

**THE GENESIS OF
INDIAN NATIONAL SOCIETY FOR AEROSPACE
AND RELATED MECHANISMS
(INSARM)**



By

**K.GOPALAKRISHNA PILLAI
FOUNDER SECRETARY, INSARM**

**M.K. ABDUL MAJEED
FOUNDER PRESIDENT, INSARM**

**INSARM Office, Ground Floor, Future Point,
Edapazhanji, Thiruvananthapuram - 695010**



THE GENESIS OF INDIAN NATIONAL SOCIETY FOR
AEROSPACE AND RELATED MECHANISMS

Published by : INSARM

Year of Publication : 2023

Design & Printing : PageMakers, Tvm. Mobile : 9387771324

All Rights Reserved

No part of the publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the publisher.

Not for Sale

CONTENTS

Message from Chairman, ISRO	v
Message from Dr. V. K. Saraswat,..... Member, Niti Aayog, & Chancellor, JNU	vii
Preface	ix
Foreword	xi
The Genesis of Indian National Society	13
for Aerospace Mechanisms (INSARM)	
Annexure: Rules and Regulations of INSARM	53
About Authors	95



MESSAGE

The story of the development of aerospace mechanism is closely linked to the evolution of Indian Space Programme. When the first sounding rocket blazed off from the shores of Thumba, it carried the sodium vapour experiment enabled by an expulsion mechanism, the trail of which enthralled all the witnessing scientist including the most revered Dr. Vikram A. Sarabhai. Since then, mechanisms and pyros played a vital role in the design, development and deployment of a variety of electronic and chemical payloads. Soon a specialist group of mechanism engineers emerged - conceiving all the systems essential for satellite launch vehicles.

The area of aerospace mechanisms is closely guarded, with bare minimum published material. You will be forced to invent your own solutions to the challenges posed, through ingenious systems. In this background, the Aerospace Mechanisms Division (ASMD) of Vikram Sarabhai Space Centre, established in 1980 should be lauded for going through rigorous drills to gain prominence for their field along with other technological advancements of the time. Following two seminars in 1985 and 1996, need for

a national level congregation of experts in aerospace mechanisms and related systems became evident. This has led to the formation of INSARM - the Indian National Society of Aerospace and Related Mechanisms. INSARM through its annual meets and ARMS seminars have spearheaded the popularisation of this engineering specialisation.

It is delightful to note that INSARM is bringing out a booklet "Genesis of Aerospace and Related Mechanisms", authored by Shri. K. Gopalakrishna Pillai and Shri. M.K. Abdul Majeed - the prominent among the pioneers in the field. I am sure this book will bring back memories of the eventful journey of the development of mechanisms in India from the humble sounding rocket payloads to the big mechanisms in the payload fairing of LVM3 launch vehicle. All the mechanisms of launch vehicles and satellites are mission critical, and it is captivating to understand how the systems were made reliable and robust through rigorous design testing and simulation.

I congratulate the authors for painstakingly gathering all the relevant information to script the saga of development of aerospace and related mechanisms. I wish that this book be received well in the techno-managerial circles of the country - to appreciate how Indian scientists perform in the face of adversities bringing out world class systems and products.

(सोमनाथ एस / Somanath S)

Date : January 28th, 2023



***Dr Vijay Kumar Saraswat,
Member, NITI Aayog
Chancellor, Jawaharlal Nehru, University***

MESSAGE

India, the country of rich culture and heritage is witnessing rapid development in Science and Technology and establishing itself as an emerging leader in the field of industrialization and technology in the world. One of our strength is top ranking R& D organisations. Linking these technical organisations, there are many eminent technical forums to promote professional relationships, help in familiarizing members with technical interests and provide a basis for professional aspirations and growth. One such prominent technical association is “Indian National Society for Aerospace and Related Mechanisms” (INSARM).

Inaugurated in June 1999 at Hyderabad by the great statesman and scientist, Dr. A.P.J. Abdul Kalam, INSARM has grown into an important technical forum in India for scientists and engineers working in the field of aerospace and related mechanisms. The society provides opportunities to gain and update knowledge, experience and access to information in a variety of engineering and technology disciplines through participation in seminars, symposia, conventions, workshops, etc., at various levels. A number

of prizes and awards are given to the members for their skills and talents

This publication by Shri Majeed and Shri Pillai introduces the genesis of INSARM and salient achievements during these years. It describes the services provided to the members. The general principles underlying the revised and approved rules and regulations of INSARM help members as a ready reference. I am sure that in years to come, INSARM gain further strength and give more and more technological advancement to members. This, in turn, helps in self-enhancement of the member intertwined with the benefits looked-for globally their skills and talents.

I appreciate the effort taken by the authors and convey by good wishes

03-02-2023

Dr. V K Saraswat

PREFACE

In the early stages of Indian space programme, during nineteen sixties, there were active participation of external space agencies like National Aeronautics and Space Administration (NASA) of United States of America, the European Space Research Organisation (ESRO), and the European Launcher Development Organisation (ELDO) of France, United Kingdom, and Germany etc. National Space Program of erstwhile Union of Soviet Socialist Republics, and National Space Development Agency of Japan. The focus was on the development and testing of sounding rockets at Thumba Equatorial Rocket Launch Station (TERLS). Indian Research & Development Agencies like Physical Research Laboratory (PRL) and Bhabha Atomic Research Centre (BARC), were also actively involved in these programmes. Development and Integration of Payloads and launch support activities were catered by Range Engineering Division (RED) of TERLS under the leadership of Dr. A.P.J. Abdul Kalam. Many Mechanisms and Electronic & Chemical payloads were developed for sounding rocket applications. For this, infrastructures such as pyrotechnics laboratory, composite material facility, payload integration and checkout facility, mechanisms development and integration facility were established during those days.

When ISRO started design and development of space related products there was limited guidance to those involved in design and development of space systems. The Aerospace Mechanisms design and developments were no exception. Development of these systems were decentralised in Vikram Sarabhai Space Centre (VSSC). Recognising the need of pulling all technical facets of aerospace mechanisms to have reliable systems for future

programmes, in 1980, Director, VSSC approved formation a new division “Aerospace Mechanism Division“ .

Advanced Space and Defence requirements need complex, reliable and mission critical mechanisms with multidisciplinary knowledge and skills. Hence it was necessary to share this information and experience with other experienced persons. In order to understand the activities taking place in the design and development of this discipline in other space faring nations, an international seminar was organised in 1985. This was followed by another seminar in 1996 where the decision to organise a national society for mechanisms was taken. The story how this humble beginning turned out to a well reputed national technical society in India is explained. Considering the need for a bigger national society to suit the modern era, a national level task team was constituted to update the rules and regulations. These got all approvals later. This is given as annexure1.

We place on record our gratitude to S. Somanath, Chairman ISRO and Secretary, Department of Space and V. K. Saraswat, Member Niti Aayog and Chancellor JNU for their messages and good wishes. We express our thanks to S. Unnikrishnan Nair, Director, VSSC and Current National President, INSARM for preparing the foreword. We are also thankful to P. V. Manoranjan Rao, Former Senior Scientist, VSSC and S.Rajendran, Head Library, VSSC for going through the book and suggesting suitable corrections.

We sincerely feel that, this booklet “Genesis of Aerospace and Related Mechanisms” with new rules and regulations appended will be useful to present and future members of INSARM.

Thiruvananthapuram
01-02-2023

K. Gopalakrishna Pillai
M. K. Abdul Majeed

FOREWORD

INSARM – the Indian National Society for Aerospace and Related Mechanisms has been a perfect confluence of experts in the field. The society has instilled a sense of high esteem in many mechanical engineers of ISRO and similar organisations including me, to turn out excellent solutions to the multifarious challenges presented to them – at times extraordinary. When I joined the Aerospace Mechanisms Division (ASMD), VSSC in 1985 as a fresh graduate engineer, the first ARMS seminar organized by INSARM just got concluded. The aura of the seminar was still around and we all were convinced that we belong to a special group.

At that time the division ASMD was situated in the 70 acres area in Veli. Very soon we all got shifted to the new campus at Valiamala. Shri M.K. Abdul Majeed and Shri K.G. Pillai were the pillars of ASMD from its inception onwards. Later, the Division become a group and eventually a new entity- Mechanisms, Vehicle Integration & Testing, MVIT- was borne, with Shri Majeed as its first Deputy Director. Staging systems, mechanisms, Payload fairing separation jettisoning systems, mechanical & electrical integration, vehicle check out systems for all launch vehicles and development projects had their origins in MVIT. Unique assembly, integration and test facilities were established to meet the requirements of the aerospace mechanisms community. Over a period of time, MVIT got transformed into one of the vital entities of ISRO.

The idea of a society, dedicated for aerospace and defense mechanisms, was the brainchild of Shri Majeed and the society christened as INSARM, was formed in 1998. For youngsters like me at that time, the activities of INSARM and the ARMS were occasions to learn more about various

mechanisms and to develop organizing skills to conduct mega events like ARMS. The ARMS provide a unique platform for those associated with design, development and use of aerospace mechanisms to debate on the many problems and solutions. Such gatherings are immensely useful for sharing of design expertise between various developing agencies to avoid duplication of efforts, sharing of resources in technology development, finding useful applications to societal needs and so on.

The INSARM has grown from its humble beginning to a matured national society with five chapters at various parts of the country with its Headquarters at Trivandrum.

I am very happy to note that, under the initiative of Shri Majeed and Shri K.G. Pillai, a booklet on the genesis and growth of INSARM is being brought out. It will be greatly useful to the members of INSARM in general and to the youngsters in particular. Let INSARM and its initiatives continue to enthuse engineers to pursue serious research and development in mechanisms and related areas.

Dr. Unnikrishnan Nair S.
National President, INSARM
Director, VSSC & IIST

January 2, 2023



THE GENESIS OF INDIAN NATIONAL SOCIETY FOR AEROSPACE AND RELATED MECHANISMS (INSARM)

INTRODUCTION

'Aerospace Mechanisms' related to rocketry were in use in Thumba since 1964. Number of mechanisms, such as payload deployment, split nose cone, de-spin system, copper chaff ejection system, nose cone axial ejection system, payload separation latches etc. were developed for a variety of sounding rocket applications. These developments, over of a period of time, led to complex and sophisticated launch vehicle systems with high built-in reliability. These systems were developed in various Divisions / Groups of Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram. However manufacturing, assembling, development, qualification and acceptance testing were decentralised among many units of VSSC. In February, 1980 a review committee was constituted by Director, VSSC to consolidate the mechanisms already developed by various Divisions and projects of the centre. The committee after a detailed review had identified 29 fully developed mechanisms and 56 mechanisms still under development for consolidation. The committee report, viz. 'Review of Aerospace Mechanisms activities at VSSC and an outlook for future' brought out in June 1980, gave brief description of the mechanisms, intended application, status of development, and facilities available in the centre.

After the first successful launch of India's maiden Satellite Launch Vehicle, SLV 3 on July 18, 1980 there were a number of proposals and discussions on future launch vehicle programmes, and how they were to be organized. Rocket Systems Group of the SLV 3 project with M. K. Abdul Majeed as Head, had suggested consolidation of all



activities related to aerospace mechanisms across Indian Space Research Organisation (ISRO) including both satellite and rocket systems. This was done to provide a focused design & development strategy for the entire organisation.

In 1981 along with other facilities for Polar Satellite Launch Vehicle (PSLV), a detailed project report on Aerospace Mechanisms Facility considering the need for integration and testing of large rockets systems was prepared by the authors. On 19 May 1981, Director, VSSC approved formation of Aerospace Mechanism Division (ASMD) under Aerospace Dynamics and Design (ADD) Group, with Abdul Majeed as Division Head reporting to A.P.J. Abdul Kalam, Director, ADD Group. Suitable sites were explored to establish permanent offices along with suitable integration and test facilities. After many discussions and deliberations, it was decided to locate, PSLV offices, Aerospace Mechanism Facilities (AMF) of ASMD, Integration facilities for PSLV, Control Systems and Components Divisions of Propulsion Group, design development activities of Liquid Propulsion Group along with minimal support activities like canteen etc., at Valiamala, about 40 Kms from VSSC at Thiruvananthapuram.

ASMD kept delivering stage auxiliary systems for SLV 3 continuation flights, even as it started development of systems for Augmented Satellite Launch Vehicle (ASLV). S. Srinivasan, then Project Director, PSLV consolidated the requirements of integration and test facilities for the PSLV project. Very large assembly and test facilities for 2.8 m diameter stage auxiliary systems and 3.2 m diameter and 8.2 m long payload fairing and large strap on separation systems were needed for PSLV. This was the major reason to locate aerospace mechanisms facilities along with PSLV integration facilities at Valiamala. The PSLV mechanisms were not only heavier and larger but also demanded

development of new systems. Some of the systems were unique and technology was only available with advanced aerospace agencies in USA, Russia, China, Japan and France. Hence it was decided to organise a seminar with possible participation of foreign experts, to discuss the technical aspects of developing aerospace mechanisms for future requirements of ISRO.

ARMS 01, FIRST NATIONAL SEMINAR ON AEROSPACE AND RELATED MECHANISMS

The first national seminar on Aerospace and Related Mechanisms was conducted at VSSC during 22 - 23 August, 1985. It was jointly organised by VSSC and Defence Research and Develop Laboratory (DRDL), Hyderabad with the support of six major technical organisations in India. Committees were constituted with R. Aravamudan, Director, System Reliability Group (SRG), VSSC as the General Chairman, Organising Committee, S. Ramnath, Director, PPEG, VSSC as General Co-chairman, T.S. Prahlad, VSSC as Chairman, Paper Review and Proceedings Committee and D. Easwardas, as Chairman, Programme and Sessions Committee. M.K. Abdul Majeed, VSSC was the Executive Chairman and K. Gopalakrishna Pillai, VSSC was the Organising Secretary.

S. Ramaseshan, Director, Indian Institute of Science (IISc) Bangalore; A. Ghosh, Professor, IIT Kanpur; R.C. Chaturvedi, Professor IIT Mumbai; P. A. Paranjape, AG Director, NAL, J.S. Rao, Professor, IIT New Delhi; Air Commodore K.R. Natarajan, GM, HAL; Y.S. Rajan, Scientific secretary ISRO; A.P.J. Abdul Kalam, Director, DRDL; Vasant R. Gowariker, Director, VSSC were the advisors to the seminar.

Charles W Cole, Lockheed Missiles & Space Corporation USA, D.Wynn Roberts, Head, Space Actuators & Mechanisms of European Space Research and Technology

Centre (ESTEC), Netherlands; Kenneth J Waldron, Northolt Professor, The Ohio State University were the distinguished foreign representatives.

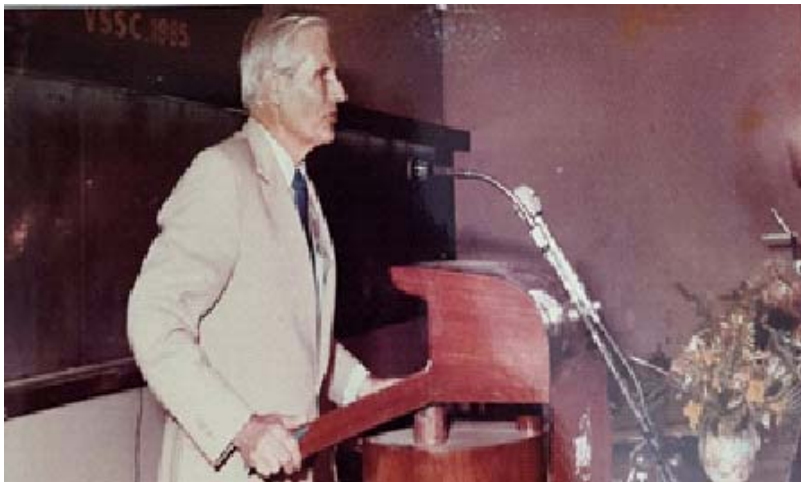


R Aravamudan, Director, System Reliability Group, VSSC/ISRO welcomed delegates & gave the welcome speech



V R Gowariker, Director VSSC, inaugurated the Seminar

More than 300 delegates from all ISRO and DRDO establishments, HAL units, industries like Bharat Heavy Electrical limited, Trichi; Electronics Corporation of India, Hyderabad; Godrej Industries, Mumbai; Larsen & Toubro Limited, Mumbai; Walchadnagar Industries, Usha Martin Services, Mumbai, and Academic institutions like Veermata Jeejabai Technological Institute, Mumbai, Institute of Aviation Medicine, Bangalore, Indian Institute of Technology, Mumbai; IISc, Bangalore; College of Engineering, Thiruvananthapuram; Bhabha Atomic Research Centre, Mumbai; Indira Gandhi Centre for Atomic Research, Kalpakam and Indian Airforce participated in the seminar. Forty-two contributed papers were presented in addition to six invited talks. A three -day exhibition was also organized in connection with the seminar. All mechanisms developed at VSSC till then were exhibited. DRDL and Institute of Aviation Medicine also participated in the exhibition. HAL exhibited under carriage models and rotor mechanisms for helicopters.



Charles W Cole, Lockheed Missiles & Space Corporation, USA addressed the delegates



A section of the delegates, ARMS01



D. Wynn Roberts, Head Space Actuators & Mechanisms addressed the delegates



M.K. Abdul Majeed

Executive Chairman, ARMS 01 proposed the vote of thanks

Organising a national seminar of this magnitude with foreign participation with meagre resources was a mammoth task and great challenge during that time (1985). Valiamala Complex had only one telephone line with international connection. Many a time trunk call had to be booked and wait for hours to get connected. Getting technical papers was another problem. We had to visit prospective writers and institutions throughout India to get papers. In certain cases, topics were discussed and finalised with the authors. 350 copies of the proceedings containing 524 pages were prepared by Xerox copying.

The major recommendations of the seminar were:

- (a) Make a draft resolution on National Steering Committee on Aerospace and Related Mechanism
- (b) Publish the edited proceedings of the seminar for wider publicity among the technical community



Mrs Cole, visited Technical Exhibition during ARMS 01 after inauguration

- (c) Organise seminar on Aerospace and Related Mechanisms once in three years
- (d) Conduct of periodical meets on testing and simulations of mechanisms.

NATIONAL STEERING COMMITTEE ON AEROSPACE AND RELATED MECHANISMS (NSCARM)

Based on the recommendation of the seminar, the organising committee had passed a resolution forming a National Steering Committee with APJ Abdul Kalam, the then Director, DRDL as Chairman and MK Abdul Majeed, VSSC as member convenor. The members were M.N. Satya Narayana, ISRO satellite Centre; M.S. Ram Kumar, BARC, D.H.Siva Moorthy, HAL; Group Captain Krishnan, Aeronautical Development Establishment; Group Captain T.S. Dehra, Aerial Delivery Research and Development Establishment; M.R. Patkar, Armament Research and

Development Establishment, T.S. Mruthyunjaya, Professor, IISc and R.G. Kumble, Director, Department of Science and Technology.

The major objectives of the Steering Committee were: (a) to act as focal point for evolving R&D policy in Aerospace mechanism area (b) to identify and act as catalyst for the progress of R & D areas in mechanisms, and (c) to organise technical meets on special topics of current interest in Aerospace Mechanisms .

The Steering Committee had number of meetings at ISRO HQ at Bangalore and at Defence Research and Development Laboratory, Hyderabad. In addition to the members, J.C. Bhattacharjee, Research Centre Imarat, (RCI) Hyderabad; Col. Salwan, RCI; Gopalakrishna Pillai and P.R. Madhava Panikkar from ASMD, VSSC were permanent invitees to all meetings

The major recommendations of the NSCARM were:

- (i) to prepare a Directory of aerospace mechanisms by a team, consisting of two members from each of the participating organisation.
- (ii) to identify national facilities available for development of mechanisms, and a team consisting of members from Department of Space, Defence Research & Development Organisation, Department of Defence Production and Department of Science & Technology, to visit facilities in India and make a handbook on facilities available for development and test of aerospace mechanisms.
- (iii) to publish a news bulletin to disseminate information on new development activities and tests of mechanisms

The Steering Committee also suggested identifying mechanisms for societal applications as offshoot of space and defence research and developments.

One of the major works done by the NSCARM was preparation of a national proposal for “A National Laboratory for Mechanisms”, to pool up expertise in the country on aerospace mechanisms and for optimum utilisation of facilities. On behalf of NSCARM a directory on “who is who in mechanisms” was also prepared. It remains incomplete due to reluctance of certain Departments as some of the scientists were working on “sensitive” products. Apart from this, there were changes in some of the office holders of the steering committee, due to which regular interaction could not be held after 1992.

SECOND SEMINAR AN AEROSPACE AND RELATED MECHANISMS

(ARMS02) AND FORMATION OF INDIAN NATIONAL SOCIETY FOR AEROSPACE AND RELATED MECHANISMS (INSARM)

In 1996 the second seminar ARMS 1996 was hosted by VSSC, Thiruvananthapuram

The major recommendation of this seminar was to organise a national forum for scientists and engineers working on mechanisms. The advisory and organising teams were more or less same as that of ARMS 01 with only a few additions. A resolution to form a national society for aerospace and related mechanisms was passed by the Organising Committee, presided by R Aravamudan, General Chairman, ARMS02.

Based on the resolution, one of the authors (M K Abdul Majeed) met Kasturirangan, then Chairman, ISRO and explained to him of the need of a Society for Aerospace and Related Mechanisms. He also apprised him, of the extensive work being done by ISRO, DRDO, BARC etc. on R & D in Mechanisms. Being a highly specialized field of work, Majeed stressed that a forum of professional



A. P. J. Abdul Kalam the then Scientific Advisor to Defense Minister presented the keynote address at ARMS 1996



Panel session of ARMS02 (1996)



A.P.J. Abdul Kalam, the then Scientific Advisor to Defence Minister, visited exhibition along with S. Srinivasan and G. Madhavan Nair at ARMS 02

interaction is needed. But the Chairman's view was that the Astronautical Society (ASI) could represent mechanism activities also. Further the Chairman advised author to meet P.S. Goel, then Secretary of Astronautical Society. Author met the secretary and explained to him the views expressed by the Chairman. After detailed discussions the Secretary too agreed for an exclusive Society for Aerospace Mechanisms.

The author met the Chairman again and discussed with him the views expressed by Secretary of ASI. Finally, Chairman approved the formation of INSARM and asked authors to go ahead with society activities with the participation and guidance of ISRO, DRDO etc. During those days, there were lot of mission failures due to mechanism malfunction in other space faring countries. Probably, this aspect might also have prompted Chairman

ISRO to whole heartedly support and bless the formation of INSARM.

An ad-hoc committee with M.K. Abdul Majeed as Chairman and K. Gopalakrishna Pillai as Secretary was formed to organise a national society. The ad-hoc committee worked out a memorandum of association of the society and decided to give the name 'Indian National Society for Aerospace and Related Mechanism', INSARM, for short. A competition was conducted at VSSC to finalise an emblem and an entry from Madhavan Pillai, senior draughtsman, Mechanical Engineering Entity was selected with minor modifications. The registered HQ of the Society and address were given as C/o Aerospace Mechanism Group Valiamala Complex, VSSC, Thiruvananthapuram 695 547, Kerala.

It was in 1998, that the Society was registered under Travancore-Cochin Literary, Scientific & Charitable Societies Registration Act, 1955 with Headquarters at Thiruvananthapuram. The registration number was. T 786/98. The objectives and purposes of the Society were:

- (1) to promote R & D activities in aerospace and related mechanisms and to foster a feeling of fellowship among the members of Society.
- (2) to encourage widespread dissemination of knowledge and skills gained through R & D institutions working on aerospace and related mechanisms among its members and other professionals, through collaborative research, seminars, conferences, workshops, journals and other aids, which the society may organise
- (3) to encourage close interaction with industry, academic institutions, commercial organisations, and individual specialists for participation in R & D of mechanisms
- (4) to identify thrust areas for new research on mechanisms like hydro hydraulic actuators, mechanisms for robotics,

smart mechanisms & micro-mechanisms, mechanisms for bio-engineering & medical applications, mechanisms for oceanography, and rendezvous & docking mechanisms.

- (5) to co-operate with international associations and institutions promoting similar activities, and represent, before appropriate international forums important aspects of activities being carried out by various organisations and institutions in India, in the field of mechanisms.
- (6) to establish and administer centres of society in VSSC, Thiruvananthapuram, and in other cities and institutions in India, like Hyderabad, Bangalore, Pune, Agra, Bombay, etc. to further disseminate the ideas of the society.
- (7) to secure funds and grants for promoting R & D of mechanisms and to institute awards and research grants to individuals and organisations for furtherance of objectives of the society.
- (8) to administer the income and property of the society for furtherance of the objects laid out in this memorandum. No portion of income or/and property of the society shall be paid by way of profit to any person whomsoever, including the members of the society.

THIRD NATIONAL SEMINAR ON AEROSPACE AND RELATED MECHANISMS AND FORMAL INAUGURATION OF INSARM BY APJ ABDUL KALAM

In June 1999 the third national seminar was organised in Hyderabad. DRDL, Advanced Systems Laboratory (ASL) and RCI jointly organised the seminar. An exhibition of the aerospace mechanisms developed by DRDO and ISRO was also conducted. There were exhibits from industries, too. Lt. Gen. V. J. Sundaram was chairman of the national advisory committee. The highlight of the seminar was formal inauguration of Indian National Society for Aerospace and Related Mechanisms by A.P.J. Abdul Kalam, then the

Scientific Advisor to the Defence Minister by video conferencing.



Inauguration of ARMS03 at Hyderabad in 1999 by G. Madhavan Nair, the then Director, LPSC/ISRO



ARMS 03 Delegates at DRDL Auditorium

ORGANISATION OF INSARM NATIONAL COUNCIL AND FORMATION OF CHAPTERS

From 1998 to 2008 M.K. Abdul Majeed was the National President and K Gopalakrishna Pillai was the General Secretary. Like any other professional society, INSARM also had a number of teething problems. A new national council was formed in 1999 to guide the activities of society. Because of the preoccupations of some of the key members, the membership drive at major centres like Bangalore, Hyderabad and Pune was not very successful till 2001. At that time, INSARM had only 144 members.

The national council had decided to improve the activities of the society and new plans were evolved. Salient points were to start Chapters of the society at centres of mechanism development activities, and to start a website. A website (INSARM.org) was launched and was active since 2001. It continued to work satisfactorily up to 2008.

As recommended by the National Council, a special general body of INSARM in February 2001 decided to organise regional chapters at major R & D centres. The Thiruvananthapuram Chapter was inaugurated in December 2001. The Hyderabad and Bangalore chapters were inaugurated on January 2005 and November 2005 respectively. Pune chapter started functioning from March 2008 after ARMS 2008 at Pune. Agra chapter was inaugurated in 2015.

INSARM general body consists of all approved members of INSARM chapters. Elections to National Council were conducted by the General Body (GB) meeting along with the biennially conducted ARMS seminars.

To start with the INSARM National Council had 9 members in addition to National President, maximum three Vice Presidents from different organisations, a General



Inauguration of Thiruvananthapuram Chapter in December 2001 Invocation



Inauguration of Thiruvananthapuram Chapter by Sri Vathsan, Director, IIITM, Kerala

Secretary, one Joint Secretary and a Treasurer. As per the amendment of the memorandum in GB during sixth national seminar at Pune (ARMS 2008) all Presidents of INSARM Chapters became Vice Presidents of National Council. Also, immediate past Presidents of National Council became de facto members of the National Council.

The affairs of each chapter were managed by an elected executive committee from the local general body (members on the roll of local chapter). The president of local chapter becomes one of the Vice Chairman of the National Council. All chapters regularly conduct annual meets and biennially conduct election for electing new office bearers. Chapters organised workshops and invited talks periodically. A few of the Chapters such as those of Thiruvananthapuram, Bangalore, and Pune have separate websites. With formation of the Chapters the Society gained much acceptability among the mechanism community in India and became one of the important technical fora for mechanism designers and developers. Membership has now crossed 1200.

PROCUREMENT OF OFFICE BUILDING AT FUTURE POINT, EDAPAZHANJI, THIRUVANANTHAPURAM

An office building was jointly bought by INSARM and Space Engineers Association (SEA) from Mrs. Prema, Future Points Constructions on March 2005 for Rupees 30 lakhs. The office was fully furnished.

INSARM established a permanent office and mini auditorium at ground level of Future Point, Edapazhinji, Thiruvananthapuram jointly with Space Engineer's Association VSSC. The air conditioned auditorium can accommodate about 75 persons. There is provision for two office rooms for INSARM & SEA respectively.



Ground floor of Future point, at Edipazhanji,
Thiruvananthapuram

The office was inaugurated by Professor R. Ravi Kumar, Former Director of Technical Education Kerala and Chairman Travancore Analytics, Technopark, Thiruvananthapuram in April 2005. All meetings of INSARM Thiruvananthapuram chapter are organised in this office.

EFFORTS TOWARDS NATIONAL EXHIBITION ON MECHANISMS

The general body of Indian National Society for Aerospace and Related Mechanism, during its national seminar ARMS 2005 held at Bengaluru recommended to set up a national museum on the theme of Aerospace and Related Mechanism and requested Bengaluru Chapter to take a lead in this effort. The national president at that time, P.S. Nair constituted a national committee to study the proposal in detail and to bring out a report.

Former Dy. Director at ISAC, V. A. Thomas, the then Vice President INSARM was the chairman and members

were from IISc, HAL, Visvesvaraya Industrial Museum (VIM), General Secretary INSARM, and Secretary INSARM Bengaluru Chapter. After detailed deliberations and visit of technical museums like VIM, HAL heritage centre, ISAC museum, the committee brought out a report.

The Committee had considered various options and most promising option was to establish it at HAL Heritage Museum, considering the central location and availability of infrastructure. Total out lay was 675 lakhs. Discussions with Chairman, ISRO and HAL Authorities were held. Bengaluru chapter was requested to work out further plans and make the museum a reality.

ARMS SERIES OF SEMINARS

Twelve seminars were conducted in the ARMS series at the various locations where the chapters of INSARM are located. The activities for thirteenth ARMS 2023 at Agra has commenced.

The venues of previous seminars are given in the table below :

Sl. No.	ARMS No.	Month and Year	Venue
1	ARMS1985	August 1985	VSSC, Tvpm
2	ARMS 1996	November 1996	VSSC,Tvpm
3	ARMS1999	June 1999	DRDL,Hyderabad
4	ARMS 2002	November 2002	VSSC, Tvpm
5	ARMS 2005	November 2005	URSC,Bengaluru
6	ARMS 2008	March 2008	ARDE,Pune
7	ARMS 2010	September 2010	Mascot Hotels, Tvpm
8	ARMS 2012	December 2012	ARDE,Pune
9	ARMS 2015	January 2015	URSC,Bengaluru

- 10 ARMS 2016 November 2016 Leela Kovalam, (Raviz) Tvpm
- 11 ARMS 2018 November 2018 Dr. Kalam Auditorium, DRDO, Hyderabad
- 12 ARMS 2021 December 2021 ARDE, Pune



Inauguration of ARMS08 at Pune. V.R. Gawariker, Former Director, VSSC and Former Secretary, DST was felicitated.



V R Gawariker released the proceedings of the Seminar



View of Technical exhibition during ARMS 08 at PUNE



View of Technical exhibition during ARMS 08 at PUNE



V.R. Gowariker and V.K. Saraswath during ARMS 08 at Pune



Technical Session being conducted during ARMS 08 at Pune



Inaugural function of ARMS 09 at Bengaluru



Releasing Souvenir of ARMS 09 at Bengaluru



Shiva Kumar, Director, ISRO Satellite Centre opened the exhibition during ARMS09



A view of the exhibition during ARMS 09



Inauguration of ARMS 12 at ARDE, Pune during December 2021



V Vekateswara Rao, Director, ARDE & Chairman Organizing Committee addressing delegates during ARMS12



G Sathesh Reddy, Secretary Department of Defence R&D & Chairman, DRDO addressing delegates, ARMS12 in Pune



S Somanath, then Director, VSSC & Present Chairman, ISRO giving Keynote address, ARMS12 in Pune



Founder President INSARM with past and present Presidents of INSARM National council during ARMS12



A technical session is progressing during ARMS12

NATIONAL PRESIDENTS AND GENERAL SECRETARIES OF INSARM

In March 2008 during ARMS at Pune, M.K. Abdul Majeed, National President and K. Gopalakrishna Pillai, General Secretary laid down office. P.S. Nair, Dy. Director, ISAC and C. D. Sridhara, Mechanisms Division, ISAC were elected National President and General Secretary respectively. Along with ARMS seminar the general bodies of INSARM was regularly conducted to elect new office bearers of INSARM National Council.

The list of Presidents and General Secretaries of INSARM is given below.

Sl. No.	Year	Presidents	General Secretary
1	Aug.1998 -March2008	M K Abdul Majeed Thiruvananthapuram	K.Gopalakrishna Pillai Thiruvananthapuram



2	April 2008 -Sept. 2010	P. S. Nair Bangaluru	C. D. Sridhara Bangaluru
---	---------------------------	-------------------------	-----------------------------



3	Oct. 2010 -March 2013	George Koshy Thiruvananthapuram	S. Sivasubramonian Thiruvananthapuram
---	--------------------------	------------------------------------	--



4	April 2013 -Jan 2017	A. M. Datar ARDE. Pune	K. M. Rajan Pune
---	-------------------------	---------------------------	---------------------



5	April 2017 -July 2020	K. M. Rajan Pune	R. P. Pandey ARDE, Pune
---	--------------------------	---------------------	----------------------------



6 July 2020
-May 2022

V. Venkateswara
Rao, Pune



R. P. Pandey
ARDE, Pune



7 May 2022
-Continuing

S. Unnikrishnan
Nair, VSSC/ISRO, Tvm



P. Damodaran
VSSC/ISRO, Tvm



UPDATING OF RULES AND REGULATIONS AND BYE LAWS

The National Executive Council of INSARM held at PUNE on 18th March 2019 felt the need to update the rules & regulations and bye laws of INSARM prepared more than 21 years ago. Accordingly, a committee with Anil N. Datar, former National President, as Chairman, S. Harikrishnan, ARDE Pune, National Treasurer INSARM, as Secretary and members from all chapters of INSARM was constituted by the National Council. It was also suggested that while examining the present rules & regulations, the committee may address all issues related to finance, business transaction, responsibility and authority.

The committee had three meetings on 26th March 2019, 10th April, 2019 and 30th April 2019 to deliberate on various issues. Before finalising the proposed changes, it had examined prevailing Rules & Regulations of other societies such as Aeronautical Society of India, High Energy Material Society of India, etc. Various suggestions given by the members and those obtained through electronic media were debated, discussed and collated in the draft put up to the National Council.

The recommendations made by the committee were considered in the National Council held in March and June 2019. After detailed discussion the final Rules and Regulations were further refined and the Council unanimously recommended for presentation of the new draft in the next general body for approval.

Due to the pandemic situation (Covid 19), meeting of general body could not be organised. The document containing the revised Rules and Regulations was circulated among the chapters on 26th July 2019 for perusal of the members. Pune, Bengaluru and Thiruvananthapuram Chapters had communicated their approval through local chapters' minutes after discussing in their local general bodies. It was noted that two third members had endorsed the revised Rules and Regulations of the society. The National council discussed this in its meeting held on 26 September 2020 and approved the Rules and Regulations. This was approved by the Registrar of Charitable Societies.

The National Council had decided that as INSARM has its own office at Thiruvananthapuram, INSARM HQ office will be located there, even when the national presidents, and general secretaries and treasurers are from different Chapters. An Executive Secretary with necessary staff will also be appointed on contract basis at HQ to keep office

papers, to update the roll of members of INSARM, keep account, and to ensure efficient communication between HQ and the Chapters.

The updated and approved Rules and Regulations of INSARM is given in Annexure.

The following Committee was constituted by the Governing Council. It was also suggested that while examining the present Rules & Regulations. Committee may address all issues related to finance, business transactions, responsibility and authority.

- | | |
|----------------------------|----------|
| 1. Shri. Anil M. Datar | Chairman |
| 2. Shri. K.G. Pillai | Member |
| 3. Shri. M.V. Ramesh Kumar | Member' |
| 4. Shri. S.S.Vinod | Member |
| 5. Dr. R. Srinivasan | Member |
| 6. Shri. C.K. Gautham | Member |
| 7. Shri. S. Hari Krishnan | Convenor |

March 2019

**RULES & REGULATIONS BOOK
OF
INDIAN NATIONAL SOCIETY
FOR AEROSPACE & RELATED
MECHANISMS (INSARM)**

**(Registration No. T. 786/98,
Thiruvananthapuram)**



INSARM OFFICE
Ground Floor, Future Point,
Edapazhanji,
Thiruvananthapuram
PIN - 695010

TRAINING CELL

Thiruvananthapuram Chapter of INSARM had organised a training cell, to coordinate and conduct training related activities. M. K. Abdul Majeed was the Chairman and K. Gopalakrishna Pillai was Secretary. Training cell had worked out a plan to train students, engineering college teachers and young engineers from industry in areas of mechanisms, product design & development. The faculty members for the training were former senior engineers / scientists from ISRO, DRDO and academic institutions.

Training Cell had already conducted three days training programmes for engineers of various technical organisations at Thiruvananthapuram. The programme was inaugurated by Kuncheria P. Isaac, then Vice Chancellor of A.P.J. Abdul Kalam Kerala Technological University. This was followed by five days of training in product design engineering and

management at ASL, Hyderabad and ARDE, Pune for middle level engineers. One-day training programme on Leadership by strategic innovation was also conducted for executives at Thiruvananthapuram.



M.K. Abdul Majeed inviting Chief Guest Kucheria P. Isaac during first workshop



A Training Programme in progress at Thiruvananthapuram



Five-day workshop on Product Design Engineering & Management at ARDE, Pune. Faculty and Participants



Five-day workshop on Product Design Engineering & Management at ASL, Hyderabad. Faculty and Participants



Five-day Faculty improvement programme on Product Design Engineering & Management at Rajagiri College of Engineering, Cochin



Inauguration of Five-day FDP at Sarabhai College of Engineering, Thiruvananthapuram by Rajashree, V.C, Kerala Technological University

Faculty improvement programmes (FDP) on Product Design, Engineering and Management for engineering colleges teachers were conducted at Cochin and Thiruvananthapuram.

The training programme by INSARM resulted in interaction of members of INSARM with industries and R & D organisation and engineering college faculty. Programmes on Design Thinking, Configuration Control Management and Quality and Reliability are on the anvil in addition to Design Engineering & Management. It is sincerely hoped that the vast experience available with members of INSARM especially the former engineers and Scientists of ISRO, DRDO and academic institutes can be utilised in imparting industrial training to college faculty and training junior engineers from industries and research and development organisations.

THE INVIGORATING AND BENEFICIAL ACTIVITIES OF INSARM.

Over the last two decades, INSARM has grown into an important technical forum in India for professionals working in aerospace and other sophisticated mechanisms. It has brought together all engineers and scientists working in this area and encouraged widespread dissemination knowledge and skill among them.

All chapters are conducting regular seminars and invited talks for its members. INSARM have its own website and some of the chapters are publishing e- magazines. The biannual national seminar of ARMS series has become a meeting place for all experts on mechanisms. The papers, and discussions are technical and very informative to the designers of mechanisms. During the pandemic the chapters had conducted invited talks, quiz programmes, monthly council meeting etc. on line.

FUTURE OUTLOOK FOR INSARM

The amended bye law and new rules and regulations of INSARM and establishment of permanent office at Thiruvananthapuram will make the activities of INSARM more streamlined. The appointment of executive Secretary at H Q will further smoothen communication between HQ and chapters.

New activities envisaged for the future can include following:

- Enrolling of more members in INSARM,
- Establishing more chapters in other parts of India,
- Organizing more workshops, training programs, and regular technical meets at chapters,
- Publishing a technical journal at national level,
- Preparing a compendium on “who is who” in mechanism,
- Publishing a hand book on aerospace mechanism,
- Establishing a national mechanism museum,
- Recognising talent & innovative mechanism design by instituting more awards.
- Financial support for start- ups,
- Close international liaison with mechanism fraternity of friendly countries

CONCLUSION

Recognition by ISRO in 1981, that Aerospace Mechanisms is a major discipline for the successful space programme, resulted in systematic and faster growth of INSARM. History of Indian National Society of Aerospace and Related Mechanism (INSARM) and the growth of Aerospace mechanism in ISRO are closely related. The circumstances that lead to the birth of INSARM are briefly

explained. The formation of INSARM resulted in close interaction with national and international experts in mechanisms and acted as a catalyst for sustained mechanism development in India.

The authors sincerely thank all former office bearers of INSARM, both at national level and at chapter's level for their contribution and support in making INSARM, as one of the finest technical societies in India. The interest and enthusiasm and wholehearted support shown by the members of INSARM were the main strength of INSARM. Authors sincerely hope that INSARM will further grow to become a leading technical organisation not only in India but in the world as well.



Annexure

**RULES & REGULATIONS BOOK
OF
INDIAN NATIONAL SOCIETY FOR
AEROSPACE & RELATED MECHANISMS (INSARM)**

(Registration No. : T.786/98, Thiruvananthapuram)



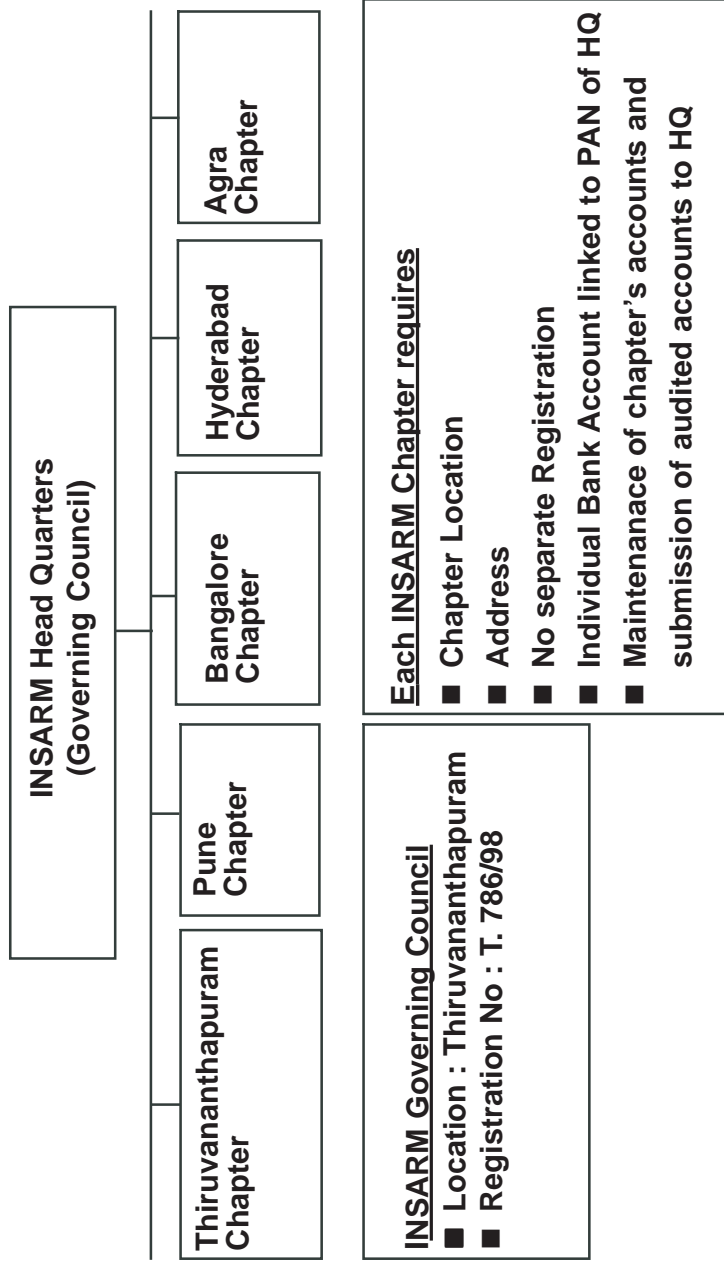
**INSARM OFFICE
Ground Floor, Future Point, Edapazhanji,
Thiruvananthapuram - 695010**



CONTENTS

Foreword	56
Chapter 1	59
Memorandum of Society	
Chapter 2	60
Activities	
Chapter 3	62
Rules and Regulations	
Chapter 4	91
Bye Laws	

INSARM Organisational Structure



FOREWORD

Based on the recommendations of second national seminar held at Thiruvananthapuram in the year 1996 by the scientists and engineers involved in the design and development of mechanisms, Indian National Society for Aerospace and Related Mechanisms (INSARM) , a non-profit professional body was founded in 1998 with Headquarters at Thiruvananthapuram, Kerala. Its objective is to promote R&D activity on aerospace and related mechanisms and to foster a feeling of fellowship among the members of the society.

As the Rules & Regulations of the Society were framed way back in 1998, the Governing Council Members of the Society (in its meeting held on 18 March 2019, had felt the need to revisit the Rules & Regulations Book of the Society and propose changes where required. Accordingly, following Committee was constituted by the Governing Council. It was also suggested that while examining the present Rules & Regulations, Committee may address all issues related to finance, business transaction, responsibility and authority.

- | | | |
|----|-----------------------|----------|
| 1. | Shri Anil M Datar | Chairman |
| 2. | Shri K G Pillai | Member |
| 3. | Shri M V Ramesh Kumar | Member |
| 4. | Shri S S Vinod | Member |
| 5. | Dr. R Srinivasan | Member |
| 6. | Shri C K Gautam | Member |
| 7. | Shri S Harikrishnan | Convener |

Committee had 3 meetings on 26 Mar 2019, 10 April 2019 and 30 April 2019 to deliberate various issues. Before finalizing the proposed changes, it also examined prevailing Rules & Regulations of other Societies such as Aeronautical



Society of India, High Energy Materials Society of India etc. Various suggestions given by the members and also those obtained through electronic media were debated, discussed and collated in the draft put up to the Governing Council.

The recommendations made by the committee were considered and approved by the Governing Council held on 24 June 2019. The Rules and Regulations Book is being issued with a hope that the Members would find provisions useful and appropriate for smooth functioning of the Society.

The undersigned would like to acknowledge with thanks the efforts put in by the Chairman & Members of the Rules & Regulations Committee and the Members of Governing Council in bringing out updated Rules & Regulations Book.

General Secretary, INSARM





CHAPTER 1

MEMORANDUM OF SOCIETY

1. Name of the Society : Indian National Society for Aerospace and Related Mechanisms (INSARM).
2. Address : **Ground Floor, Future Point**, Edapazhanji, Thiruvananthapuram, PIN 695010
3. Society shall be a professional non-profit organization.
4. Objective of the Society is to serve as a professional body to promote, encourage, evolve and stimulate interest in mechanisms related to aerospace and defense applications.



CHAPTER 2

ACTIVITIES

With a view to achieve the above objectives, Society will undertake the following activities:

- i. To promote R&D activities in mechanisms related to aerospace and defense applications and to foster a feeling of fellowship among the members of the society.
- ii. To encourage widespread dissemination of knowledge and skills gained through research and experience in R&D institutions on aerospace and defence related mechanisms among its members and other professional bodies, through collaborative research, seminars, conferences, workshops, journals and other aids which the Society may organize and develop progressively.
- iii. To encourage close interaction with industry, academic institutions, commercial organizations and individual specialists for participation in R & D activities.
- iv. To identify thrust areas for new research on mechanisms like electro-hydraulic actuators, mechanisms for robotics, electro-mechanical systems smart mechanisms & micro- mechanisms, mechanisms for bio-engineering & medical applications, mechanisms for oceanography, and rendezvous & docking mechanisms including emerging technologies in the field of mechanisms for aerospace and defence related applications.
- v. To co-operate with international associations and institutions promoting similar activity, and to represent, before appropriate international fora, important aspects of activities being carried out by various organizations and institutions in India, in the field of mechanisms:

- vi. To establish and administer Chapters of the Society at various locations in India, appropriate to furthering objectives of society.
- vii. To provide assistance for patenting.
- viii. To provide assistance in setting up start up initiatives
- ix. To secure funds and grants for promoting R&D of mechanisms and to institute awards and research grants to individuals and organizations for furtherance of the objectives of the society.
- x. To administer the income and property of the Society for furtherance of the objects and purposes laid out in this memorandum.
- xi. To promote activities related to design and development of mechanisms, create a permanent exhibition with scope of expanding to include future developments, which would be instrumental in creating interest in school/college students and general public.
- xii. To publish society's journal / periodical at regular interval.
- xiii. To organize training programs in aerospace and related mechanisms to engineering students ,teachers ,industry etc to improve professional skill
- xiv. To organize awards and citations for outstanding contributions in the design and development of various mechanisms in aerospace and defence related fields.

CHAPTER 3

RULES & REGULATIONS

1. Interpretation
2. Constitution
3. Qualification of Membership
4. Subscription
5. Organisational Chart of Office Bearers
6. Responsibilities, Rights & Privileges
7. Administration & Management
8. Election of Governing Council
9. Powers and Duties of Governing Council and Chapters
10. Powers and Duties of Members of Governing Council and Chapters
11. Meetings of the Society
12. Funds
13. Audit
14. Property
15. Logo
16. Indemnity
17. Privileged communication
18. Amendments
19. Dissolution

1. Interpretation

- a. Society means Indian National Society for Aerospace and Related Mechanisms (INSARM)
- b. Member(s) means Member(s) of all the categories who constitute the Society and whose name is borne in the Register of Members.
- c. Head Quarters (HQ)/Office means place/address from where Governing Council will operate.
- d. Subscription means one time subscription for Life Membership of individuals. Institutional Membership and student memberships will have yearly subscription.
- e. Words except where the context forbids, employing singular shall include plural and vice versa; male shall include female.
- f. President means President of the Society.
- g. Vice president means honorary vice president of the society.
- h. General Secretary means Honorary General Secretary of the Society
- i. Joint Secretary means Honorary Joint Secretary of the Society
- j. Treasurer means Honorary Treasurer of the Society
- k. Council means Governing Council (GC) in the Office
- l. Chapter means duly constituted Regional / Local Chapter in India

2. Constitution

- i. Membership of the Society shall be open to all persons who are Indian Nationals and bodies who subscribe to the aims and objectives of the Society. There shall be four classes of Constituent Members of the Society as follows:

- a) Life Members
- b) Institutional Member
- c) Student Member
- d) Honorary Fellows
- ii. All of above (hereinafter referred to collectively as Members) shall be entitled to the rights and privileges mentioned hereinafter. Members name shall be entered in the register to be kept pursuant to Societies Registration Act. The qualifications, mode of election, rights & privileges and obligations of Members shall, save as herein provided, be prescribed by Regulations made by the Society from time to time and shall also be subject to alteration or repeal by such Regulations.
- iii. There shall also be Local / Regional Chapters duly constituted. Chapters shall have their Office at locations approved by Governing Council (GC) and their affairs shall be conducted in accordance with the rules and regulations of the society.
- iv. Membership in any of the chapters means membership to the society and members' privileges can be availed in any other chapters

3. Qualification of Membership

- i. *Life Members* : Persons with Bachelor's or Master's or Doctorate Degree in Science, engineering or allied technology or engineering diploma holders with minimum ten years of experience and who have made' significant contributions in the field of Aerospace and Defence Related Mechanisms are eligible for admission as Life Members of the Society. They have to contribute a sum of Rs. 5000/- in lump sum. This contribution can be reviewed in every Annual General Body meetings (AGM) and is liable to change if members agree by majority. This new membership fee amount will be applicable to new members joining after implementation.
- ii. *Institutional Members*: Any government organization, private organization and industry working in the field of mechanisms expressly interested in helping forward the

objects of the Society shall be enrolled by the Governing Council as Institutional member. Two nominees, at a time, from each such institutional Member shall be allowed to participate in the activities of the Society. The yearly subscription would be Rs 20,000/- and will be reviewed in the AGMs for any revisions.

- iii. *Student Members:* Student Member shall be a student/research scholar of a recognized college/Institution/University in the fields of Science, Technology, Engineering and any other allied fields related to Mechanisms. He shall be entitled to all rights of the Society, but he shall not have any voting rights and shall not be an Office Bearer, Member of Governing Council or Chapter Executive Committee. He shall cease to be a Student Member on completion/termination of his studies. Student member can thereafter become life members by paying a subscription amount of difference between prevailing life membership fees and student membership fees already paid. Subscription for student members will be Rs 1000/- per annum.
- iv. *Honorary Fellows:* Persons of eminence, who have made significant contributions in the fields of science, engineering or allied technology, and who are invited by the Governing Council, shall be nominated by the Society as Honorary Fellows, for periods as desired by the Society. Honorary fellows can be invited to General Body meetings. Honorary fellows will not have voting rights and cannot be an office bearer. However, they can be co-opted to the governing council meetings to seek his/her advice if needed.

4. Subscription

- i. Subscription as detailed below shall be paid to the respective Chapter office of the Society. An application

in the prescribed form shall be addressed to Secretary of the Chapter along with the necessary subscription.

- ii. Chapters shall remit 50% of Membership Fees to the Governing Council.

Membership	Subscription (Rs)
------------	-------------------

Honorary Fellow	Nil
Life Member	5,000
Student Member	1,000
Institutional member	20,000

- iii. Governing Council may enhance, reduce or completely eliminate at any time, the subscriptions, provided that no such change shall be effected more than once within a period of twelve months. Approval of the General Body will be necessary for making these changes. The new membership fee amount will be applicable to new members joining after implementation.
- iv. Membership number to every member will be allotted by respective chapter in a format as approved by governing council. The proposed format is ABC/xxxx where ABC represents short form of Chapter location eg., Thiruvananthapuram- TVM; Bengaluru-BLR; Hyderabad-HYD; Pune-PUN; Agra-AGR. Fresh membership cards will be issued to the existing members adhering to this format wherein their present membership id's may change. Membership cards will be printed and issued by HQs.
- v. Membership will be accorded to an individual after approval of the same in Chapter Executive Committee meeting.

5. Organisational Chart of office bearers

Governing Council committee

President (INSARM)

Vice President (INSARM)

General Secretary

Joint secretary

Treasurer

Members of Governing Council

Appointed on contract

Executive secretary

Financial Assistant

Office assistant.

Chapter Executive

President (xxx Chapter)

Vice President
(xxx Chapter)

Secretary (xxx Chapter)

Joint secretary
(xxx Chapter)

Treasurer (xxx Chapter)

Members of Chapter
Executive Committee

6. Responsibilities, Rights & Privileges

- i. Voting rights in General Body meeting Meetings of society and chapters: Each Life Member / Institutional Member of the Society shall have only one vote. Honorary Fellows, if not Member of the Society shall not have any voting rights. Student members will not have voting rights.
- ii. Constituent Members are eligible to participate in the activities of the Society and its Chapters and make use of the facilities, with or without charge as may be determined by the Council.
- iii. Constituent Members are eligible to receive all publications and journals brought out by the Society with or without charge as may be decided by the Governing Council
- iv. Register/data base of Constituent Members showing their date of admission, name and postal & communication address shall be maintained. The Register / data base shall also include the names of the representatives of the Institutional Members. The register is to be maintained by each Chapter and periodically updated in every quarter. A copy of the same should be made available to HQ.
- v. Any Constituent Member of the Society shall be entitled to inspect the Register at the Head Quarter Office, after serving notice upon the General Secretary, intimating his intention at least 7 days prior to the date of inspection.

Cessation of membership

- vi. Any member shall cease to be a member of the Society on his/her resignation by a letter addressed to the Secretary/President of the Society and its acceptance by the Governing Council.
- vii. Any member shall cease to be member if he is not regular in his payment of arrears due to the Society.
- viii. Any member can be removed or expelled from the Society with the approval of the General Body, for any activity declared as detrimental to the best interest of the Society.
- ix. Suspension of Membership - A Member shall be liable to

be suspended or permanently expelled from the Society for valid reasons by a decision of the Committee constituted by GC. Committee shall record the grounds on which a Member shall be suspended or expelled and shall inform the Member accordingly. Member concerned shall be given opportunity to clarify his stand.

Member shall also have the right of appeal to GC within 15 days of the receipt of suspension / expulsion order. Appeal shall be addressed to President of Council. On receipt of such an appeal, Council shall convene a Special General Body meeting within a period of thirty days from the date of the appeal.

7 Administration & Management **Governing Council at Head Quarters**

i. Administration of Society shall be managed by General Body consisting of all

Members with voting rights. A Governing Council will be the legal representative of the Society and shall consist of not less than 15 and not more than 40 Members. Governing Council shall have following Members in addition to the nominated members and invited members.

- a) President
 - b) Vice Presidents (Presidents of all Regional Chapters)
 - c) General Secretary
 - d) Joint Secretary
 - e) Treasurer
 - f) Nine Members elected to Governing Council
- ii. Immediate past President of the Society shall also be a Member of the Governing Council.
- iii. All other past Presidents and general secretaries will be permanent invitees to the Governing Council.
- iv. Council shall act as trustees for the movable and immovable properties of the Society.
- v. Council should collect audited accounts from each Chapter and prepare Income Tax returns, calculate amount of tax to be paid by each Chapter, collect this amount and pay the Income Tax centrally.

- vi. Council should keep record of meetings of all Chapters for their activities.
- vii. Council should provide guidelines to conduct various activities for the Chapters.
- viii. Council would take decision on venue of Bi-annual Seminars to be conducted by Chapters.
- ix. For day-to-day activities of the governing council whose seat will be at the HQ, following arrangements will be made:

Appointment of

- Executive secretary
- Finance assistant
- Office assistant

They will be selected and appointed by Governing Council. Eligibility shall be as follows:

- a) Executive Secretary: Preferably science/Engineering Graduate/Diploma Holder with relevant working experience from a reputed organization.
- b) Finance Assistant: Commerce Graduate
- c) Office Assistant: SSC/HSC

Governing Council can decide the number & appoint them for specific period for obtaining services on contract basis. Tenure of one contract shall not be more than 1 year. Fixed monthly remunerations/honorarium is to be decided at prevailing rates.

Governing Council on valid reasons can terminate the service above three staff members

Chapters

- i. Each Chapter shall have a certification which shall contain the name, location, geographical areas covered and date on which the Chapter was granted and shall bear the name and signature of President and General Secretary of the Society.
- ii. Each Chapter shall conduct its affairs in accordance with the Society bye-laws and guidelines by Governing Council.

- iii. President of each Chapter will be vice president of Governing Council.
- iv. Chapter is authorized to raise funds for specific purposes with the prior concurrence of the Executive committee and governing council. Society being a non-profit organization, funds of the Chapters shall be utilized in the most economic/judicious manner and strictly for promotion of the Society's activities in-line with the objectives of the Society
- v. All official correspondence of a Chapter shall be on its standard letter head which shall conform to the format of the standard letter head of the Society
- vi. Governing Council may at its discretion close a Chapter after giving it notice of three months and considering any explanation the Chapter may tender for. The members of closed Chapters will be shifted to other Chapters opted by Individual. Closure of Chapter should be exceptional action and shall be undertaken only in case of non-economical functioning of Chapter or total absence of activities as described by objectives of society.
- vii. Bank Accounts of the Chapters shall be linked to the PAN of the Society.
- viii. Secretary of each Chapter shall forward to General Secretary of the Society, report of all meetings, audited accounts within 2 months after the end of each financial year failing which, the Chapter is liable to get derecognized.
- ix. Governing Council shall calculate the amount of Income Tax to be paid by Chapters and intimate the Chapters. Chapters shall transfer the amount so calculated to Governing Council and they in turn file the returns collectively for the society.

8. Election of Members

a) Governing Council

Election of Governing Council will be held alongside AGM. The election will be for the following positions:

- President
- General Secretary

- Joint Secretary
 - Treasurer
 - 9 elected members
- Presidents of individual chapters will be vice presidents of governing council and no election of vice president post will be held. The election procedure will as per the guidelines laid down by law.

b) Chapter Executive Committee

The Office Bearers of the Chapter Executive Committee shall consist of

- Chapter President
- Chapter Vice President
- Chapter Secretary
- Chapter Joint secretary
- Chapter Treasurer
- Maximum 5% of members

The executive committee will be elected amongst members of the Chapter in Chapter AGM. Chapter AGM and election shall be completed before society AGM.

c) General Points on Election of Members (Society and Chapters)

- i. The existing Governing Council and Chapter executive committee shall continue in the Office till the next Governing Council is constituted as per rules.
- ii. Term of the Governing Council and Chapter executive committee will be for 2 years, however, Members of the Council are eligible for re-nomination (not more than two terms in consecution).
- iii. Election to Governing Council and Chapter executive committee shall be governed by appointment of a Returning Officer.
- iv. Results of the election shall be communicated to each of the Members so elected within 15 days of the election by post / courier / email. However, results of the election shall be formally announced by President at the General Body Meeting.

- v. If sufficient valid nominations are not received for Council Membership by the date set for receiving the nominations, the existing Governing Council and Chapter executive committee shall have the responsibility to make appropriate nominations and Constituent Members will be notified accordingly.
- vi. The first meeting of the new Governing Council shall be held at the earliest after election.
- vii. In the event of vacancy arising in the Office of President, vice-President(s), General Secretary, Joint Secretary or Treasurer, Council/Chapter may fill up such vacancy from amongst its Members. In the event of vacancy (s) arising in the membership of the Council/Chapter executive committee, the Council/Chapter executive committee may fill up such vacancy (s) by co-opting Member (s) from the eligible Constituent Members. Constitution of the Council/Chapter executive committee shall be ratified at the next General Body Meeting.

9. Powers and Duties

a. Powers and Duties of Governing Council

Governing council shall have the Society registered under the Societies Registration Act. Council shall carry out following activities to manage the affairs of the Society. Members of the Governing Council or of duly appointed committee's sub- committees shall not be held personally liable in respect of any act done in good faith.

- i. Make, amend or delete Bye-laws for efficient management of the Society for attainment of its aims and objectives and to amend or delete any of the Bye-Laws for the time being imposed, subject to the approval of General Body Meeting, provided that Bye-laws shall not be inconsistent with the Memorandum of Society and Regulations herein continued.
- ii. Plan and carry out all such activities as deemed necessary to promote aims and objectives of the Society and to do all such acts and things as are necessary for this purpose.
- iii. Raise funds by way of subscriptions, grants, endowments etc.

- iv. Utilize funds and income for furthering aims and objectives of the Society.
- v. The Council shall have the rights and powers to take over and acquire by purchase, gifts or otherwise from individuals or institutions willing to transfer movable and immovable properties, endowments or other funds with or without any attendant obligation and engagements consistent with the objectives of the Society stated in the Memorandum of Association.
- vi. Preparation of annual budget
- vii. Enroll Constituent Members to the Society and accept their resignations from membership.
- viii. Exercise the right to refuse any application for membership, not approved by it, without assigning any reason whatsoever.
- ix. Enter into agreements with Central, State and/or Local authorities to secure rights, privileges and concessions desirable for the progress of the Society.
- x. Appoint Committee(s) endowed with such powers as may be necessary.
- xi. Nominate members for advisory committee
- xii. Identify and invite dignitaries / personalities as Honorary fellows.
- xiii. Co-opt persons to the Governing Council.
- xiv. Invite, co-opt or engage any person (s) for any specific purpose or service.
- xv. Prepare and submit to General Body Meeting a report on the activities of the Society and also of the Chapters during the previous year. Such report shall include audited statement of accounts for the previous year.
- xvi. Promote and approve constitution of the Chapters and to provide guidelines for the same
- xvii. Enter into collaboration and / or membership with any similar Organization, Institution and / or Society and to accept as well as offer concessions in respect of membership fees etc. on reciprocal basis.
- xviii. Take legal proceedings for recovery of any sum due to Society

- xix. Keep proper books of account at the Registered Office of the Society or at such other place as may be decided.
- xx. Make available various services offered by the Society to Constituent Members and others on such terms as may be decided from time to time.
- xxi. Comply with all the legal requirements and Regulations and the Societies Registration act and such other acts as may be applicable
- xxii. The Council shall have the powers to open account with one or more banks, draw, make, accept, endorse and discount cheque, notes and other negotiable instruments.
- xxiii. The Council shall have the powers to approve all financial expenditure for any activity of the Society consistent with the objects of the Society stated in Memorandum of Association and provision of the Rules.
- xxiv. The Council shall have the powers to appoint, discipline, discharge or dismiss employees and other personnel for management and functioning of the Society and regulate the terms and conditions of employment including payment of remuneration.
- xxv. Maintenance of society website is the responsibility of HQ. All chapters should provide relevant information to be added/updated to General Secretary.
- xxvi. Inter chapter issues and disputes will be referred to GC for remedial action

b. Powers and duties of Chapter Executive Committees

- i. Plan and carry out all such activities as deemed necessary to promote aims and objectives of the Society and to do all such acts and things as are necessary for this purpose.
- ii. Raise funds by way of subscriptions, grants, endowments etc.
- iii. Utilize funds and income for furthering aims and objectives of the Society.
- iv. The Executive committee shall have the rights and powers to take over and acquire by purchase, gifts or otherwise from individuals or institutions willing to transfer movable and immovable properties, endowments or other

- funds with or without any attendant obligation and engagements consistent with the objectives of the Society stated in the Memorandum of Association.
- v. Enroll Constituent Members to the Society and accept their resignations from membership.
- vi. Exercise the right to refuse any application for membership, not approved by it, without assigning any reason whatsoever.
- vii. Enter into agreements with Central, State and/or Local authorities to secure rights, privileges and concessions desirable for the progress of the Society.
- viii. Co-opt persons to the executive committee.
- ix. Invite, co-opt or engage any person (s) for any specific purpose or service.
- x. Prepare and submit to Governing council a report on the activities of the Chapters during the previous year. Such report shall include audited statement of accounts for the previous year.
- xi. Keep proper books of account at the Office of the chapter.
- xii. The executive committee shall have the powers to open account with one or more banks, draw, make, accept, endorse and discount cheque, notes and other negotiable instruments.
- xiii. The executive committee shall have the powers to approve all financial expenditure for any activity of the chapter consistent with the objects of the Society stated in Memorandum of Association and provision of the Rules.
- xiv. All chapters should provide relevant information to be added/updated in the INSARM website.

10. Powers and Duties of Members of Governing Council and Chapters

President

- i. President shall preside over all meetings of the Governing Council and General Body Meetings of the Society and shall also perform such other duties as are incidental to this Office.

- ii. President shall, when he deems proper, communicate to the Constituent Members of the Society or Governing Council, his views and make suggestions which, in his opinion tend to promote the aims and objectives of the Society. President shall be responsible for the proper conduct of the affairs of the Society.
- iii. President can appoint personnel for day to day work as mentioned para viii of section 6.
- iv. In the absence of President, one of the Vice-Presidents nominated by the President shall act for President, and shall exercise all powers and perform all such duties as are delegated by the President.

Vice-President

In the absence of the President, the appointed Vice-President shall have the powers to perform the duties of the President.

General Secretary

General Secretary, working under the direction of President will be generally responsible for carrying out work of the Society and in particular perform the following duties:

- a) Attend to the correspondence of the Society and of Governing Council
- b) Convene General Body Meetings of the Society and meetings of the Governing Council with the prior concurrence of President.
- c) Maintain minutes of the Governing Council, Annual / Special General Meetings of the Society
- d) Maintain a Register / database of Constituent Members
- e) Carry out day-to-day administration of Office of the Society.
 - Subject to the control and guidance of the Governing Council, the General Secretary shall have the powers to:
 - Exercise overall supervision over the staff and affairs of the Society and generally assist in carrying out the decision of the Governing Council

- Sign contracts and other documents as the Council may authorize and represent the Society in all legal matters, relating to or affecting the Society.
- f. General Secretary shall be an ex-officio member of committees formed by the Governing council for any specific purposes.
- g. In the absence of General Secretary, Joint Secretary shall discharge the of the General Secretary. At other times, he shall assist the General Secretary in all matters pertaining to Society.

Joint Secretary

The Jt. Secretary shall assist the Secretary in such a manner as may be required.

Treasurer

Treasurer shall be custodian of the funds of the Society and shall be responsible for maintenance of proper books of accounts, jointly with General Secretary or Joint Secretary. He will perform following duties:

- a. Be in-charge of all accounts of the Society
- b. Accept money and issue receipts on behalf of the Society
- c. Prepare annual financial statements and budget for submission to the Council
- d. Prepare IT returns, coordinate with chapter treasurers, collect amount from chapters and pay income tax.
- e. Prepare budget for headquarters including major activities such as publication of journal, visits, meetings etc. with details of breakup
- f. Provide or acquire property such as offices, conference rooms, libraries, reading rooms, and buildings, workshops, laboratories or other buildings and conveniences in connection therewith and to furnish, equip and maintain and conduct the same and to permit the same and other property of the Society to be used by Constituent Members either gratuitously or on payment
- g. In the absence of Treasurer, General Secretary shall undertake the responsibilities of the Treasurer.

- h. No Office Bearer of the Society or Member of the Governing Council shall receive directly or indirectly any salary, compensation or emoluments from Society unless authorized by the Governing Council.

Chapter President

1. The President of the Chapter shall be the Authority for management of the affairs of the Chapter and all the office bearers of the Chapter shall function under his general guidance and directions.
2. All differences, if any, regarding management of the Chapter that are not solved by the Executive committee of Chapter, shall be referred by the aggrieved members to the Secretary of the Chapter in the first instance for a discussion/decision and an appeal against the decision of the Chapter can be made to the President of the Chapter with adequate grounds.
3. The President of the Chapter, or in his absence the Vice-President, shall preside over all general body meetings of the Chapter and all meetings of the Executive Committee of the Chapter.

Chapter Vice-President:

In the absence of the President, the Vice-President shall have the powers to perform the duties of the President.

Chapter Secretary:

1. The Secretary of the Chapter or in his absence the Joint secretary of the chapter shall remain the custodian of the properties and assets of the Chapter.
2. Chapter secretary shall maintain the membership register and periodically update the same.
3. Chapter Secretary shall be an ex-officio member of committees formed by the Chapter executive committee for any specific purposes.
4. He shall also be responsible for management of the day-to-day affairs of the Chapter, including all activities such as technical meetings, seminars, conventions.
5. The Secretary of the chapter shall be competent to verify the cash and bank balances at his initiative as part of this responsibility of being custodian of the properties and assets of the Chapter.

6. All communication to Headquarters and vice-versa shall be through Secretary of the Chapter only.

Chapter Joint Secretary

The Jt. Secretary of the Chapter shall assist the Secretary in such a manner as may be required.

Chapter Treasurer:

1. The Treasurer of the Chapter shall be responsible for keeping proper books of accounts, vouchers and receipt books and compilation of the annual income and expenditure accounts and Balance sheet of the Chapter to be circulated to members before the Annual General Meeting. The Chapter should get accounts audited by a Chartered Accountant and submit the audited statement of account for the year concerned to the Headquarters within two months after completion of financial year.
2. He will be responsible for operation of the accounts of the Chapter in the banks and cash on hand, till he hands over charge to his successors or to the Secretary of the Chapter.
3. He will be responsible for payment of local taxes /levies as per statutory provisions
4. He can make payments for routine expense under his own authority up to an amount on each occasion as decided by the EC. Any payment for higher amounts can be made only after counter-signature by the Secretary of the Chapter and in the absence of the Secretary, after counter-signature by the President of the Chapter.
5. No Office Bearer of the Society or Member of the Governing Council shall receive directly or indirectly any salary, compensation or emoluments from Society unless authorized by the Governing Council.
6. In the absence of Treasurer, Chapter Secretary shall undertake the responsibilities of the Treasurer.

11. Meetings of the Society

The General Body consisting of the enrolled members with voting rights shall be the supreme body of the Society on all matters. The General Body Meetings of the Society

shall be held annually. However Ordinary or Extra-Ordinary meetings may be convened as and when need arises. General Body Meeting shall be held at such times and in such places as the Committee may decide and the following rules shall be applicable:

- i. Notice of the Meeting stating hour, date and venue and also the business to be transacted shall be given to the Members of Society, not less than 21 days before the date of Meeting.

The quorum for the annual meetings of the General body of the Society, or of the General Body of the Chapter, shall be one-tenth of the total number of members on the membership register. If the quorum is not complete within fifteen minute of the specified time, the meeting shall stand adjourned and the same reconvened on the same day at the same place after thirty minute of the time originally fixed for meeting. The business on the original agenda only shall be transacted at such an adjourned meeting irrespective of the quorum.

- ii. President or in his absence, any one of the Vice-Presidents nominated by President shall be Chairman of the Meeting.
- iii. Members who are not eligible to vote shall not be permitted to attend the business session.
- iv. Student Members, Visitors / Guests can be present during the academic sessions when papers and research reports are presented.
- v. For any motion regarding the immediate transaction of an urgent business, written notice of at least seven days, prior to the meeting, shall be necessary.
- vi. President's ruling on any motion shall be final, as decided by a show of hands, unless a ballot has been demanded prior to the voting.
- vii. Meeting shall be held with a view to :
 - a. Examine the annual report of the committee.
 - b. Confirmation of the minutes of the previous general meeting.
 - c. Consider and approve the annual income and

expenditure accounts, balance sheets or to approve any interim expenditure.

- d. Elect the Office-Bearers to the posts left vacant by resignation, retirement or due to any other reason.
- e. Review and consider budget estimates for the next two years after its approval from GC.
- f. Appoint auditors for the Society after its approval from GC.
- g. Transact any other business with the permission of the Chair.

Special General Body Meeting

Special General Body Meeting shall be convened by a call of the President or by the Governing Council or by a written petition to the Governing Council, signed by at least one third Members of the Society. Notice of the date, time and place of the meeting and the business to be transacted shall be given to the Members not less than fifteen days before the date of the Meeting. Minimum of 25% of Constituent Members and not less than 10 Members shall form quorum for any Special General Body Meeting. If no quorum is present, the Meeting shall stand dissolved without transacting any business, notwithstanding anything mentioned in Rule. A meeting convened pursuant to a requisition shall be fixed for a date not later than thirty days from the date of receipt of the requisition.

Meeting of the Governing Council

- a) Governing Council shall meet at such time and in such places as they think proper for transacting the business of the Society. (Minimum two times in an year)
- b) Meetings of the Council shall ordinarily be called by the Secretary in consultation with the President. Fifteen day notice shall ordinarily be given for convening a meeting. A meeting convened pursuant to a requisition shall be fixed for a date not later than thirty days from the date of receipt of the requisition.
- c) Five Members shall form a quorum for the meeting.
- d) Secretary shall record the minutes of all the meetings of the Council in appropriate permanent registers kept for that purpose.

- e) Each Member shall have only one vote and all matters concerning the affairs of the Society shall be decided by prescribed majority. In the case of equal votes, President of the meeting shall exercise the second or casting vote.
- f) A request to President made in writing by ten Members of the Council shall make it obligatory on the President to convene, within a month thereof, a meeting of the Council.
- g) Governing Council may invite Honorary Fellows or Specialists or persons with specialized knowledge to take part in its discussions on matters requiring expert guidance but they shall not be entitled to vote.

Meetings of Chapters

Annual General Meeting

- a. The Annual General Meeting of every Chapter shall be held in the months of April - May every year irrespective of the date on which the Chapter was formed. The Executive Committee of the chapter shall have power to obtain extension from GC by a maximum of 3 months for holding the AGM of the chapter.
- b. Notice of 14 clear days should be given by the Chapter Secretary calling the AGM of the Chapter - copies of all notices calling the AGM or Extraordinary General Meeting of the Chapter shall be sent simultaneously to the Secretary of the Institute along with copies of all annexure thereto, including explanatory statements annexed to the notice calling an Extra-ordinary General Meeting.
- c. The Annual Report of the Executive Committee of the Chapter and the Income and Expenditure Account for the preceding financial year ending on 31st March and Balance Sheet as on that date shall be forwarded by the Secretary of the Chapter to the Members eligible to be present and to vote at the Annual General Meeting, along with the notice calling the Annual General Meeting.
- d. All members of the Executive Committee, including the office-bearers, viz., President, Vice-President, Secretary, Jt. Secretary, and Treasurer shall hold office for a term of two years and no office bearer shall hold continuous office for more than two terms.

Special General meeting of Chapter

- e. There may arise special occasions when the Executive Committee of the Chapter may like to have the advice and opinion of the members of the Chapter on some important matters. There may also be some occasions when a sufficiently large number of members of the Chapter may feel the urgency for change in the programme or policies followed by the Executive Committee of the Chapter. For discussion of such important matters, Special General Meetings of the chapter members may be held in between two Annual General Meetings of the Chapter.
- f. All General meetings of the members of a Chapter, other than the Annual General Meeting shall be called Special General Meetings. Such meetings may be called to decide matters specified in the notice of the Secretary of the Chapter calling for the same with 14 clear days' notice. A requisition to call special general meeting may be sent to the Secretary of the Chapter duly signed by not less than ten members entitled to vote at General Meeting, specifying the matters to be discussed and the grounds or need to call such a meeting. The decision of the Executive Committee not to accept or accede to the requisition can be appealed against by appeal to the Institute for final decision.
- g. The quorum for the annual or the extraordinary meetings of the Chapter, shall be one-tenth of the total number of members on the membership register. If the quorum is not complete within fifteen minute of the specified time, the meeting shall stand adjourned and the same reconvened on the same day at the same place after thirty minute of the time originally fixed for meeting. The business on the original agenda only shall be transacted at such an adjourned meeting irrespective of the quorum.

12. Funds

Head Quarters

- i. All funds and properties of the Society shall be managed by the Governing Council and money shall be deposited in the name of the Society in scheduled banks/ nationalized banks approved by the Council.

- ii. Bank accounts shall be operated jointly by Treasurer, President & General Secretary of the Office Bearers of the Society. Endorsement of cheque by any two of the Office Bearers shall be adequate authority for withdrawing funds.
- iii. The contingent expense amount which could be spent without prior approval of Governing Council shall be limited to Rs. 5000/-
- iv. Funds shall be spent only for the attainment of the aims and objectives of the Society including spending on workshops, lectures, seminars, etc. conducted by the professional bodies/non-profit organizations, grant-in-aid to promote Society causes, granting aid in extra-ordinary circumstances like accidents/calamities etc. and no portion thereof shall be paid or transferred to any of its Constituent Members through any other means.
- v. Such of the funds not required for current expenses may, at the discretion of the Governing Council, be invested in such manner as may be decided.
- vi. General Secretary and Treasurer shall hold an imprest fund as authorized by the President from time to time for defraying day-to-day expenses of the Society. They shall maintain a petty cash statement.
- vii. When a Chapter of the Society is in operation, out of the total amount comprising in respect of the membership fees covered by the Chapter, 50% shall be with the Governing Council.
- viii. The HQ will generate funds through Chapters and by other activities so as to maintain its office on regular basis.

Chapter

- i. The Executive Committee of a Chapter shall not have power to raise loans for its expenses whether of a Capital or Revenue nature, without the prior approval of the GC.
- ii. In respect of seminars, refresher courses, conferences, seminars, training programs etc. organized by the Chapter separate income and expenditure account shall be prepared by the Treasurer for each such item. 1/3 of the net surplus shall be remitted to the Head Quarters

- within a reasonable time but not exceeding three months from the closing date of the seminar. 2/3 of the net surplus will be retained by the Chapter.
- iii. Provided that in the exceptional cases where more funds are required to be at the Chapter, the matter of division of funds shall be decided by GC of the society with noting of the due justification for the new allocation.
 - iv. With regard to seminars and conferences, each Chapter is expected to raise adequate funds by way of donation, delegate fees, advertisements in the Souvenir etc. to meet the budgeted expenses for each seminar, conference, etc.
 - v. Only with the prior approval of the GC of the Society, the Executive Committee of any Chapter may acquire or dispose assets in the form of immovable property. However, permission of the GC of the Society will not be required by the Chapter to accept gifts of books and periodicals or to purchase assets as per annual budget of the Chapter as approved by the GC of the society.
 - vi. The Chapter Treasurer shall maintain a Register of Assets of the Chapter in the form required by the Auditors of the Chapter with adequate details of nature of assets, quantity, value, location etc. and it will be the duty of the Chapter Secretary to see that the Register of Assets is maintained properly and to verify the physical existence of all Chapter assets, at least once in the year, in the last week of January. Discrepancies in stock noticed should be reconciled and properly adjusted in the Register of Assets. Also losses in sale of assets or profits on sale of assets should be accounted for properly.
 - vii. The Treasurer of every Chapter shall forward to the Institute Headquarters annually the income and expenditure account and Balance Sheet as on 31st March, duly audited by a qualified Chartered Accountant along with other documents (such as certificates for Cash & Bank Balance, Fixed Assets and investments of the Chapter, certificate for provision to be made.
 - viii. All Chapters shall have their respective bank accounts with account name "INSARM xxxxx Chapter" at suitable

branches of Nationalised banks /Scheduled bank and keep all records of the account. They will use PAN of the society for all transactions.

- ix. Chapter Bank accounts shall be operated jointly by Treasurer, President & Secretary of the Chapter. Endorsement of cheque by any two of the Office Bearers shall be adequate authority for withdrawing funds.

13. Audit

- i. The assets and liabilities and the balance sheet of the Society shall be drawn up by the Treasurer, duly audited and shall be laid before the Annual General Body Meeting for confirmation.
- ii. The accounts of Head Quarters and Chapters shall be audited by a Chartered Accountant or Government Accounts Officer of the associated establishment, when the total annual transactions exceed Rs 50,000/- and in other cases by one of the General Council/Chapter executive Committee member respectively nominated by it, other than President, Honorary Secretary and Honorary treasurer
- iii. An auditor who is a Chartered Accountant within the meaning of the Chartered Accountants Act 1949 shall be appointed at the General Body Meeting, on such remuneration as the General Body Meeting may decide, to audit the accounts of the Society and to report there on to the General Body Meeting.
- iv. The existing Auditor shall be appointed by the Governing Council to hold Office until an Auditor is appointed in the next General Body Meeting.
- v. In case of a casual vacancy of the Auditor, the Governing Council shall appoint another Auditor in his place. An auditor thus appointed shall retire at the ensuing General Body Meeting.
- vi. A Member of the Governing Council shall not act as an auditor.
- vii. Any Constituent Member of the Society may inspect the accounts of the Society with previous appointment with the Treasurer.

- viii. Chapter shall submit audited balance sheet to Headquarter after its presentation and ratification by its General Body Meeting (Chapter).
- ix. Accounting year shall be 31 March of the calendar year.
- x. Every Chapter will make its financial statement, get it duly audited and submit the same to the governing council at the end of financial year.
- xi. Governing council will consolidate those audited statements and prepare a financial statement for society and get it audited.
- xii. Thereafter, governing Council will prepare Income Tax Returns, pay income tax and intimate each Chapter the amount of Income Tax due from the Chapter and collect the same.
- xiii. Head Quarters shall also prepare their audited statements and calculate income tax and file returns.

14. Property

- i. Governing Council shall have the powers to sell, transfer or otherwise deal with, dispose-off and use all movable and immovable properties of the society in such a manner as it considers conducive to the best interest of society and has to be ratified by General Body within three months.
- ii. The Chapter can only dispose off immovable properties acquired by the chapter with prior concurrence of the Council and the Council can take such action only if the branch ceases to exist.

15. Logo

Logo of the society should be used by Head Quarters/ Chapters in official correspondence and letter heads. Logo shall also be used in Display Banners and Posters prepared for the purpose of Seminars/Workshops/Symposia. No alterations of logo shall be made. Chapters shall incorporate Chapter name, eg., "Pune Chapter" below the logo. INSARM logo shall not be used in any manner that expresses or might imply the society's affiliation, sponsorship, endorsement, certification or approval of any product if it is not intended. The logo shall be resized to accommodate a specific use but the text within the logo shall be legible.

16. Indemnity

No Member of the Governing Council or Executive Committee of any Chapter or other Officer Bearers of the Society shall be liable for the acts, neglects or defaults of any other Constituent Member of the Society or for any loss or expenditure happening to the Society through the insufficiency or deficiency of title to any property acquired by or on behalf of the Society or for the Society or for the insufficiency or deficiency of any surety in or upon which any of the money of the Society shall be deposited or for any loss or damage arising from bankruptcy, insolvency or torturous act of any persons with whom any money, securities or effects shall be deposited or for any loss on account of error of judgment, omission, of oversight on his own part or for any other loss, damage or misfortune whatever, which shall happen in relation to the execution of the duties of his Office or in relation thereto unless the same happens through his own willful default or neglect.

17. Privileged Communication

All communications, correspondence, reports, minutes, papers and documents related to the admission of the Constituent Members or the forfeiture of membership of any Constituent shall be privileged and confidential and shall not be passed out of the custody of the concerned Office Bearer nor shall any of the contents be disclosed outside the Governing Council, unless authorized by the Council.

18. Amendments

The provisions contained in these Presents shall not be altered, abridged, modified or cancelled except in the manner provided below:

- i. Amendments to these Presents may be proposed by means of resolutions adopted by the Council or by means of a petition signed by at least 10 % of the Members, eligible to vote.
- ii. The Council should submit any such proposal for amendment of any of the provisions herein contained in the form of a report to all the Constituent Members by sending it to their registered addresses by post / courier / email, 21 days prior to the date of General Body Meeting

in which the resolution for such amendments shall be moved. The resolution shall be carried by 2/3 majority of the total votes cast at the meeting.

- iii. The date on which an amendment shall take effect shall be decided by the General Body Meeting.
- iv. Every change in these Presents shall be filed with the Registrar of Societies for registration within three months from the date of its adoption.
- v. Copies of the amendments shall be circulated to all the Constituent Members of the Society.
- vi. Any change in the name of Society, aim of Society or amalgamation of Societies shall be done as per Societies Registration Act 1860, Sec. 12 & 12 A.

19. Dissolution

- i. The Society may be dissolved, if so decided, in accordance with the provisions under Section 13 and 14 of the Societies Registration Act 1860.
- ii. Absence of any specific provision in these Rules or in the Constitution of the Society, as amended from time to time, the Societies Registration Act, 1860 as well as the Rules made there under shall apply.



CHAPTER 4

BYE-LAWS

1. Purpose
2. Membership
3. Admission
4. Expenditure
5. Society Representative
6. Common Seal

1. Purpose

These Bye-laws provide authority and direction in achieving the aims and objectives of the Society as set-forth in its Memorandum of Society and rules and Regulations made there under and to ensure consistency and efficiency in the administration of its affairs.

These Bye-laws shall be complementary to the Memorandum of Society and the Rules & Regulations and shall be deemed ultra-vires where and to the extent they are inconsistent with the same.

2. Membership

The last known registered address of all Constituent Members shall be considered as valid mailing address for correspondence by the Society.

3. Admission

- i. Application for admission to relevant Chapter, the Membership of the Society shall be made to the Secretary in the prescribed form who shall place it before the Executive Committee of Chapter for its consideration.



The Executive Committee of Chapter shall have the discretion to accept or reject an application without assigning any reasons.

- ii. List of accepted members and their details will be enrolled in register maintained by the Chapter. Same will be further transmitted to General Secretary of Governing Council for their records.
- iii. For admission as Honorary Fellow, proposals, in writing shall be submitted by the President or a Vice-President of the Society. The proposal shall contain sufficient information to indicate that the qualifications required for this class of Membership are met. On acceptance of the proposal by the Governing Council, the General Secretary shall seek the consent of the person before inviting him to join the Society. The conferment of Honorary Fellowship shall be done normally during the General Body Meeting / Conference.
- iv. Intimation of admission to membership shall be sent to the applicants together with copies of the Memorandum of Society, Rules and Regulations and Bye-laws of the Society to which he shall be deemed to have agreed.
- v. The name of any Constituent Member whose conduct has been found to be against the interest of the Society shall only be removed from the roll after a resolution to this effect has been passed by at least two third majority of the Members of the Governing Council.
- vi. Membership of a Constituent Member of the Society ceases (a) on death (b) resignation (c) suspension and (d) removal by the Council.

4. Expenditure

- i. Chapter Executive committee shall have the power to

incur expenditure up to Rs. 5 lakh per event and beyond Rs. 5 lakh with the ratification in the GC.

- ii. Chapter Executive committee shall have the power to incur day-to-day expenditure within the limits of Rs. 5 lakh per year.
- iii. For defraying day-to-day expenses, the General Secretary and the Treasurer shall hold an imprest fund as authorized by the Governing Council. The same shall be applicable to Chapter as well.
- iv. The President may authorize any Constituent Member to incur expenditure for any specific purpose within the limits approved by the Governing Council.

5. Society Representative

The Governing Council shall have the authority to nominate representatives of the Society to serve on committees of other bodies and to brief them. The representatives shall report to the Governing Council, the business transacted during the meeting in which they have represented the Society.

6. Common Seal

The Governing Council shall provide a common seal of the Society and make rules for safe custody and use thereof, and it shall never be used except by the authority of the Governing Council previously given. Every instrument to which this seal is affixed shall be signed by the President and in his absence by any of the Vice-Presidents, and every such instrument shall also be signed by the General Secretary or some other person authorized by the Governing Council.

K GOPALA KRISHNA PILLAI

K. Gopalakrishna Pillai, born in 1946, in Punalur, Kerala is a post graduate in Engineering from College of Engineering, Thiruvananthapuram. He joined Vikram Sarabhai Space Centre in 1974 after small stint in industries. During his service spanning more than three decades, he was actively involved in design, development, facility build up and testing of Aerospace Mechanisms for launch vehicles SLV3, ASLV, PSLV, GSLV and GSLVMK3. After superannuation in 2006, as senior Scientist/ Engineer, he was Professor and Head of the Department of Mechanical Engineering in an Engineering College. He was also a member of design review committees of various DRDO projects. He is Member / National Executive Member in many technical associations like INSARM, ASI, SAME, ISAMB. He is the author of more than 250 internal documents and more than 12 publications in national and 4 publications in International Journals/Seminar Proceedings.

He is the recipient of Dr. Biren Roy Trust Award from Aeronautical Society of India and Life Time Achievement Award from Indian National Society for Aerospace and Related Mechanisms (INSARM).

He was the founder General Secretary of Indian National Society for Aerospace and Related Mechanisms for ten years.

M. K. ABDUL MAJEED

Manam Kandath Abdul Majeed, born in Guruvayoor, in 1939, joined TERLS, VSSC in 1966 after his PG in Engineering. He was with Dr A.P.J. Abdul Kalam's team in the early days for Indian space program. His first assignment was to develop a payload recovery system for Centaur rockets. A recovery experiment was conducted in 1972 at Korou, French Guiana as suggested by General Obnier, chief of ESA and Dr. Sarabhai. The payload was successfully recovered from Atlantic Ocean. This was the fore runner of reusable payload and launch vehicle mechanisms in ISRO. Innumerable pyro systems, mechanisms, were developed since then.

He joined SLV-3 project team in 1973 and was responsible for launch vehicle mechanisms and stage auxiliary systems of SLV -3. After successful completion of SLV-3, he moved to Aerospace Design and Dynamics Group headed by Dr.Kalam. During this period, Aerospace Mechanism Facility at Valiamala was established along with Dr. S. Sreenivasan, the then Project Director, PSLV project. Majeed had also worked in the areas of microgravity simulation, reusable launch vehicle, vehicle integration, space system management etc.

He had presented papers in Aerospace Mechanism Seminar at Goddard Space Flight Centre, Pasadena sponsored by NASA and Space System Seminar in University of Tokyo, Japan.

After retirement from ISRO, he had been associating with DRDO projects.

He is a recipient of Indian President's Excellence Award, for contribution towards space technology and VASVIC National award for contributions for Mechanical Sciences.

He is the founder president of INSARM which is his brain child.