



**COUNCIL OF VIBRATION SPECIALISTS (CVS)**

# **INAUGURAL CEREMONY SOUVENIR**

**August 2021**

**[www.covs.in](http://www.covs.in)**

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# Editorial Note



**Dr Vasant Matsagar**

*Chair - Research, Publications and Knowledge Management*

Dear Readers,

Greetings on the "Azadi Ka Amrit Mahotsav". I am glad to release the Council of Vibration Specialist's (CVS) first edition of eSouvenir. On the auspicious day of our Independence - 15th August 2021 - the CVS has been inaugurated. Highly motivated technical minds joined hands together and formed the CVS for the promotion of the vibration science and engineering discipline. On this day of the inauguration of the CVS, enriching deliberations took place on various interdisciplinary aspects of vibration science and engineering. The eSouvenir is an attempt to highlight some of these technical discussions.

In this eSouvenir, we have presented details of the CVS, various Chairs, and keynote addresses made by pioneering researchers in the area of vibration. The eSouvenir also included important messages delivered by our President, Secretary and Director-General. The details of the Inaugural Ceremony are provided along with details of the membership requirements of the CVS.

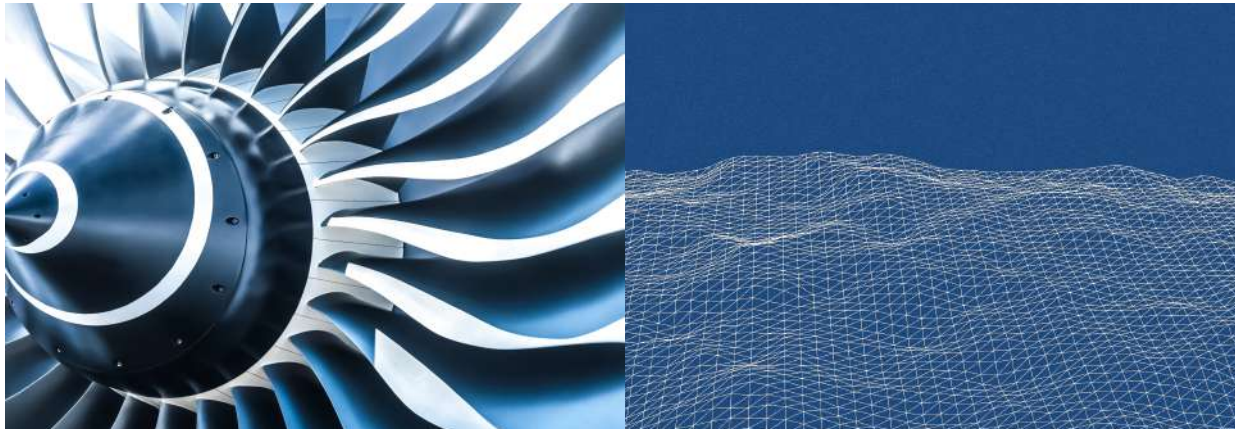
The editor of this eSouvenir wholeheartedly presents this text for the readership to know more about "vibrations"!

Wishing you happy reading.

# About CVS

The Council of Vibration Specialists (CVS), a first of its kind non-profit organisation in the country that's exclusively based upon vibration science. The council was formed by expert professionals with extensive experience in Vibration Science and Engineering. Hailing from academic and industrial domains, our experts relentlessly endeavour to scale up the reach of this interdisciplinary specialisation.

There could be a need to address design reviews, reengineering in systems or components from the site-experiences of vibration-induced flaws, to bring awareness in every industry on huge energy-savings possibilities from machines with undesired high vibration and to speed up the vibration diagnostics and prognostics mechanism to a higher level of accuracy. A feat that can be achieved through the effective management of vibration knowledge and by empowering the engineers with necessary world-class skills and theoretical inputs along with specialised certifications on vibration.



## Vision

CVS aspires to be the center of eminence at the national and global level for the dissemination of knowledge in the field of vibration science and engineering, through training and post graduate studies, to formulate standards, collaborate with national and international regulatory bodies on vibration science and engineering, to develop and compile information in the field to assist engineers in building reliable, vibration free, stable and longer lasting products in the form of machines, structures and systems.

## Mission

To provide a platform for scientists, researchers and engineers to come together for exchange of vibration knowledge through training programs, seminars, conferences, campus and corporate visits, vibration solution services, recognition of contribution made by the experts in the fields. To collaborate with similar national and international institutes and organizations for imparting customized various levels of certified training programs, certifying the asset's integrity in industry and enhancing people's capability in solving vibration problems.

# Message from the President



**Dr H.S. Gambhir**  
*President & Founding Member*

Ladies and gentlemen, good afternoon and a Happy Independence Day to all.

On behalf of the CVS, I warmly welcome you all to the inaugural event.

I am honoured to be in the midst of such distinguished guests, VIPs, and equally eminent delegates. Some of our Guests of Honour are from Canada and from the USA. We are grateful that even at this odd hour for them, they have agreed to speak and enlighten us. Thank you so much. It all started last year when Dr Pyne first interacted with me on founding this non-profit institution. The entire credit for doing the spadework and stitching all the fifteen founding members together goes to Dr Pyne - the Secretary and Director General of this institution. More about the team later.

Now, some information regarding the CVS.

CVS' Vision is to be the global centre of eminence for vibration science and engineering. And our Mission is to achieve our vision.

CVS aims to provide a platform for scientists, researchers, industries, engineers, and students to come together for the exchange of vibration knowledge through training programs, seminars, conferences, campus, and corporate visits.

We aim to collaborate with similar national and international institutions and organisations for imparting customised and various levels of certified training programs for engineers and students. And thereby certifying the asset's integrity in the industry and enhancing people's capability in solving vibration problems.

We will review, modify, and help to evolve vibration standards in the fields of emerging domains such as smart structures, transportation systems, machinery, etc. We will also provide specialised services to industry in this field.

Our aims are high; but we will always need support and guidance from knowledgeable persons like our Guests of Honour, Keynote Speakers, VIP Guests, all of whom have been just briefly introduced. We also seek the support of delegates, many of whom are also equally eminent and knowledgeable personalities, without whose support this institution cannot grow.

Now about our Governing Council team. This is a group of eminent scientists, academics, and engineers dedicated to sharing with society their vast knowledge and experience in the field of vibration science and engineering.

CVS has taken this unique initiative to bring expertise from various segments on a common platform. It will therefore bring together all the stakeholders, i.e., the users, manufacturers, consultants, system integrators, engineering, procurement, and construction (EPC) companies, researchers, and academicians – including students, to facilitate the exchange of knowledge on the latest technology trends, and their experience in these domains.

We urge all of you to apply for membership in this Institution to make it strong and vibrant. Presently, we are operating from Mumbai. In the near future, we hope to open our chapters in other cities in India and abroad.

During this COVID situation, the health and safety of all are of paramount importance. Hence, until the situation improves, we will leverage digital and virtual platforms to deliver valuable content.

We are fortunate to have such eminent speakers today. I am thankful to all of them for taking out valuable time and sharing their technical expertise.

I am sure that all the participants will benefit by gaining technical knowledge and information in this short time.

Stay Safe, Stay Healthy.

Jai Hind.



# Message from Secretary & Director General



**Dr Tarapada Pyne**  
*Secretary & Director General*

Good afternoon and happy Independence Day! Azadi Ki Amrit Mahotsav and CVS's Utsav too!

On behalf of the CVS, I welcome you to this momentous day of the CVS's journey. We are truly privileged to have eminent guests, key dignitaries, and a considerable number of specialists and vibration practitioners across the globe - from both industry and academia.

Vibration is not new to all of us. It is omnipresent. We experience it in our day-to-day life, in our bumpy rides, in kitchen grinders, in industrial machinery, uneasy trap inside magnetic resonance imaging (MRI) scanner, when handset suddenly vibrates, while landing in an aircraft, in the drop of cosmonaut's capsule, when tectonic plates hug each other and so on. Vibration is everywhere! Frequently talked about and considered as most of the industrial problem's manifestations of failure modes. All these are truly unpleasant!

Such responses were so rampant over the decades that we, in the industry, have started talking about and taking 'vibration' as the cause of all problems and because of vibration, plant surprises or failures are happening. A general feeling among engineers in the industry is that it's a very complex subject and rests with esoteric few employees within the organisation. Our day-to-day industry gossips, Root Cause Analyses (RCAs), Reliability Centred Maintenance (RCMs), Failure Mode Effects and Criticality Analysis (FMECA) reports, equipment data sheets, rotor specifications, vibration unit descriptions, standard values vs. site's reality still carry errors, even in large corporations to this very day.

Dear diagnostic fraternity, this thought process became detrimental to the solutions of vibration problems. Why so? As long as we don't question the reasons behind vibration, we can't come out with solutions. Of course, there are exceptions in a few pockets, in an established lab (at industry and academia run by few specialists).

There is no paucity of experts in higher education, vibration physicists, engineers and the present knowledge base is also very rich. But there is a disconnect between the expertise, between industry and academia, between applications, between vibration hardware, software to software and now lately with predictive analytics where there is a mismatch between asset owner's needs and the offerings.

These basic observations over the decades, direct us to address more on the subject of vibration. That includes knowing the vibration physics, its source and effects, its varying impacts on structure, piping and rotary assets, most importantly in creating a workforce that can rightly take up the industry tasks related to vibration with the main focus on employability.

Academic stakeholders need to be equipped with all prerequisites in tackling vibration issues, be it through a formal study or their interactions with industry. CVS aspires to accomplish these and hence are the reasons why it is formed.

## **Formation of CVS**

It was just the predawn of Republic Day (the birthday), the CVS was formally registered with the Government of India and today is Independence Day (the first step). CVS now has started walking, seeking helping hands from all the stakeholders of vibration.

There are few gaps, as given below, that need to be bridged and why, in India, we require an organisation that is fully dedicated to vibration.

- Employability of Vibration Engineers (VE) remains to be a dominant problem and on the other hand, there is going to be a sharp increase in demand for VE due to the possibility of high market growth on vibration-related infrastructure, the services including diagnostics and prognostics requirements (approximately 2 Bn. USD by 2026 with CAGR 6.8% - market-market survey).
- Education on vibration - The subject still carries the burden of 'Optional' in most of the institutes at the undergraduate level or in few cases, it is included in few chapters in the syllabus. The student's isolated awareness on opting the subject at postgraduate or PhD levels either through the route of fundamental physics or through the specific department of mechanical, centres in engineering, or research cell. The interdisciplinary needs of the vibration specialisation, which has wide target applications in every branch/sector of engineering, and equally in industry, is not well propagated.
- Training and certifications - The professional industry-oriented training process is solely conducted by private institutes or organisations, mostly by overseas establishments. But the employability remains to be an issue, unlike certifications.
- Certification rush - There is a certification rush to get certified from overseas authorities by paying huge fees and the undesired over-dependence is evident when India is well-equipped with vibration experts.
- Visibility in seminars/conferences - In most Indian conferences, it is found continually that there is less or no space for vibration topics.
- Earthquake and tectonic vibration study - It carries a general perspective with no awareness of its oscillation phenomenon and remains in academic research and within a few capsules of government bodies. There is a dearth of rightly trained engineers/ technicians in the sensing systems development and the training of technicians, as well as field engineers in the seismic study for building, high rises, bridges etc.
- Structural and piping vibration - This aspect of vibration study still lacks awareness regarding the need for a unified or integrated way of study with the rotating machines in the industry.
- Vibration is one of the biggest energy eaters in industry and fewer attempts are made in industrial vibration-oriented energy saving calculations. (Energy-efficient rotor dynamic designs should take precedence over energy harnessing from undesired vibrating machinery).
- Contribution of predictive analytics in Industry 4.0 - There appears to be a mismatch between hype and reality. (This is to be addressed from the right perspective of effective asset management and asset owner's needs).



## CVS's Path in Filling the Gaps

CVS' activity framework is constructed on 11 pillars, the Chairs covering all important aspects of vibration business in industry and academia. They are empowered to take the above-mentioned challenges and are committed to accomplishing the objectives of the CVS by adhering to the bye-laws in a transparent manner.

### Summary of activities are to:

- Provide a platform to vibration engineers, technicians, students, in fact to all stakeholders.
- Acquire and share vibration knowledge (through effective knowledge management on vibration and related reliability subjects).
- Reward vibration knowledge and the vibration knowledge experts.
- Sincere attempts to attain and become the mouthpiece of the nation's vibration issues.
- Represent in vibration committees, formulate, and improve standards.
- 'Certify' but build on 'Employability' (there is a need of sharing a so-called complex system in a simplified way).
- Integrate structural, rotary, seismic oscillation together (in terms of industrial solutions, professional training, and certifications).
- Be a resource point for students' projects, thesis, research papers.
- Collaborate with universities and institutions (PG programs - future diagnostic engineering and management), development of sensors, interdisciplinary research, through other platform-outlets at Students' Chapters.
- Supporting the industry in the area of vibration specifications, manuals, acquiring surveillance systems and services.
- Conduct international conferences on vibration, publications, felicitate renowned experts in the field.
- One Industry One Vibration Engineer – CVS is committed to developing at least one vibration engineer or technician for free of cost with basic vibration subject inputs in every unit or plant of India.

## **CVS's Appeal to Diagnostic Fraternity**

**CVS needs the support of all stakeholders of vibration, practising in India or abroad.**

- You are requested to join this expert community, the first institute or society or forum whatever you wish to name it, exclusively on vibration in India. Let us make a difference in the way we nurture this specialisation.
- Engineers in India or overseas to use this platform in disseminating knowledge, for business growth, play an active role in various committees and be proud to say "Yes we too can enrich the subject, certify engineers, reward them for the ultimate benefits to industry (human or machines) and the nation as a whole". Let us try to become "Atmanirbhar in Vibration".
- Contribute to the Body of Knowledge as well as receive solutions to vibration problems.
- Take part in vibration conferences and get rewarded for the expertise.
- National and international vibration-based Original Equipment Manufacturer (OEM) are welcome to leverage the CVS platform for healthy competition in India.
- In academia, we appeal to academicians to propagate this interdisciplinary vital specialisation in their formal study. The thought-process will then generate among the student and faculty fraternity, a multidisciplinary vibration engineering trait that would oscillate in their minds for higher employability available in the industry's current trend on Asset Management.

Thanks for your virtual time. Wish you all Happy Independence Day! Together, we can!



# Office Bearers



**Dr Harvindar S. Gambhir**

*President*



**Dr Aparna Dey Ghosh**

*Vice President*



**Dr Tarapada Pyne**

*Secretary & Director General*



**Dr Sidappa M. Khot**

*Treasurer*

# Committee Chair List



**Dr Arun K. Jalan**  
*Chair - Collaboration  
(Institute/Industry/  
Vibration & Sensor OEM)*



**Dr Chinmaya Kar**  
*Chair - Technology,  
Instrumentation &  
Predictive Surveillance*



**Er L. J. Swaminathan**  
*Chair - Conference/  
Symposium, Marketing,  
Sponsorship, Website*



**Er K. K. Gajpal**  
*Chair - Rotary (Services  
and Supports)*



**Er Madhusudan Nagaraja**  
*Chair - Training, Placement,  
Certification & Accreditation*



**Er Mukesh Shah**  
*Chair - Membership*



**Er Neeraj Bhargava**  
*Chair - Student Section*



**Er Pola Sreenivasulu**  
*Chair - Standards,  
Practices, IPR, Patents*



**Dr Srinivas Voggu**  
*Chair - Static, Seismic,  
High-Speed Rails, Bridges  
(Services & Supports)*



**Dr Vasant Matsagar**  
*Chair - Research,  
Publications & Knowledge  
Management*

# CVS Inauguration Agenda & Sequence of Events on Sunday, 15<sup>th</sup> August 2021

EVENT/ACTIVITY	TIME (IST)
<b>Opening of the Event</b>	2:00-2:05 p.m.
<b>Welcome &amp; Introductions</b> <ul style="list-style-type: none"> <li>• Saraswati Vandana Recital</li> <li>• Welcome &amp; Introduction to Guests of Honor &amp; Key Dignitaries</li> <li>• Launch of CVS by Guests of Honour with Traditional Lamp Lighting Ceremony</li> <li>• Video Release of CVS</li> <li>• Inaugural Address by President &amp; Founding Member Dr H.S. Gambhir</li> <li>• About CVS by Secretary &amp; Director General Dr Tarapada Pyne</li> </ul>	2:05-2:30 p.m.
<b>E-Souvenir Release by Guests of Honour</b>	2:30-2:45 p.m.
<b>Overview of CVS (Part-I)</b> <ul style="list-style-type: none"> <li>• Technical Core &amp; Subject Matter Expertise by Dr (Prof.) Vasant Matsagar</li> </ul>	2:45-2:55 p.m.
<b>Inaugural Address # 1 by Guest of Honour Dr (Prof.) R.N. Iyengar</b> <ul style="list-style-type: none"> <li>• Professor, Indian Institute of Science (IISc), Bangalore &amp; Former Director, Council of Scientific and Industrial Research - Central Building Research Institute (CSIR-CBRI), Roorkee</li> <li>• <i>Topic: Vibrations: The Pleasant &amp; Unpleasant</i></li> </ul>	2:55-3:05 p.m.
<b>Inaugural Address # 2 by Guest of Honour Dr (Prof.) T.G. Sitharam</b> <ul style="list-style-type: none"> <li>• Director, Indian Institute of Technology (IIT), Guwahati</li> <li>• <i>Topic: Soil Dynamic, Geotechnical Earthquake Engineering &amp; Vibration Sensors</i></li> </ul>	3:05-3:15 p.m.
<b>Overview of CVS (Part-II)</b> <ul style="list-style-type: none"> <li>• Standards, Knowledge &amp; Credits by Dr (Prof.) Aparna Dey Ghosh</li> </ul>	3:15-3:25 p.m.
<b>Inaugural Address # 3 by Guest of Honour Dr (Prof.) D.K. Maiti</b> <ul style="list-style-type: none"> <li>• Former Head of Department of Aerospace Engineering, Indian Institute of Technology (IIT), Kharagpur</li> <li>• <i>Topic: Structural Health Monitoring of Composite Structures</i></li> </ul>	3:25-3:35 p.m.
<b>Inaugural Address # 4 by Guest of Honour Dr Prakash Patnaik</b> <ul style="list-style-type: none"> <li>• Principal Research Scientist, NRC Aerospace Research Centre, Ottawa, Canada</li> <li>• <i>Topic: Relevance of Vibration in Aerospace and Space Context</i></li> </ul>	3:35-3:45 p.m.
<b>Overview of CVS (Part-III)</b> <ul style="list-style-type: none"> <li>• Promotion, Collaboration &amp; Membership by Er L.J. Swaminathan</li> </ul>	3:45-3:55 p.m.
<b>Inaugural Address # 5 by Keynote Speaker Mr Andrew Hubbard</b> <ul style="list-style-type: none"> <li>• Chairman - ISO Committee (Vibration, Shock &amp; Condition Monitoring)</li> <li>• <i>Topic: The Purpose of ISO Standards</i></li> </ul>	3:55-4:10 p.m.
<b>Q&amp;A, Open Forum by Dr Srinivas Voggu</b>	4:10-4:25 p.m.
<b>Vote of Thanks by Dr Sidappa M. Khot</b>	4:25-4:30 p.m.

Zoom Meeting Link

CVS Inauguration 150821 | Meeting ID: 811 5102 8535 | Passcode: 150821

## Guest of Honor



### **Dr (Prof.) R. N. Iyengar**

*Ex. Professor, Raja Ramanna Fellow, Indian Institute of Science (IISc), Bangalore, Ex. Director, Council of Scientific and Industrial Research - Central Building Research Institute (CSIR-CBRI), Roorkee.*

Dr (Prof.) R.N. Iyengar is an Ex-Professor in the Indian Institute of Science (IISc) Bangalore, former Director, Council of Scientific and Industrial Research - Central Building Research Institute (CSIR-CBRI), Roorkee, as well as a Raja Ramanna Fellow at IISc, Bangalore. On the inauguration day of the CVS, he gave an inaugural address on the topic “Vibrations: The Pleasant & Unpleasant”.

He spoke about the various kinds of classification of vibrations as pleasant, unpleasant, and neutral. He shed light on the field of vibration by indicating that this whole world is nothing but a result of vibrations. And if any two kinds of frequencies get resonated with one another it will create discomfort. He touched upon the theory of vibrations by taking examples from Indian classical music and instruments wherein he took the example of musical instrument ‘Veena’. He discussed the enormous contributions made by our country in the pleasantness aspect of the theory of vibration or the properties of vibrations.

Prof. Iyengar indicated that in Indian classical music, the vibrations which are produced in a continuous spectrum are pleasant in behaviour. He explained this by giving an example from ‘Bharata’s Natya Shastra’, which describes an experiment on the vibration of strings by taking two different ‘Veenas’.

He also noted India’s long knowledge and tradition of studying the science of vibration of musical instruments with a reference to not only the musical instruments but also the human voice as they cannot be separated from each other. Over the centuries, the artisans and skilled workers have designed and developed Sitar, Veena, Flute, Sarangi, Mridangam, Tabla, Pakhawaj, Ghatam, Khanjira, etc. which show that Indian Classical music is the science of pleasant vibrations and our numerous Sanskrit texts are the witness of this.

## Guest of Honor



**Dr (Prof.) T. G. Sitharam**

*Director, Indian Institute of Technology (IIT), Guwahati.*

Dr (Prof.) T.G. Sitharam is the Director of the Indian Institute of Technology (IIT), Guwahati. His areas of interest are in soil dynamics, geotechnical earthquake engineering, and vibration sensors. His speech was on topics such as soil dynamics, geotechnical earthquake engineering and vibration sensors. Prof. Sitharam introduced the status of geotechnical engineering in the country as well as the complex nature of soil material.

The presentation explained the topics under soil dynamics which are characteristics of dynamic properties of soil, determination of dynamic earth-pressures, the analysis and design of foundations under dynamic loads, dynamic soil-structure interaction, etc. He focused on the areas of soil dynamics and the problems in the field of soil mechanics. And emphasized the elegant methods used for theoretical analysis by the large group of researchers who have brought a significant change in this field - particularly in geotechnical engineering - to observe how we can prevent damage induced in the infrastructures during earthquakes by studying the waves which pass through the soil and reach buildings.

Prof. Sitharam discussed the soil dynamics and earthquake engineering disciplines which addresses the evaluation of dynamic properties of soil, basic mechanical theory of dynamic response, and the overall understanding of earthquakes. He presented his seminal works on the characterisation of regional seismic source zones in and around India towards preparing an updated "Earthquake Catalog". This basically considers three pertinent topics for the current professionals and researchers, i.e., probabilistic seismic analysis, particularly liquefaction, and seismically induced displacements in the soil-structure interaction problems. In broad terms, the approach is to look at it from a more practical way in solving the very real problems which exist in the field. Subsequently, he talked about dynamic site characterization and correlation of shear wave velocity with standard penetration test 'N' values. Towards the conclusion, Prof. Sitharam talked about instrumentation in geotechnical engineering and field deployment. He gave the example of the Piezo-Vibro-Cone System, a patented system developed by him for fracking of shale rock using shock waves.

## Guest of Honor



### **Dr (Prof.) Dipak Kumar Maiti**

*Professor and Ex. HOD of Aerospace Engineering at Indian Institute of Technology (IIT), Kharagpur.*

Dr (Prof.) Dipak Kumar Maiti is a Professor and Ex. Head of the Department (HOD) of Aerospace Engineering at Indian Institute of Technology (IIT), Kharagpur. Prof. Maiti delivered his presentation on the topic Structural Health Monitoring of Composite Structures on the inaugural function of the CVS. He introduced structural health monitoring based on the vibration signal to determine the flaws present in the structures, if any, and to measure the density of the damage.

To consider the composite structure, they have their special advantages due to their low weight and high stiffness, which is why they are popular amongst civil, mechanical, and aerospace engineering - specifically in aerospace structures. It is highly preferred because to fly the vehicle in different manoeuvring conditions, a reduction in the overall weight of the structure is required. Also, he mentioned that within composite structures, delamination and fiber breakage are very common phenomena that may not be visible from the outside. So, in this condition monitoring the vibration characteristics of the structures could help to find out the condition of the structure or the health of the structure. To detect the damage or health monitoring of the structure, Unified Particles Swarm Optimisation (UPSO) is used along with several other algorithms. He suggested certain concepts such as *pbest* (particle best), *gbest* (global best), *lbest* (local position of the particle).

Prof. Maiti laid down his explanation on a few other concepts also. They are artificial bee colonies, Teaching-Learning Based Optimisation (TLBO), Ant Colony Optimization (ACO). Through this brief lecture, Prof. Maiti gave information that with the help of vibration signals we can make the process of the data, both natural frequency and mode shape, to find out the damage index in the structure. And this location of the damage index can help to find out the health of the structure.



## Guest of Honor



### **Dr Prakash Patnaik**

*Principal Research Scientist, Aerospace Research Centre,  
National Research Centre (NRC), Ottawa, Canada.*

Dr Prakash Patnaik is a Principal Research Scientist in Aerospace Research Centre at National Research Centre (NRC), Ottawa, Canada. He delivered his inaugural speech on the topic, “Relevance of Vibration in Aerospace and Space Context”. Dr Patnaik talked about the foundation of the National Research Centre (NRC), its history and its evolution over the years. He shed light on the achievements of the NRC as well as its major contribution to society in general. He further stated the NRC as the largest research centre in Canada.

His expertise is in fourteen different areas of research and development. These areas are Aerospace; Automotive and Surface Transportation; Construction; Energy; Mining and Environment; Ocean, Coastal & River Engineering; Aquatic & Crop Resource Development; human Health Therapeutic; Medical Devices; Nanotechnology; Digital Technologies; Advanced Electronic and Photonic; Metrology, Astronomy and Astrophysics; Security and Disruptive Technologies.

Furthermore he explained the structure of the NRC and its working hierarchy which includes the President (at top) and then Chief Scientists of Canada with their expertise in the field. The NRC (Aerospace) has five capability areas, they are Aerodynamics, Aerospace Manufacturing, Aerospace Structures and Materials, Flight Test and Research, and Gas Turbine. The overview of flight research at the NRC is such that it has more than eighty research and technical staff; research aircraft with 3 helicopters and 4 fixed-wing; expertise and facilities for atmospheric testing; expertise and facilities for bio-fuel testing; delegation of authority from transport in Canada. Dr Patnaik also talked about the Vibration and Aero-Acoustic at the NRC Canada by discussing the two aspects: aircraft vibration and vibration in spacecraft. Within the aircraft vibration, he focused majorly on abnormal vibration and flutter which happens due to aeroelastic instability and can be taken care of by design. And in spacecraft vibration, the focus has been the rocket shuttle launch. Recently, the NRC has introduced Air Travel Research (CATR) in 2019, primarily under the view to focus on the standards in air travel research. In general, it can be observed that the NRC has provided the ultimate support to the industry through their extensive research, testing services etc. within the society.

# Message from Keynote Speaker



## **Mr Andrew Hubbard**

*Chairman of ISO Committee  
(Vibration, Shock & Condition Monitoring)*

Mr Andrew Hubbard is the Chairman of International Standards Organization (ISO) Committee (Vibration, Shock & Condition Monitoring). He delivered his keynote address on inauguration of the CVS on the topic, "The Purpose of ISO Standards". Mr Hubbard is the Chairman of ISO/TC108/SC2. He finds the vibration field a lot of fun! And considers that the vibration community is a sharing community. The ISO standards are designed to make products and services better which will enhance the efficiency of the companies, governments, and other organizations. There are some standards which are designed by keeping in view some of the specific industries, such as food industries etc. It helps businesses of any sector and any size to increase productivity and access new markets. It also helps in saving time and reduces international trade barriers. The ISO's strength is developed by all the experts globally. It focuses on the languages very formally and there are also specific language regulations that are to be followed. These could be Normative/Informative, Shall/Must/May/Can. Andrew Hubbard's involvement with the ISO standards has been primarily with ISO/TC108/SC2 which deals with measurement and evaluation of mechanical vibration and shock as applied to machines, vehicles, and structures.

The working environment of the ISO is such that the standards are reviewed regularly and systematically within the span of minimum five years by giving necessary amendments and addendums. Under the direct responsibility of ISO/TC108/SC2: 55 published under development, 11 ISO Standard under development. In terms of International Members there are: 22 participating members who are called P-members and 17 observing members called O-members. Under this group of ISO/TC108/SC2, there are five groups that cover different parts of vibrations in a broad manner. These working groups, when combined, work as a strength and it is this strength which boosts their dedication and helps them to gain more and more experience. They provide a broad set of young individuals to find workable and practical solutions as well as provide support to the engineers and managers to work on new and existing standards. Some examples of the application of the ISO vibration standards are: Balancing the SONGS, Resonance at Rihand, etc.

# Key Dignitaries



**Dr Arvind Jayant**

*Professor & HOD  
SLIET, Sangrur*



**Mr B. Narayan**

*Group President Procurement  
Reliance Industries Ltd.*



**Mr Anil Kumar A.A.**

*Vice President  
TUV India Pvt. Ltd.*



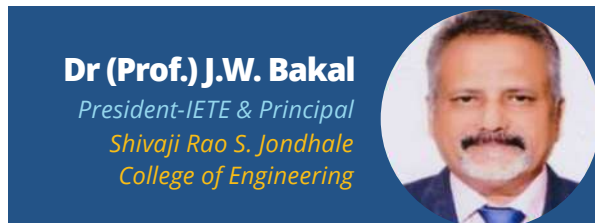
**Er Dipak Kumar Pyne**

*Ex. Vice President  
DESCON*



**Dr Bharat R. Mehta**

*Sr Vice President (Retd)  
Reliance Industries Ltd.*



**Dr (Prof.) J.W. Bakal**

*President-IETE & Principal  
Shivaji Rao S. Jondhale  
College of Engineering*



**Dr (Prof.) Chandan  
Chowdhury**

*Senior Associate Dean & Professor  
Indian School of Business*



**Dr Keyur Vora**

*Head C & I  
Adani Petrochemicals*



**Mr Dileep Miskin**

*Director  
UL Group*



**Dr Kamal Vora**

*Deputy Director  
Automotive Research  
Association of India*



**Dr Hari Vasudevan**

*Chairman BoS in Production  
Engineering  
Principal, D.J.S. College  
of Engineering*



**Dr M. Krishnaswamy**

*Director & Ex. ISRO  
Senior Scientist  
Asterope System*



**Dr Kiran S. Bhole**

*Faculty in Mechanical Engineering  
Sardar Patel College of  
Engineering*



**Dr (Prof.) P.K. Dash**

*HOD, Department of  
Aerospace Engineering  
NITTE Meenakshi Institute  
of Technology*

# Key Dignitaries



**Dr (Prof.) Kishore Barhma**

*Scientist  
DSCE, Bengaluru*



**Dr Ramana Podugu**

*Consultant, Combustion  
Department  
Siemens*



**Dr Nitesh P. Yelve**

*Faculty in Mechanical Engineering  
Indian Institute of Technology  
(IIT) Bombay, Powai*



**Dr (Prof.) Rajendra Prasad Mohanty**

*Ex. Vice Chancellor  
SOA University*



**Mr P.K. Sinha**

*Ex. Director  
National Productivity Council*



**Mr Sudhir Aggarwal**

*Senior Vice President  
Reliance Industries Ltd.*



**Mr Rajendra Zope**

*Reliability Manager  
John Crane, Singapore*



**Mr Santhosh N.C.**

*Director & CEO  
DHIO Research &  
Engineering Pvt. Ltd.*



**Dr (Prof.) R.S. Jangid**

*Professor  
IIT Bombay*



**Dr Saptarshi Sasmal**

*Senior Principal Scientist & Head  
Special & Multi-functional  
Structures Laboratory*



**Mr Sudarsana Rao**

*Head Business Development-RBML  
Reliance Industries Ltd.*



**Dr S.M. Joshi**

*Principal  
Pillai College of Engineering*



**Mr S.K. Kamble**

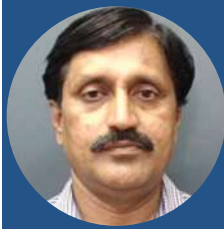
*Chief Manager (Mech.) PHS  
RCF Mumbai*



**Dr Suhas Deshmukh**

*Faculty in Mechanical Engineering  
Govt. College of  
Engineering, Karad*

# Key Dignitaries



**Dr S.K. Ukarande**  
Associate Dean Faculty of Science & Technology, University of Mumbai  
K.J. Somaiya Institute of Information Technology & Engineering

**Dr Subrata Chakraborty**

Professor  
Indian Institute of Engineering Science & Technology, (IEST) Shibpur



**Dr Sudhir Pai**  
Country Head - India  
Exida India

**Mr Samir Sabnis**

Managing Director  
Acoem India



**Mr Sandeep Kumar Mittal**  
Vice President  
Desein

**Dr Samir C. Nimkar**

Hon. Secretary  
The Institution of Engineers



**Dr U.D. Kolekar**  
Principal  
A.P. Shah Institute of Technology

**Dr V.M. Phalle**

Faculty of Mechanical Engineering  
VJTI, Matunga, Mumbai



**Dr V.K. Sunnapawar**  
Chairman BOS in Mechanical Engineering  
Principal, L.T. College of Engineering

**Dr Ramalinga Reddy**

Professor & Director  
REVA University, Bangalore



**Mr A.V.N. Murthy**

Vice President (Procurement)  
Reliance Industries Ltd.

**Dr Dipankar Das**

Ex-Senior Scientist  
ISRO

**Mr Nikhil Singh**

Sales Leader  
Bently Nevada, Baker Hughes

**Mr Sibasis Maity**

Ex-Managing Director  
CTTC Bhubaneswar

**Dr Sandeep Chavan**

Professor and Head of School of Mechanical Engineering  
MIT World Peace University, Pune

**Mr C. Sankara Balaji**

Regional Manager, SE, India  
Meggitt, SA

**Mr Tamir Abdallah**

Division Manager  
Nazaik, Saudi Arabia

**Mr Vijaykumar T.V.**

AGM  
BHEL-EDN

**Mr Vivek Kumar Tyagi**

Region Leader India  
Meggitt

# Chair Committee Presentations



**Er L. J. Swaminathan**

*Chair - Conference/Symposium, Sponsorship*

## Symposium & Events

- Planning, managing and executing major symposiums and events.
- Selection of Panels, Guest Speakers, Chief Guests etc.
- Finalising jury for selection of papers, awards etc.
- Promotion of CVS activities globally.
- Advertising, marketing and media management.
- Develop, maintain and update website.

## Collaboration

- Partner with industry, organisations and institutions.
- Design a “Win-Win” Program for Partners and CVS.
- Formulate and execute collaboration agreements.
- Look out for changing trends in domain and industries.
- Active interface with Government institutions and regulatory bodies.

## Student Section

- Dedicated to students and to develop their employable skills.
- Encourage students and faculty to become part of CVS.
- Activities include:
  - *Support institutes in developing vibration-related curriculum.*
  - *Encourage and handhold certification process.*
  - *Assist institutes to set-up Vibration Laboratory/Sensor Development.*
  - *Enable collaboration between educational institutes and the industry.*
  - *Support and mentor student’s in project work, research and placement.*

## Membership

- Ownership of all matters of CVS’s membership.
- Membership growth, retention and enhancement drive.
- Drive institutional, industrial and organisational membership.
- Catch the Wave...and Join CVS Today.

<https://covs.in/documents/membership.pdf>

# Chair Committee Presentations



**Dr Vasant Matsagar**

*Chair - Research, Publications and Knowledge Management*

## Training

- To impart vibration-based training and guidance to a wide range of audiences including students, industry personnel and technicians at a much lower cost in comparison to other training providers.
- Support the Government and private industries in skill development in much-needed areas of vibration certifications at various levels of professional competency.
- Soon to be offered training modules CVS-1 & CVS-2 - crafted with a unique approach to train the intended audience by adapting to the practical understanding of the subjects.

## Placement, Certification and Accreditation

- Emphasis on specific programs is to be given to improve the employability of students of engineering in this interdisciplinary specialisation that has tremendous potential for employment and growth.
- Employability takes precedence over just certification.
- As CVS progresses, our certifications will be submitted to the appropriate authority for accreditation.



# Chair Committee Presentations



**Prof. Dr Aparna Dey Ghosh (Vice President)**  
*Professor, IEST, Shibpur, Howrah.*

## Research

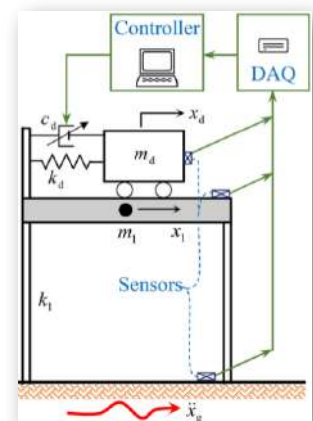
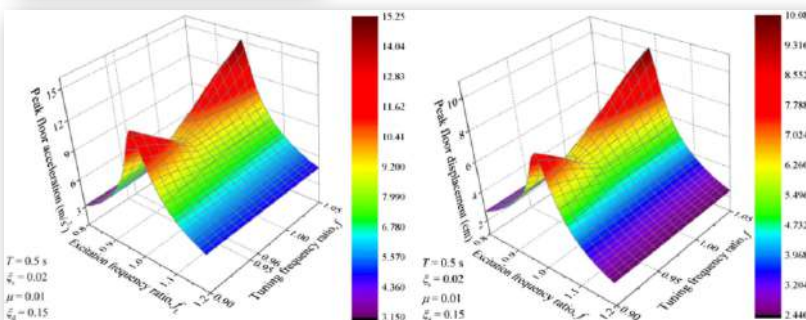
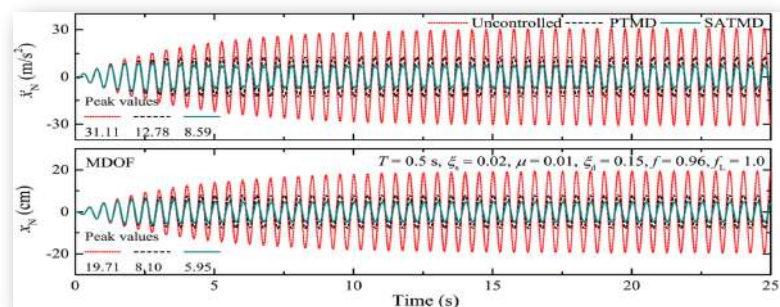
- Administer vibration-oriented research guidance to students/industry engineers.
- Maintain the CVS library (physical/digital platforms).

## Publications

- Regularly publish the CVS Journal (fundamentals, applications, industry integration etc.) and Newsletter (Amplitude).
- Be a mouthpiece on the management of vibration knowledge (and interdisciplinary fields).

## Knowledge Management

- Identify, interact and sign agreements with prospective institutes/industries.
- Interact with Government organisations to be aware of vibration-related projects, Government grants/incentives and related regulations.
- Explore and identify the areas of research activities and Government grants, if any, for setting up lab facilities.
- Be updated on expert activities on vibration or sensing systems in institutes or industries (nationally & globally).



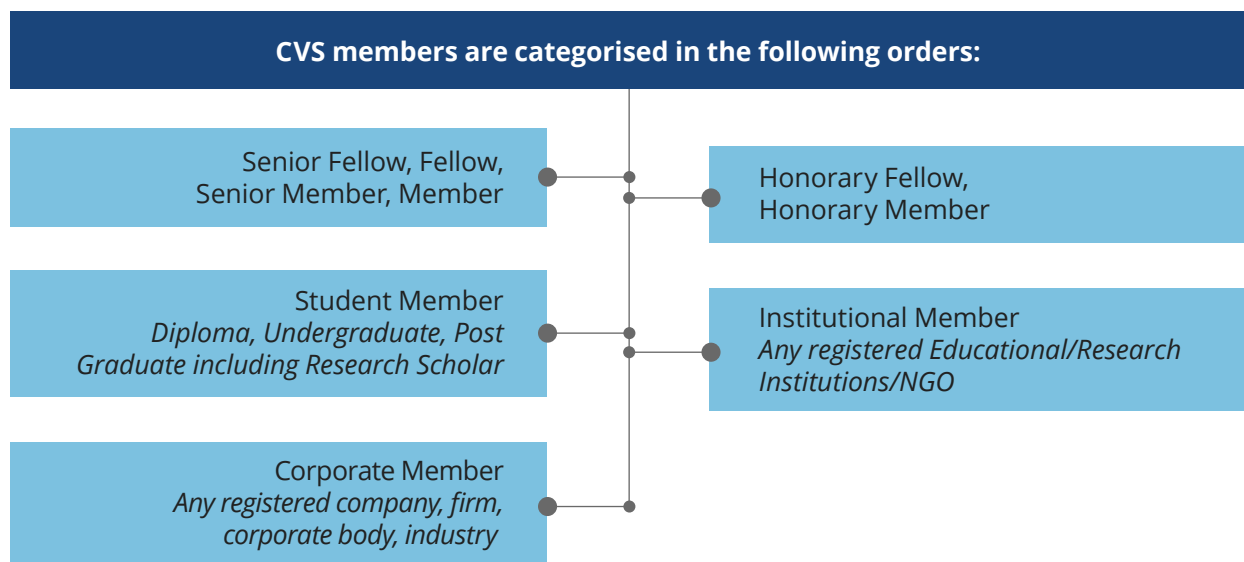


# Membership Details

CVS is one of its kind organisations in India. It is a non-profit organisation that provides a cost-effective yet world-class training certification as well as technical publication and expert resources. CVS takes the opportunity to undertake projects and thesis. Its aim is to provide technical information and expert professional advice with guidance on career development and opportunities.

CVS welcomes academics, students, and technical experts from across the world from various fields such as Vibration and Condition Monitoring Professionals; Assets Managers, Reliability Engineers/Professionals; Maintenance Engineers and Technicians; Engineering Students; Research Students, PhD. Aspirants; Educational Institutions; Govt. and Non-Govt. Organisations engaged in Research and Development (R&D); Industries and Corporations, etc.

Any person interested in the objectives of the CVS shall apply for a class of membership for which eligibility requirements are fulfilled, in accordance with the conditions and procedures specified. On acceptance of the application by CVS, the names and addresses of all members are registered in CVS.



## Qualifying Criteria for Membership:

The qualifying criterion of membership is as follows:

- a Student Member:** An individual who is registered in a regular program, leading to any Scientific/Engineering Diploma or Undergraduate/Postgraduate degree including Research Scholars.
- b Member:** Any person desiring to support the objectives of the CVS and having the following educational qualification and experience:

*A graduate of an engineering or science curriculum, with up to 2 years of active work experience*

or

*If not a graduate, have up to 5 years of active work experience*

or

*A student member (studying in any program) who aspires to continue as a member need not have any experience*

- c Senior Member** - A member or an applicant who desiring to support the objectives of CVS and having the following educational qualifications and experience at the time of submitting the application:

*A graduate of an engineering or science curriculum, with at least 6 years of active work experience, out of which 2 years shall be at a responsible position*

or

*If not a graduate, shall have 10 years of active work experience, out of which 2 years shall be at a responsible position*

- d Fellow:** A Senior Member desiring to support the objectives of CVS and meets the following criteria:

**1. Based on educational qualification and experience**

*a*

*Postgraduate of engineering from any recognised University*

*or*

*Senior Membership of CVS*

*b*

*Membership in the CVS for at least 5 continuous years (Applicable for only upgradation of membership category for existing members of CVS)*

*c*

*At least 15 years of active experience; out of which at least 5 years shall be at a position of higher responsibility*

*or*

*A person retired from the active work profession with a higher responsible position*

*d*

*Recommendations by a minimum of 2 members of CVS Fellows*

**OR**

**2. A Person possessing outstanding or acknowledged engineering or scientific attainments in terms of contributions such as research or technical publications/patents/product innovations/expertise in his/her subject.**

**Election to Fellow of CVS under eligibility criteria 1 and 2 shall be confirmed only after the approval by GC of CVS.**

- e Senior Fellow:** A Fellow desiring to support the objectives of CVS and meets all of the following criteria:

**1. Based on educational qualification and experience**

*a*

*Ph.D from any recognised University/Institute*

*or*

*Fellow of CVS*

*b*

*Membership in the CVS for at least 10 continuous years (Applicable for only upgradation of membership category for existing members of CVS)*

*c*

*At least 25 years of active experience; out of which at least 10 years shall be at a position of higher responsibility*

*or*

*A person retired from the active work profession with a higher responsible position*

*d*

*Recommendations by a minimum of 2 members of CVS Fellows*

**2. A Person possessing outstanding or acknowledged engineering or scientific attainments in terms of contributions such as research or technical publications/patents/product innovations/expertise in his/her subjects.**

**Election to Fellow of CVS under eligibility criteria 1 and 2 shall be confirmed only after the approval by GC of CVS.**

**f Honorary Member:** An individual whose outstanding contributions to the advancement of the CVS objectives are worthy of special recognition, OR she/he is a person who has achieved eminence in the field of science/technology/industry whose association with the CVS will advance its progress, OR a distinguished person whom CVS desires to honour. Honorary membership as members or Fellows to be conferred by the GC of CVS. She/he shall have all the rights and privileges (except voting rights) enjoyed by all other classes of membership without any fees and shall be awarded an appropriate certificate, and a membership card.

**g Institutional Member and Corporate Member:** Any registered company, firm, corporate body, industry, institute or an individual engaged in study, research, practice, services in the field of Science or Engineering are entitled to have a member of CVS as Institutional Member or Corporate Member. Institutional membership is meant only for educational/research institutions.

The Member can nominate any 2 members from their organisation at any of the CVS events at the same rights as any other members.

**h Life Member, Life Senior Member, Life Fellow, Life Senior Fellow:** Anyone who was eligible for various categories of membership and has paid one-time dues of life membership will be treated as Life Member or Life Senior Member or Life Fellow or Life Senior Fellow.

All Founding Members by default will be treated as **Founders and Fellows of CVS**. In all the above, the GC's decision will be final.

## Benefits of Membership

- a** There will be a concession of Registration Fee for training programs and booking advertisements in conferences, library access, and priority in engineering support from CVS etc.
- b** The members shall enjoy the rights and privileges of the CVS in accordance with the provisions given in Bye-Laws, the rule and regulations. Only Fellow Members OR Senior members can hold the office as President, Vice-President, Chairperson of chapters, Secretary & DG. Honorary Fellows or Honorary Sr. Members cannot be eligible to hold office bearer's post.
- c** Student Members shall enjoy the rights and privileges of the CVS but they shall not be eligible to hold office and shall not have any right of voting.
- d** Every membership will carry designation with the class of membership she/he belongs to with the abbreviated forms namely MCVS, SMCVS, FCVS, etc.
- e** Membership Certificate shall be issued by the Secretary and Director General upon an application by a member provided he/she has no dues in annual subscription or has paid full fees applicable for Life Membership as fixed by the Governing Council from time to time.

## Application for Membership

- **Application to New Membership:**

Applications, filled in the prescribed format, shall be submitted to the President, at the headquarters of CVS. Each application is processed at headquarters and once approved by the GC, intimation regarding the same will be given to the applicant and added on the CVS roll and the section is notified.

- **Application to Advance in Grade to Senior/Fellow Member:**

Applications are submitted to the President, at the headquarters of the CVS. Each application is processed at headquarters for eligibility point of view and once approved as Senior Member or Fellow based on the fulfilment of required eligibility and approval by the GC of the CVS, intimation regarding the same will be given to the applicant and added on the CVS roll and the section is notified. For Fellow grade approval, majority voting of the GC is essential. The GC decision will be final.

The President notifies those approved as Fellow or Senior Member. Fees applicable for upgradation will be charged based on the difference in fees chargeable at the time of application from one category to another category of membership.

- **Student Sections :**

Each student section operates as an official CVS affiliate as per the charter agreement that defines the relationship between the CVS and the student section, with the concurrence of the managing authority of the respective engineering colleges or institutes and shall be attached to the nearby Chapter where the college or institute is geographically located.

The Principal/Head of the institution appoints a Professor/Asst. Professor to mentor the student group in the institution and is the single point of contact for CVS. This mentor is also a member of CVS.

## Membership Fees

### For Individuals/Professional Membership

#### Life Membership Fee Including GST applicable

Type of Membership	Regular Fees
Member	₹4,720.00
Senior Member	₹5,900.00
Fellow Member	₹7,080.00

#### Annual Membership Fee Including GST applicable

Student Member	₹590.00
Member	₹1,180.00
Senior Member	₹1,416.00
Fellow Member	₹1,770.00

### For Institutional/Corporate Membership

#### Life Membership Fee Including GST applicable

Type of Membership	Regular Fees
Institutional Member	₹35,400.00
Corporate Member	₹47,200.00

#### Annual Membership Fee Including GST applicable

Institutional Member	₹3,540.00
Corporate Member	₹4,720.00

The Governing Council shall have the powers to revise subscriptions and other fees and waive the entry or registration fees on specific cases.

# CVS Students Chapter Information

## 1 About Council of Vibration Specialists (CVS)

CVS is a professional body, registered under the Companies Act, 2013, Section 8, and Amendment 2019, the first of its kind in India, born out of the vision of a group of expert vibration professionals in order to serve the industry. With the Industry 4.0 revolution, there is an urgent need to scale up the reach of the vibration specialisation, to address the need for design changes in systems/components learnt from the vibration-induced faults, to speed up the vibration diagnostics and related communications to a higher level of accuracy, with the support of digital technology, IIOT, AI and/or ML. CVS is committed to harnessing the country's huge potential in this field by the effective management of vibration knowledge and through the empowerment of engineers with necessary world-class skills and theoretical inputs along with certification. CVS is poised to accomplish these objectives through training and research in vibration. It emphasises fundamental physical science, industry-focused approach, built-in reliability of vibration-prone assets, risk-mitigation specialization for structure and seismic infrastructure, along with the effective use of IIOT, AI technology.

CVS is a nonprofit, technical, scientific and educational organization of engineers, scientists, educators, technicians, executives and others with interests in vibration and related technologies.

CVS consists of a variety of volunteer-led units/chapters and decision-making bodies, supported by professional staff. These groups oversee and direct various activities in pursuit of the Vision and Mission of the Council.

## 2 Establishment of Students Chapters at Engineering Colleges/Polytechnics

The CVS Students Chapters shall be set up at various recognised Engineering College /University/Polytechnics, with the assistance and involvement of faculty members of the Institution. The CVS Chapters in the region shall provide support and coordination in the establishment and the working of the student's chapters.

### 2.1 Objectives of CVS Students Chapters:

The CVS Students Chapters shall have the following broad objectives in line with CVS main objectives for the benefits of student's members:

- To plan and organise technical programmes and activities.
- To provide a common platform for the student members to exchange ideas and information.
- To facilitate practical training/project work.
- To play a major role in the development of human resources required in industries/research organisations through training and certification in various domains of vibration.

To meet these objectives, the CVS student's chapters shall arrange frequent meetings of the student members together with experts/academic/R&D/industries leaders as well as CVS Chapters/Headquarters executive committee members. Programmes of common interest such as project competitions may also be arranged involving students' chapters either at the regional or national level.

### 2.2 Membership of CVS Students Chapters:

The student membership of the CVS chapters shall be open to students of engineering colleges/universities/institutions as a student member.

Every student member shall satisfy that he/she is a student of undergraduate/diploma programs. On the successful completion of the program of study and being conferred the BE/BTech degree/Diploma by the University/Board/Institution in the appropriate field, he/she shall then be eligible to become the Member of CVS.

The members of CVS student chapters shall pay the following one-time membership fee during their studies in colleges/polytechnics. Applicable membership fee including GST, as per year of studying in Engineering colleges and Polytechnics at the time of becoming members of student's chapters is given in the table below:

Sr No.	Joining as Member of Students chapter from which year of study	Engineering (Degree)	Engineering (Masters*)	Polytechnic* (Diploma)
1	SE/SY (Second Year Onwards) for Masters FY	₹500+90(GST)	₹400+72(GST)	₹400+72(GST)
2	TE/TY (Third Year Onwards)	₹400+72(GST)	₹200+36(GST)	₹200+36(GST)
3	BE (in Final Year)	₹200+36(GST)	---	---

*\*Note: Polytechnic duration considered as 3 years. Masters 2 years duration from 1st year itself.*

### 2.3 Eligibility criteria and procedure for establishment of CVS Students Chapters:

The initial request from an Engineering College/Polytechnic to be made to the President/Secretary of CVS expressing desire to open a students' chapter at the Engineering College/Polytechnic.

After receiving the request, CVS headquarter shall assign a student's chapter code and convey it to the concerned institute.

The Management of the Engineering College/Polytechnic has to appoint a Faculty Adviser, who himself/herself shall be a member of CVS and forward their details in the given mail id as per the following format quoting the chapter code.

Chapter code	Name of Faculty Adviser	CVS membership no. of adviser	Mobile No.	Email id	Name of Institute and Email id of Principal/Director

In a College/University/Institution, at least 25 students, irrespective of the year of study, is required for opening a Students' Chapter. This strength of membership shall be mandatory for opening as well as the continuation of the Students Chapter. However, it's requested to motivate a majority of students to enrol themselves in the chapter.

Institutes can compile the interested student's information in the following prescribed template as given below:

Name and Address of Institute:								
Sr. No	Photo	Name of Student	Date of Birth	Program	Year of study	Contact no. and email id	Address	*Membership no.

*\*Membership no. will be issued by CVS headquarter.*

All students' chapters will retain 50% of the membership fee excluding 18% applicable GST as activities grant for student's chapters.

Prospective Colleges/Polytechnics have to function under the overall guidance of a particular State/Local Chapters of CVS.

The established chapter is requested to submit the report of the activities within a week of organising the event, which is to be published in the Newsletter. Also, regular reports will be submitted quarterly in the prescribed format provided by CVS.

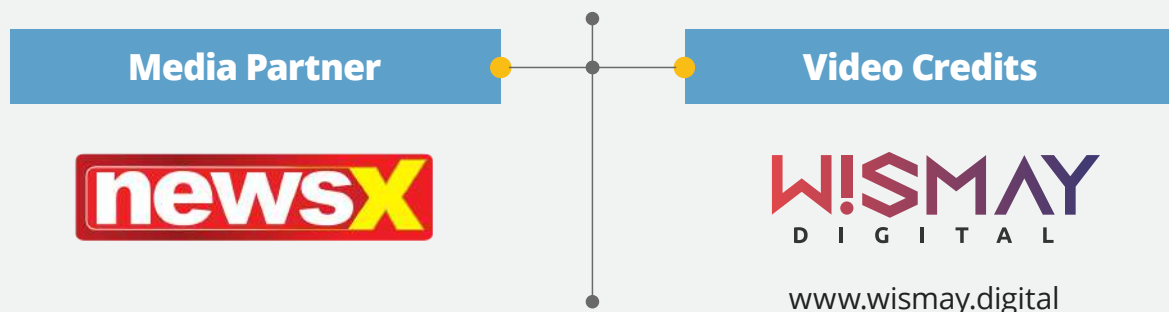
## 2.4 Benefits of CVS Students Membership:

The major benefits of membership are as below:

- Opportunity to participate in technical events organised by CVS and its chapters
- Participation in various Technical Activities of the students' chapter.
- Regular interaction with CVS Chapters in the region and support from CVS Corporate members, industries etc in the technical programmes of the chapters.
- Opportunity to meet fellow engineers for professional interaction.
- Prizes for best technical papers/projects
- Assistance from professionals in project guidance and conceptualisation
- Retention of 50% of students' membership fee to student chapters for conducting various events.
- Opportunity to publish best papers in CVS journals and magazines.

## 2.5 Management of CVS Students Chapters:

All the affairs of the CVS students' chapters including finances shall be administered by a managing committee consisting of seven student members, two of whom retire every year but are eligible for re-election. Four members shall be elected as President, Vice President, Secretary and Treasurer. A faculty adviser of the Institution shall be permanent invitees to the managing committee meetings. The managing committee shall meet as often as required (minimum 5 meetings in a year) and take decisions on all matters connected with the CVS students' chapters for the benefit of members. For any assistance, they may contact the CVS chapters in the region or CVS headquarters.



# Vote of Thanks



**Dr Sidappa M. Khot**  
*Treasurer*

A very good evening to one and all. It's an honour to offer the vote of thanks on this memorable Inaugural Function of the Council of Vibration Specialists (CVS).

First and foremost, I would like to express my happiness and sincere gratitude towards today's Guests of Honour. We have an illustrious list of fabulous speakers, who have left no stone unturned in their effort to impart the knowledge from their expertise to the audience.

Thanks to Dr (Prof.) R.N. Iyengar, for an interesting opening talk on "Vibrations: Pleasant and Unpleasant". He has very nicely correlated the pleasant side of vibration to various musical instruments.

I extend my thanks to Dr (Prof.) T.G. Sitharam, for his scholastic talk on "Soil Dynamics, Geotechnical Earthquake Engineering and Vibration Sensors". In this talk, he emphasised dynamic site characterisation using the right instruments to build earthquake resistant structures.

Thanks to Dr (Prof.) D.K. Maiti, for his speech on "Structural Health Monitoring of Composite Structures". The main takeaway of this talk was how various optimisation techniques can be used for damage detection of composite structures.

Thanks to Dr Prakash Patnaik for giving a brief introduction to the National Research Council (NRC) of Canada and highlighting few areas of research wherein vibration plays a major role in the domain of aeronautical engineering.

My heartfelt thanks to Mr Andrew Hubbard for taking out time for us and delivering his keynote speech on "The Purpose of ISO Standards". He has emphasised on the importance and benefits of the ISO. He also spoke on how the review of the ISO Standards takes place.

I once again extend my thanks to all our Guests of Honour for taking out time from their busy schedules, for being with us here today and for their flowing thoughts on various topics of relevance. It was indeed a sensory treat to listen to a plethora of great speeches.

I extend my thanks to all the VIP guests who, despite their tight schedules, have attended today's function to support our initiative.

My heartfelt thanks to the President of CVS Dr Harvinder Gambhir for introducing Founding Members and spelling out the Vision and Mission of our Council and Secretary Dr T. Pyne for stating clearly why we thought of starting such a platform. President, Secretary, and I spent many days and hours together to write and refine byelaws of the CVS, before bringing for discussion and approval in the General Council (GC) meeting.



Thanks to Dr (Prof.) Vasant Matsagar, Dr (Prof.) Aparna Dey Ghosh, and Er L.J. Swaminathan for giving us a thorough overview of the activities of various Chairs of the CVS. My special thanks to Dr Srinivas Voggu for conducting the questions and answers (Q&A) session efficiently.

No occasion is either complete or successful without the tremendous support from the various people who work in the background. I wish to thank Ms Sindhu, Ms Shweta, and the Team of Meggitt under the leadership of Swaminathan, one of the Founders, for their contribution in creating publicity content and organising this Inaugural Function. Thanks to the wonderful technical support team for the seamless way in which today's event was conducted. I am also thankful to the host Mr Pradeep for smoothly anchoring through the Inaugural Function of the CVS.

I would also like to take this opportunity to appreciate the effort put in by the students' team of FCRIIT along with faculty mentors for developing the website for the CVS under the supervision of Dr Pyne.

I extend my thanks to our Chartered Accountant (CA) Santosh Patil and his team at Alliance Tax Experts Pvt. Ltd. Mumbai for assistance in the registration of the CVS. I also thank Ms Ojaswi and NewsX channel for effectively covering our event.

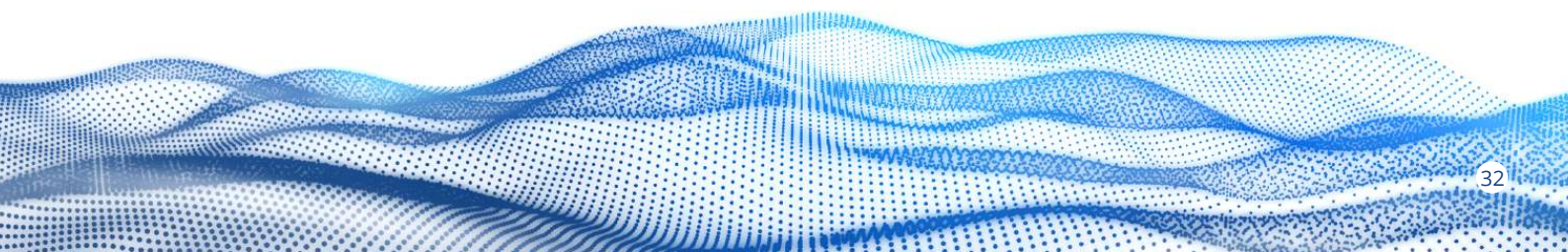
A big thank you to all of you, the participants who joined us today in sharing the joy of a new beginning. Thank you for being a wonderful audience.

I would like to express my happiness and sincere gratitude to all the Founder Members of this Council for giving a real form to the aspirations of intellectuals in this field, particularly Dr Pyne for networking and bringing all founding members together. This is a forum of like-minded, more so, like-passionate people, and I am grateful to the vibration of their minds which has brought in this day.

In the end, my heartfelt thanks to Dr (Prof.) Tanusree Chakraborty for becoming our first member, her action has motivated all Founding Members. I may use this occasion to request many more professionals from the vibration domain to join the CVS and play a role in disseminating information to stakeholders.

So, friends, "If you want to find the secrets of the universe, think in terms of energy, frequency and vibration." Let us follow this quote by Nicola Tesla and mark the beginning of the CSV, the Council of Vibration Specialists, by taking a step ahead. Let's not only find the secrets but also attempt to fix the problems, unfixable so far.

Good Evening.

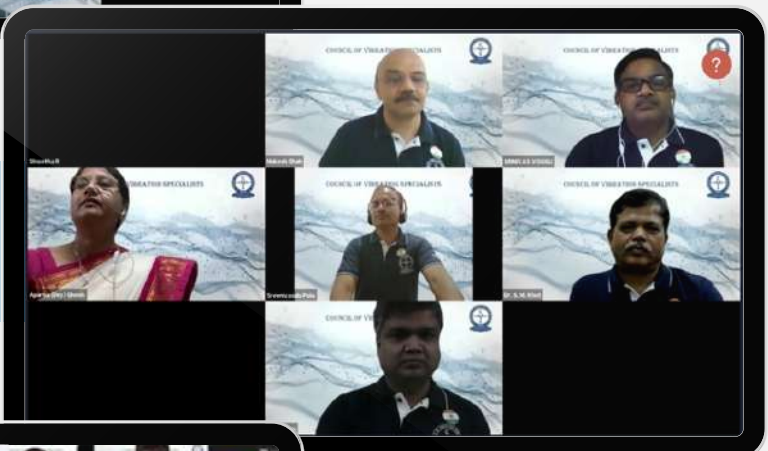


# Key Moments From The Inauguration Ceremony



Few Founding Members of CVS

Few Founding Members of CVS

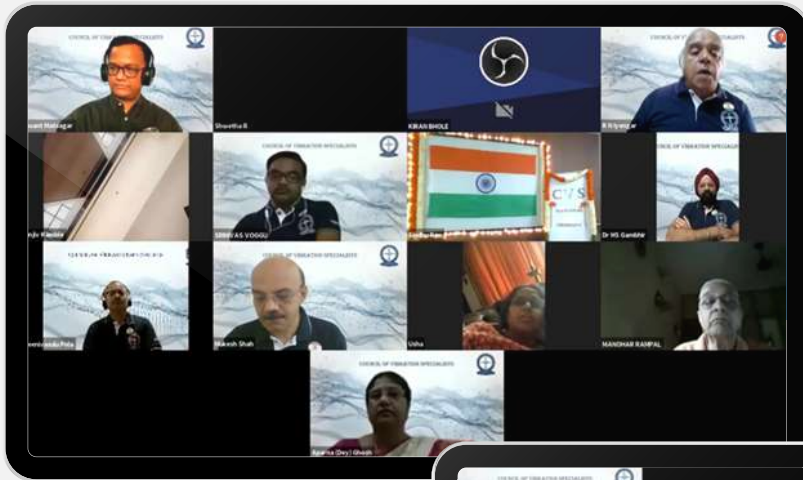


Lighting of the lamp

Lighting of the lamp



# Key Moments From The Inauguration Ceremony



Address by the Guest of Honour  
Dr (Prof.) R. N. Iyengar

Q&A Session



Q&A Session



Vote of Thanks





## REACH US

### COUNCIL OF VIBRATION SPECIALISTS

Premise 'Center for Reliability and Diagnostics', 802, ZION,  
Plot 273, Sector 10, Navi Mumbai - 410210

 8805022148 / 9967015176 / 9731577119

