdMet 2012 was "Precision Measurement and Its Application in Auto Industry". The Conference focused on the key areas like advances in metrology,

dimensional and surface metrology, mass and force metrology, noise and vibration metrology, thermal and optical metrology, chemical and biological metrology, role of metrology in quality assurance, uncertainty in measurement and measurement system models.

AdMet 2012 was a great platform for industry professionals and research scientists to share their thoughts and innovative ideas concerning advancement in metrology, latest trends in equipment development, etc. Quizzes and conference dialogues had an excellent opportunity for interaction with equipment manufacturers and metrological experts in their respective fields.

AdMet 2012 was inaugurated on February 9, 2012 by Mrs. Pratibha Patil, Managing Director, Tata Power Limited, Inauguration dignitaries, Prof. R.C. Barik, President, MSO and Director NPL, CSIR, Vice And NPL, Director NPL, and Mr. V.K. Murarka, Director, ARAI.

ground the occasion. A key note address on Quantum Metrology was delivered by Prof. R.C. Barik. A total number of 75 technical papers and 20 keynote papers were presented in 14 technical sessions during AdMet 2012 covering major areas in metrology such as basic research and industrial applications.

An inauguration of the



Ms. Pratibha Patil, Prof. R.C. Barik, Mr. V.K. Murarka, Mr. A.K. Sanyal and Mr. Shiv Sharma, at the inauguration of AdMet 2012



Ms. Pratibha Patil inaugurating the AdMet 2012