

**PROFESSOR S. SREENIVASA MURTHY**  
**A Profile**



**Born in Shikaripur (Karnataka) in 1946, Prof. S.S. Murthy had his school education there and moved for university education to Bangalore where he studied at National college and BMS Engineering College to get his Bachelors degree in Electrical Engineering (EE) in 1967 securing 9<sup>th</sup> Rank to the University. He received his M.Tech. and Ph.D.degrees respectively from Indian Institute of Technology (IIT) Bombay (1969), and IIT Delhi (1974).**

**He started his professional career in 1969 as a Lecturer at BITS Pilani and moved to IIT Delhi as faculty in 1970 where he became Asst. Professor in 1975, Associate Professor in 1980 and Professor in 1983 to become one of the youngest professors at that time. He was Head EE Dept. IITD during 1998-2001 and CEA Chair Professor during, 2000-03 and 2006-11. In recognition of his outstanding contribution he was designated as senior professor (HAG scale) at IITD from 2006. He superannuated on 31<sup>st</sup> Dec.2011 after serving the Institute perhaps for the longest period of 41 years and the senior most faculty/Professor to superannuate at that time. His services were extended till June 2012 and he decided to re-locate to Bangalore in Aug.2012, despite desire by his department at IITD to continue as Emeritus professor. Then he was appointed as Vice Chancellor of the Central University of Karnataka by the President of India, visitor to the university, and he took charge from Jan. 2013.**

**During the above period he has held several visiting Positions in India and Abroad on deputation/lien from the Institute. He was visiting Fellow at the Univ. of Newcastle upon Tyne (UK) during 1975-76 under Indo-UK program under Colombo plan when he visited several British Universities and Industries to initiate new research activities at IITD. He was Visiting Professor at the Univ. of Calgary (Canada) during 1980-82 and engaged in research on self excited induction generators (SEIG) resulting in some classical research papers that are referred till date. He was visiting in house consultant in R&D department of Kirloskar Elec. Co(KEC) Bangalore during 1985-86 under the Industry deputation scheme of IITD at the invitation of the Industry. He initiated several industrially relevant projects notably on a novel electric generator for portable gen- sets (which led to a patent) and Wind Electric generator which was installed in the field. He delivered several lectures to Industry personnel. During this period he was also an adjunct professor at Indian Institute of Science (IISc), Bangalore where he developed and taught two PG courses apart from executing joint projects on wind energy. He was Director (CEO) of Electrical Research & Development Association (ERDA) Baroda during 1990-92, and gave a new research direction to this Institute. His leadership led to several continuing education program for Industry personnel using National and International experts, Industry – Academia interface through MOU between ERDA and IITs and other universities. He was founding Director of National Institute of Technology (NITK), Surathkal during 2003-05 and transformed earlier REC to a leading national technical university by adopting several best practices of IITs. During 2008, he took sabbatical leave to function as visiting professor at IISc, Central Power Research Institute(CPRI), General Electric(GE) global research centre at Bangalore and Ryerson University, Toronto (Canada) where he developed and taught a graduate course on ‘Renewable Energy’. He was INAE distinguished Industry professor at GE (R&D) centre at Bangalore during the summers of 2007, 2009, 2010. He was visiting professor at Univ. of Waterloo and Ryerson Univ., Canada during the summer of 2011.**

**Prof. Murthy has received many National and International awards and recognitions, notable being- Life**

**Fellow of IEEE\* (Institution of Electrical and Electronics Engineers-USA), Fellow of Indian National Academy of Engineering (INAE), Fellow of IEE/IET (UK), Life Fellow of the Institution of Engineers,( India), Life Fellow of IETE(Institution of Electronics and Telecommunication Engineers-India), ISTE/Maharashtra Govt. Award for outstanding research, IETE/Bimal Bose Award for contribution in Power Electronics and President of India prize for Best paper published in *Journal of Institution of Engineers*. IEEE/PES : 2007 PES Chapter Outstanding Engineer Award. Recently he was chosen as the global Distinguish Lecturer(DL) of IEEE/IAS for 2014-15. (\* Among 300 IEEE Fellows chosen globally for 2013, Prof Murthy was one of five chosen from India)**

**Prof Murthy has made outstanding contributions in Teaching, Research, Curriculum development, laboratory development, sponsored Projects, Industrial Consultancy, Continuing Education, Institutional/international linkages, technology transfer, administration/management, industry interaction, Alumni interaction and Professional/Corporate/outreach activities. He has proven to be a good institutional builder as he effected visible turnaround as Director of ERDA Baroda and NIT Surathkal and vice chancellor of Central University of Karnataka.**

**He has published nearly 300 research papers (with high citation index) in refereed journals and conferences, guided over 100 PG- student theses/dissertations and completed over 90 sponsored research and industrial consultancy projects dealing with Electrical Machines, Drives and Energy Systems and sponsored by major electrical industries and Govt agencies. In addition he has 40+ Technical reports, 7 manuals/conference proceedings to his credit. He holds 11 patents on self-excited induction generator and control, renewable energy applications for off-grid power and a novel-braking scheme for motors He is a reviewer/Editor of several international journals including IEEE , IEE/IET, Elsevier.**

**He is an acknowledged international expert on Self Excited Induction Generators (SEIG) and his work is a legend with several original contribution and break through on Analysis,modelling, design, control and applications for stand alone power generation using,oil engines, Biomass,small hydro and wind.( He is the originator of SEIG research in India and**

among the few in the world. In fact the acronym SEIG for Self Excited Induction Generator was proposed by him). His papers in this area have high citation index of over 100. This research received support from, DST, MNES and Industry.. A major breakthrough in this direction was achieved by successfully installing five pico hydel plants in Karnataka using the technology developed by Prof Murthy using SEIG recently. As a novel technique he reconfigured an off the shelf 3- phase motor for 1-phase output. Another important subsystem developed by him is an Electronic Load controller (patented) successfully installed in the field. One of his significant inventions is the self regulated self excited 1-phase induction generator suitable for portable gensets and other low power applications (patented). He has transferred this novel technology to Industry. Recently he successfully developed a novel 5 kW, 1500 rpm, 1- phase SEIG for Bio Energy applications sponsored by MSME of GOI. The unit was built with fabrication support from ABB Faridabad. Under Rural Technology action group (RUTAG) of GOI, he is setting up (jointly with Mech. Engg. Deptt) demonstration pico hydro unit at IITD for training of field personnel.

He is the first researcher in India to initiate work on Grid connected induction Generator (GCIG) for wind, wave and hydro energy systems . He designed and developed the first indigenous 55 kW Induction Generator (while at Kirloskar Electric) which was built by KEC and transferred to BHEL for coupling to Wind Turbine. Having successfully installed in the field the same is now replicated at higher ratings. His research on Grid interphase of wind driven induction generators has great National relevance. He extended this experience to the design and development of 150 kW Induction Generator ( built by KEC) for Wave Energy Systems installed in Kerala. His other major contribution is in Motor design-software, optimisation. Energy efficient motor developed by him under a project supported by CBIP, KEC is now produced by Industry. Under project National Mission on Power Electronics Technology ( NaMPET) of MIT(GOI), he has set up a state of art National Electrical Machine Design Centre at IITD which can be a Knowledge base for Industry for computer aided design of machines..

**He initiated indigenous R&D on Switched Reluctance Motors (SRM) and Permanent Magnet Motors(PMM) and executed a National level consortium project for indigenous development of SRM and controller funded by DST,DSIR and participated by IIT Delhi, Jyoti, ER&DC. (CDAC)**

**He has established start-of-art energy audit and energy conservation facilities at IIT under World Bank funding. He is an acknowledged expert on Energy Conservation and Energy Audit and provided technical advice to several Industries and Organisations. He was a member of National committee of BEE to accredit energy auditors. He provided expert advice on Energy saving for Parliament House in Delhi.**

**He has contributed immensely for curriculum development. (CD), organised several CD workshops to evolve model curriculum, lab manuals, teaching and evaluation. He was instrumental in developing a model UG curriculum in Electrical Engineering for AICTE. He has developed state of art laboratory on drives, machines, energy systems at IIT Delhi for teaching and research with multilateral funding. He was instrumental in starting three new UG/PG programs at IITD. Based on his efforts a new industry oriented M Tech program on “Power Electronics, Electrical Machines & Drives” was started in 1987 which has provided large number of quality manpower to industry. During his Headship (1998-2001) his intense efforts led to the starting of a new B Tech program in EE (Power) and dual degree program on ICT.**

**He has contributed to international linkages and formulated and executed joint programs with UK, USA, Canada, Japan, Australia and Korea leading to joint research programs, short term courses and lab. development. He was coordinator of Indo-UK program on microprocessor applications in drives that led to faculty exchange , lab. modernisation and short term courses. He was India Coordinator (nominated by DST) for the joint Indo- Canadian and Indo- Australian program on “Sustainable Energy”. He led the Indian delegation for the Indo- Australia workshop on sustainable energy held in Sydney in 2006. He organised the Indo-Canada Workshop on ‘Electricity generation using renewable energy’ in 2009. He facilitated MOU and linkages with universities in Japan (Kamamoto, Kagoshima), Korea (KAIST,KIER), Canada (Waterloo, Ryerson), USA (Wisconsin,**

**Cincinnati), UK (Sussex). He is widely travelled and visited USA, Canada, UK, Switzerland, Singapore, France, Denmark, Australia, Italy, China, Korea, Taiwan, Japan, Kazakhstan, Oman and Nepal on several professional engagements.**

**His areas of interest include electric machines, drives, special machines, power electronic applications, renewable energy systems, energy efficiency & conservation, Industry-Academia interaction and Technical Education.**

**He is acknowledged as a sincere and dedicated teacher leaving imprints on over 5000 students he has taught till date. He has developed several new courses at UG and PG levels on Electric Machines, Drives, Energy conversion and renewable energy. Several of his courses are recorded in the studio of Educational Technology Centre of IITD, packaged in over 15 video modules and marketed through FITT. They are also transmitted through 'Ekalavya' channel. He has made significant contribution to student development and interactions. As faculty advisor of Electrical Engineering Society for several years since its inception he organised industry visits, practical training, technical quiz, lectures and professional activities for students. He was president of Board of Student publications.**

**He is rated as a popular speaker and delivered over 180 popular and special lectures at the invitation of several organisations in India and Abroad (Canada, USA, Japan, UK). A notable contribution is the delivery of advanced courses to Industry- GE, Emersons, Reliance, CPRI, Kirloskar etc. As DL of IEEE for 2014-15, his services are available globally with IEEE support.**

**He has phenomenal outreach activities and made significant contributions to professional societies, including being General Chair of the 1<sup>st</sup> IEEE International Conference on Power Electronics, Drives and Energy Systems for Industrial Growth (PEDES' 96) during 1996 in New Delhi and Patron for PEDES-2012 during Dec.2012 at Bangalore. He was Technical Chair of the IEEMA organised Conference ELROMA in 1992, 2004 and annual conference of Elec. Engg Div. of IE(I) in 2005. He was symposium chair of IEEE symposium on "Sustainable Energy and Global synergy" held in Ryerson Univ. Toronto in 2008. He was general chair of the INAE conference on "Research Policy for Sustainable Energy" in New Delhi (2009).**

**He is convener of Electrical Engineering Section and member of Energy Forum of INAE. As consultant to UN-ESCAP, he steered the UN supported Workshop on “Advances in Fossil Fuel Technologies and Investments for Power Generation” in New Delhi( June 2012) Organized by APCTT UNECE and UNCTAD that was followed with the UN workshop in Almaty (Kazakhstan) in Nov.2012 whose recommendations will have global impact on climate change.**

**He has served IEEE, IEE/IET, IE(I), ISTE, IETE in several capacities for over last 4 decades. He was vice chair of IET Delhi network. He has served in National committees of Industry associations like CII, IEEMA & FICCI. He has also served in several National committees of UPSC, AICTE, NBA, NPIU, DST, TIFAC, DSIR, MoI, MNES, CBIP, BEE, CSIR, NRDC, MHRD,TERI etc. He is member of appellate committee of NBA and mentor /auditor of Engineering Institutions supported by World Bank Project, TEQIP such as PDA, Gulbarga and BEC, Bagalkot.**

**His passion/ contribution to Industry Institute Interaction perhaps has few parallels. He was instrumental in signing several MoU with Industry. His two visiting assignments-KEC and ERDA- are with Industry totalling three years. He is among the few IIT faculty with Industrial experience.**

**He is an able administrator and a visionary. He led the Elec. Engg. Deptt of IITD as Associate Head and Head during 1996-2001. His dynamic leadership of the department resulted in new academic activities, alumni meets, industry linkage, space reorganisation and augmentation through additional floor. As Director of ERDA he was instrumental in starting new facilities and organising Short term courses for Industry in addition to give a boost to R&D. As Director of NITK Surathkal he gave new direction to reorient this Technical University to achieve higher levels of Excellence in teaching and Research comparable to Benchmark institutions in India and Abroad. Divisions by combining like departments were formed. He adopted several well proven IIT norms and procedures to improve efficiency. Several innovative actions were planned under the World Bank funded project TEQIP. Curriculum was modernised. Campus ambience and infrastructure improved, including roads, communication, and networking. NITK beach was formed. Emphasis was given to Value Education and**

**Personality development of Students. Enhanced Industry interaction, Consultancy and sponsored Projects planned. Formal MoU signed with IBM and NI on e-learning and Virtual Instrumentation. Plans were made to use EDUSAT for distance learning. Several inter-disciplinary cells established on Education Technology, Yogic Research, Energy/ Environment, and Rural & Coastal Technology. Locally developed technology on eco friendly building materials was planned for transfer to Industry.**

**He has made significant contribution to Technical Education thro' AICTE, ISTE, IJTE. His several published articles on technical education show his passion to push for excellence by Institutions and mode to achieve it. Recently, (April,2011), under Golden Jubilee Celebrations of IITD, he organised Prof CS Jha memorial workshop on "Effective Engineering Teaching" with many renowned educationists present. The proceedings and recommendations of the workshop are disseminated.**

**He has contributed significantly to community development and Campus life of IITD as office bearer of Holistic health committee, Faculty Forum, Sr. Staff Club, Nursery school, Commercial Estt. Committee, Hospital advisory committee etc. He was an active member and office bearer of Delhi Karnataka Sangha. As part of Govt. of India initiated program on 150<sup>th</sup> Birth Anniversary of Swami Vivekananda, Prof. Murthy organized study circle discussions for IIT students on value education and personality development recently.**

**Tapping his above vast experience and multi-faceted personality Prof. Murthy took charge to steer the Central University of Karnataka (CUK) as Vice- Chancellor towards making it a world class university (as mandated) with support from all stake holders- Faculty, Students, Staff, Government and society at large. Thus his recent contribution to upgrade CUK that could impact the Hyderabad Karnataka region is significant; Major ones are: introduction of a unique dual degree program in Engineering and Science, initiating community colleges on Healthcare, Energy, IT etc, reform PhD regulations & credit system, expediting moving to the new beautiful 650 Acre campus (formally dedicated to the Nation by Central HRD Minister on 30<sup>th</sup> Nov.2013 during a grand**



inaugural function attended by about 8000 citizens) , actions on a green and sustainable campus with 10000 samplings, adopting neighboring villages for development through innovation club etc. He prepared a roadmap to make CUK a premiere centre of higher education of this region with international fame.

**Major Publications:**

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3. **S.S.Murthy, (with C.S.Jha), "The Teaching of the Theory of Single Phase Induction Machines", I.J.T.E., Vol. 3, No.1, July, 1974, pp 5-10.**
4. **S. S. Murthy (with C. S. Jha), "Development of Synchronous Torque in Asymmetrical Rotor Induction Machines", Proc. IEE, Vol. 123(7), July,1976, pp.710.**
5. **S. S. Murthy(with C. S. Jha), "Generalized Rotating Field Theory of Synchronous Machines", J.I.E. ((1), Vol.57, Jan., 1977, pp 142-150 (This paper received the President of India prize during the year).**
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7. **S.S.Murthy (with Bhim Singh and A. K. Tandon). "Dynamic Models for the Transient Analysis of Induction Machines with Asymmetrical Winding Connections", Electric Machines and Electromechanics (USA) Vol. 6. No. 6, 1981 pp 479-492.**
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11. **S.S.Murthy (with O.P.Malik and A.K.Tandon), "Analysis of Self Excited Induction Generators", Proc. IEE Vol.129, Part C, No.6, Nov., 1982. pp 260-265.**
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13. **S.S.Murthy, G.J.Berg, "Induction Motor Models and the Correlation of their Parameters", J.I.E. (India) Vol.63, pt. EL-6, June, 1983 pp.263-**
14. **S.S.Murthy (with Bhim Singh, B.P.Singh, C.S.Jha), "Experience in Design Optimization of Induction Motors using SUMT Algorithm", IEEE Trans. on Power Apparatus and Systems, Vol. PAS-102, October, 1983, pp 3379-3384**
15. **Bhim Singh, B.P.Singh S.S.Murthy, C.S.Jha " Design Optimisation of Irrigation Pump Motors Using Box's Complex Algorithm, Journal of Institution of Engineers (India) EE Div. 64, 1984, pp186-190.**
16. **Bhim Singh, B.P.Singh, S.S.Murthy C.S.Jha, "Design Optimization of a Squirrel Cage Induction Motor for Irrigation Pump Applications", J.I.E. (India), Vol.64, pt. EL-1, Aug., 1983, pp 9-13.**
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18. **S Sreenivasa Murthy, G J Berg, C S Jha, A K Tandon " Novel Method of Multistage Dynamic Braking of**

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- 27. AK Tandon, S S Murthy, C S Jha, " New Method of Computing Steady State Response of Capacitor Self Excited Induction Generator" Journal Of Institution of Engineers (India), Electrical Engineering Division, 1985, pp196-201**
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