

	Name: KANMANI BUDDHI Professor & Head of Department Qualification: MTech, PhD Email-id: bkanmani.tce@bmsce.ac.in hod.tce@bmsce.ac.in Experience: 25 years (23 years in BMSCE) Teaching experience: 25 years (including three year deputation to IISc for PhD) Date of Joining this Institution (BMSCE): 25-10-1995 <u>Research Interests:</u> • Diffuse Optical Tomography • Signal Processing • Signal Processing Education • Engineering Education
About Your self	B Kanmani, obtained her Bachelors in Electronics and Communication Engineering from Nagarjuna University in 1987, M.Tech. in Digital communication from Indian Institute of Technology, Kanpur in 1990, and PhD from the Indian Institute of Science Bangalore (IISc) in the year 2006. She has been with BMS College of Engineering, Bangalore, since 1995, and has to her credit publications in the domain of Signal processing, Signal Processing Education and Engineering Education. She has personally presented papers in IEEE supported conferences held in Singapore, Dubai, Florida and Arizona. She has delivered lectures on the course 'Signals & Systems' during the VTU-EDUSAT Program-10. She has uploaded content modules on www.cnx.org with few modules having a popularity score of more than 90% with global access. She has also contributed laboratory content on http://www.tek.com/courseware/. She has successfully completed AICTE funded MODROBS and the IIPC projects. She served as Dean-Academics for a period of two years. Presently serving as the Head of the department Telecommunication Engineering, a position held for more than a decade, she has steered the department to effective implementation of Outcomes Based Education. She handles the under-graduate courses on Analog Signal Processing, Digital Signal Processing, Analog Communication and Digital Communication. Teaching is her passion and she constantly strives to improve her delivery and assessment methods. Her prior employment as a teaching faculty was with Thadomal Shahani College of Engineering (Mumbai) and K L College of Engineering (Guntur). She is Senior Member IEEE and Life Member ISTE.
<u>Education:</u>	• Doctoral Research: Indian Institute of Science, Bangalore (2006) • Masters: Indian Institute of Technology, Kanpur (1990) • Bachelors: Electronics & Communication Engineering, VR Siddhartha Engineering College, Nagarjuna University, Vijayawada (1987)

**Publications:
Diffuse
Optical
Tomography**

1. **B Kanmani** and R M Vasu, "Diffuse optical tomography using intensity measurements and the a priori acquired regions of interest: theory and simulations", *Journal of Physics in Medicine and Biology* Vol 50, 2005, pp 247-264 (stacks.iop.org/pb/50/247)
2. **B Kanmani** and R M Vasu, "Diffuse optical tomography through solving a system of quadratic equations: Theory and simulations", *Journal of Physics in Medicine and Biology*, Vol 51, 2006, pp 981-998 (stacks.iop.org/PMB/51/981)
3. **B Kanmani** and R M Vasu, "Contrast-detail and noise-tolerance analysis for detection and reconstruction of absorbing inhomogeneities with diffuse optical tomography using single- and phase-correlated dual source schemes", *Journal of Physics in Medicine and Biology*, Vol 52, 2007, pp 1409-1429 (stacks.iop.org/PMB/52/1409)
4. **Kanmani Buddhi** and R M Vasu, "Diffuse tomographic imaging, after estimation of location and approximate value of the object inhomogeneities through backprojection of the data", Internet Report, Saratov Fall Meet: Optical Technologies in Biophotonics and Medicine V, October 7 - 10, Russia, 2003. Available as *Proceedings SPIE Volume 5475*, pp108-14, 2004
5. **B Kanmani**, R Padmaram and R M Vasu, "Diffuse optical tomography through solving a system of quadratic equations without re-estimating the derivatives: the "Frozen-Newton" method, Reconstruction from experimental data" Internet Report, Saratov Fall Meeting: Coherent Optics of Ordered and Random Media V, edited by Dmitry A. Zimnyakov, September 21-24, Russia, 2004 Available as *Proceedings of SPIE Volume 5772*, pp 170-80, 2005.
6. **B Kanmani** and R M Vasu, "Elimination of cross-talk in diffuse optical tomographic reconstructions through a weighted update procedure: results of simulation study", Internet Report, Saratov Fall Meeting: Optical Technologies in Biophysics and Medicine VII, edited by Dmitry A Zimnyakov & Nikolai G Khlebtsov, September 27-30, Russia, 2005, Available as *Proceedings of SPIE Volume 6164*, pp 61640S1-11, 2006
7. **B Kanmani**, Puneet Bansal and R M Vasu, "Computationally efficient optical tomographic reconstructions through waveletizing the normalized quadratic perturbation equation", Internet Report: Saratov Fall Meeting 2005: Optical Technologies in Biophysics and Medicine VII, edited by Dmitry A Zimnyakov & Nikolai G Khlebstov, September 27-30, Russia, 2005 Available as *Proceedings of SPIE Volume 6164*, pp 61640R1-10, 2006
8. **B Kanmani** and R M Vasu, "Efficient noise tolerant reconstructions in diffuse optical tomography through computation of Jacobian in wavelet domain" Internet Report, Saratov Fall Meeting: Optical Technologies in Biophysics and Medicine VIII, Ed. Valery V. Tuchin, September 26-29, Russia, 2006 Available as *Proceedings of SPIE Volume 6535*, pp 65350Y1-12, 2007
9. **B Kanmani** , "Spatially varying regularization parameter for absorption inhomogeneities in diffuse optical tomography: Theory and simulations" Internet Invited Lecture, Saratov Fall Meeting: Optical Technologies in Biophysics and Medicine IX, September 25-28, Russia, 2007

**Publications:
Diffuse
Optical
Tomography**

10. **B Kanmani** , “Wavelet-Galerkin solution to the diffusion equation of diffuse optical tomography”, Internet Report, Saratov Fall Meeting: Optical Technologies in Biophysics and Medicine IX, September 25-28, Russia, 2007
11. **B Kanmani** , “Analysis of frequency domain dual phase-correlated sources for reconstructions in diffuse optical tomography”
Internet Report, Saratov Fall Meeting: Optical Technologies in Biophysics and Medicine IX, September 25-28, Russia, 2007
12. **B Kanmani & R M Vasu** , “Diffuse optical tomography through solving a system of quadratic equations without re-estimating the derivatives: The Frozen-Newton method”, IEEE International workshop on Biomedical circuits & Systems, BioCAS 2004, S2 2-17 to S2 2-20 : December 1-3, Singapore 2004.
[DOI: 10.1109/BIOCAS.2004.1454106](https://doi.org/10.1109/BIOCAS.2004.1454106), Publication Year: 2004 , Page(s): S2/2 - 17-20
13. Puneet Bansal, **B Kanmani**, R M Vasu, “Optical tomography through solving a system of quadratic equations: A wavelet – based reconstruction of the region of interest”, International Conference on Optics and Optoelectronics (XXXI Symposium of Optical Society of India) Instruments Research & Development Establishment Dehradun, Uttaranchal , December12-15, India, 2005
14. **B Kanmani** and R M Vasu, “Enhanced noise tolerance through wavelet-based reconstructions in diffuse optical tomography”, International Conference on Information and Communication technology IICT -07, pp 325-332, Dehradun, India, July 26-28, India, 2007
15. **B Kanmani** and R M Vasu, “Acquiring regions of interest from diffuse optical tomography measurements’, ICECS 2008, The 15th IEEE International conference on Electronics, Circuits and Systems, August 31st - September 3rd , Malta, 2008
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**Publications:
Signal
Processing
Education**

1. **B Kanmani** , “The transformer-less double-side band suppressed carrier generation”, IET, International conference on Wireless, Mobile and Multimedia Networks, January 11-12, Mumbai, India, 2008.
Publication Year: 2008 , Page(s): 121 – 124
2. **B Kanmani** , “The transformer-less generation of amplitude modulation: Theory and Experiment”, ICECS 2008, The 15th IEEE International conference on Electronics, Circuits and Systems, August 31st - September 3rd, Malta, 2008
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3. **B Kanmani** , “The modified ‘Switching-modulator’ for generation of AM and DSB-SC: Theory and experiment”, IEEE Signal processing society: 13th DSP Workshop & 5th SPE Workshop, Marco Island, 4th -7th January, Florida, 2009
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4. **B Kanmani** , “The ‘phase-reversal’ in DSB-SC: A comment”, IEEE Signal processing society: 13th DSP Workshop & 5th SPE Workshop, Marco Island, 4th - 7th January, Florida, 2009
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5. **B Kanmani** , “The ‘modified phase discriminator’ for SSB generation: Theory and experiment”, WASET CESSE 2009: International conference on Computer, Electrical and Systems science and Engineering, Rome, 28th -30th April, Italy ,2009
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6. **B Kanmani** “Some applications of the combination: LM-741 and LF-398”, WASET CESSE 2009: International conference on Computer, Electrical and Systems science and Engineering, Rome, 28th -30th April, Italy ,2009
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7. **B Kanmani** , “The modified ‘switching-modulator’ for generation of amplitude modulation”, WASET CESSE 2009: International conference on Computer, Electrical and Systems science and Engineering, Rome, 28th -30th April, Italy ,2009
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8. **B Kanmani** , “The transformer-less method of generating the AM and the DSB-SC using a single circuit”, WASET CESSE 2009: International conference on Computer, Electrical and Systems science and Engineering, Rome, 28th -30th April, Italy ,2009
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9. **B Kanmani** , “Introducing signals and systems concepts through analog signal processing first”, IEEE Signal processing society: 14th DSP Workshop & 6th SPE Workshop, Enchantment Resort, Sedona, Arizona, 4th -7th January, 2011
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10. **B Kanmani** , “An alternate approach to the laboratory implementation of communication experiments”, IEEE Signal processing society: 14th DSP Workshop & 6th SPE Workshop, Enchantment Resort, Sedona, Arizona, 4th -7th January, 2011
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11. **B Kanmani**, 'Digital Communication Using Labview', MITE-2013, IEEE International Conference on MOOC, Innovation and Technology in Education (MITE), Jaipur, 20-22 December, 2013
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12. **B Kanmani**, 'Laboratory Implementation of some Analog and Digital Modulation Schemes Using Single Circuit', MITE-2013, IEEE International Conference on MOOC, Innovation and Technology in Education (MITE), Jaipur, 20-22 December, 2013
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**Publications:
Signal
Processing**

1. Suma M N, Harshit Kumar, Gulab Prasad and **B Kanmani**, "LabVIEW based software defined radio FM modem" at the, Third IETE conferene on RF and wireless (Icon RFW-10), IETE Bangalore, 7th to 9th October 2010.
2. Suma M N, Roopa S and **B Kanmani**, "Performance study of Channel equalization for OFDM transmission using transform domain algorithm" at the, Third IETE conferene on RF and wireless (Icon RFW-10), IETE Bangalore, 7th to 9th October 2010.
3. Suma M N , **B Kanmani**, "Developments in Orthogonal Frequency Division multiplexing (OFDM) system-A survey", Second IEEE South Central Asian Himalayan Regional conference on Internet -NOV 2011, Nepal.
4. Suma M N , Kiran Sonna, **B Kanmani**, "Combined RS Coded, SLM and companding for PAPR reduction in OFDM" International Conference on Emerging Research in Electronics, Computer Science and Technology (ICERECT-12), December 2012
5. Suma M N , **B Kanmani**, " Channel Equalization with efficient variable stepsizse Transform domain adaptive algorithm", **ELIXIR Network Engg, Journal**, 38, 2011 4547-4551, [ISSN 2229-712X, September 2011](#).
6. Suma M N , Kiran Sonna, **B Kanmani**, " PAPR Reduction using SLM and Companding Technique", Special Issue of **International Journal of Computer Applications** (0975 – 8887) (ICEDSP) 2012 International Conference on Electronic Design and Signal Processing (ICEDSP) 2012
7. Suma M N , **B Kanmani**, "Coded Wavelet Packet OFDM with Companding for PAPR Reduction" **International Journal of Electronics Communication and Computer Engineering**, Volume 4, Issue 3, ISSN (Online): 2249–071X, ISSN (Print): 2278–4209 June 2013.
8. Suma M N , Kiran Sonna, **B Kanmani**, "PAPR reduction with error control coding in OFDM", **International Journal of Advances in Engineering & Technology**, July 2013. ISSN: 22311963
9. M N Suma, S V Narasimha, **B Kanmani**, Orthogonal frequency division multiplexing peak-to average power ratio reduction by best tree selection using coded discrete cosine harmonic wavelet packet transform, **IET communications**, pp 1-8, July 2014, DOI: [10.1049/iet-com.2013.1103](#)
10. M Janayanthi, **B Kanmani**, 'Extracting the Liver and Tumor images from abdominal CT images', Fifth International Conference on Image and Signal Processing, 2014, DOI [10.1109/ICSIP.2014.24](#)
11. M. N. Suma, S. V. Narasimhan, **B. Kanmani**, A New OFDM System Based on Discrete Cosine Harmonic Wavelet Transform (DCHWT) for PSK and QAM, , **Wireless Personal Communication (Springer)**, October 2014 DOI 10.1007/s11277-014-2110-7
12. Suma M N, Narasimhan S V, **B Kanmani**, "The OFDM system based on Discrete Cosine Harmonic Wavelet transform", **National Conference on Communications**, IEEE April 2012, pp 1-5, Kharagpur, India. Digital Object Identifier: [10.1109/AHICI.2011.6113955](#)

**Publications:
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Processing**

- 13.** M Jayanthi, **B Kanmani**, 'Extracting Liver and Tumor from Computer Tomography Images Using Hybrid Techniques', **International Journal of Innovations & Advancement in Computer Science**, IJIACS, ISSN 2347 – 8616, Volume 4, Issue3, March 2015
- 14.** Nitya Kumari, Suma M N, **B Kanmani** "Performance study of Spectral estimation and Sensing Methods in Cognitive Radios", **National Conference on Women in Science and Engineering**, July 2013, SDM Dharwad
- 15.** Vasantha Lakshmi M, **B.Kanmani**, " PAPR reduction through Lossy coding" at International Conference on Algorithms, Methodology, Models and Applications in Emerging Technologies – 2017 organized by Bharath University, Selaiyur, Chennai, Tamil Nadu in association with IEEE during February 16th to 18th 2017.
- 16.** Vasantha Lakshmi M, **B.Kanmani**, "PAPR Reduction through Lossy Coding in BPSK OFDM", at third Regional Conference on Radio Science URSI-RCRS 2017 organized by NARL, Department of Space, Govt of India, Gadanki, Tirupathi, Andhra Pradesh during March 1st to 4th 2017.
- 17.** K P Pushpavathi, **B Kanmani**, 'Frequency Sampling method of FIR filters design: A comparative study', at 3rd International Conference on Electronics, Communication, Computer Technologies and Optimization Techniques (ICEECCOT-2018), organized by GSSS Institute of Engineering & Technology for Women, from 14th to 15th December, 2018
- 18.** Jayanthi Muthuswamy, **B Kanmani**, 'Optimization based liver contour Extraction of abdominal CT images', **International Journal of Electrical and Computer Engineering** (IJECE), Vol 8, No 6, December 2018, pp. 5061-5070, ISSN: 2088-8708, [DOI: 10.11591/ijece.v8i6.pp.5061-5070](https://doi.org/10.11591/ijece.v8i6.pp.5061-5070)
- 19.** Vasantha Lakshmi M, **B.Kanmani**, " Digital circuit simulation study of Lossy source coding for PAPR reduction", 5th IEEE international conference on Advanced computing and Communication systems, Sri Eshwar College of Engineering, Coimbatore, Tamil Nadu, during march 15th to 16th 2019. *(Accepted)*
- 20.** K P Pushpavathi, **B Kanmani**, 'FIR Filter design using wavelet coefficients', at 4th International Conference on Wireless Communications Signal Processing and Networking (WiSPNET -2019), SSN College of Engineering, Kalavakkam, Tamil Nadu, 21st to 23rd March ,2019 *(Accepted)*
- 21.** Vasantha Lakshmi M, **B.Kanmani**, "PAPR of QPSK OFDM modulation schemes: A comparative study", **National Journal**, The IUP Journal of Electrical and Electronics Engineering, *(Accepted, to be Published April 2019)*.

**Publications:
Engineering
Education**

1. **B Kanmani**, K Mallikharjuna Babu, "Towards Improvement in Quality of Higher Education through Activity Based Teaching-Learning Process", **NATIONAL CONFERENCE** on "Modern Trend & Importance of Quality assurance in Higher Education & Role of Stake Holders", conducted by Guru Shree Shantivijai Jain College for Women at Chennai, February 22-23, 2013
2. **B Kanmani** and Mallikharjuna Babu, 'Leveraging Technology in Outcome Based Education', International Conference on Transformations in Engineering Education, ICTIEE-2014, Hubli, January 16-18, 2014
link.springer.com/content/pdf/10.1007%2F978-81-322-1931-6_48.pdf
3. **B Kanmani** and Mallikharjuna Babu, 'Defining Course Outcomes: An example', 2nd World Summit on Accreditation: International Recognition of Educational Qualifications, Conducted by NBA, 8th to 10th March 2014, at Hotel Ashok, New Delhi
4. **Kanmani, B**, 'Program educational objectives: A graphical representation', 2014 International Conference on Interactive Collaborative Learning (ICL), WEEF Dubai, December 3 to 6, 2014
[DOI: 10.1109/ICL.2014.7017844](https://doi.org/10.1109/ICL.2014.7017844) , Publication Year: 2014 , Page(s): 623 – 626
5. Babu, K. ; **Kanmani, B**. ; Gopalakrishnan, G. ; Girish, S. ; Suryanarayan, S. , 'Improvement of learning outcome and its measurement using social learning intelligence', 2014 International Conference on Interactive Collaborative Learning (ICL), WEEF Dubai, December 3 to 6, 2014
[DOI: 10.1109/ICL.2014.7017816](https://doi.org/10.1109/ICL.2014.7017816) , Publication Year: 2014 , Page(s): 459 – 463
6. **Kanmani, B** ; Babu, K Mallikharjuna, 'Introducing communication skills as an assessment tool in a course', 2014 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE), Patiala, December 19-20, 2014
[DOI: 10.1109/MITE.2014.7020266](https://doi.org/10.1109/MITE.2014.7020266) , Publication Year: 2014 , Page(s): 179 – 182
7. **Kanmani, B** ; Shreenivas, B ; Soni, Mukesh, 'Online courseware for electronics laboratory courses: An example', , 2014 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE), Patiala, December 19-20, 2014,
[DOI: 10.1109/MITE.2014.7020306](https://doi.org/10.1109/MITE.2014.7020306) , Publication Year: 2014 , Page(s): 372 – 376
8. **B. Kanmani** , K. Mallikharjuna Babu, ' Continuous Improvements in Teaching-learning-process in Outcomes Based Education', **Journal of Engineering Education Transformations** , Volume 28 , No.2 & 3 , Oct. 2014 & Jan. 2015 , ISSN 2349-2473,
[DOI: 10.16920/ijerit/2015/v28i2&3/56661](https://doi.org/10.16920/ijerit/2015/v28i2&3/56661), Publication Year: 2015 , Page(s): 85-91
9. **B Kanmani**, K Mallikharjuna Babu, "Introducing Life-Long learning in Engineering Education", 2015 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE), Amritsar, October 1-2, 2015
[DOI: 10.1109/MITE.2015.7375366](https://doi.org/10.1109/MITE.2015.7375366), Publication Year: 2015, Pages: 466 – 471

	10. B Kanmani, Shreenivas B, Prasanna Kumar M K, “Introducing a Modern-Tool in Engineering Education: An Example”, 2015 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE), Amritsar, October 1-2, 2015 DOI: 10.1109/MITE.2015.7375350 , Publication Year: 2015, Pages: 388 – 391 11. B Kanmani , “Outcomes and Assessment of Engineering Projects: An Example”, 3rd World Summit on Accreditation: Quality Assurance through Outcomes Based Education, by National Board of Accreditation, 18 to 20 March 2016, New Delhi, India http://wosa.nbaind.org:8081/proceedings/Web%20page/articles/025.pdf 12. B Kanmani, “Addressing Engineering Graduate Competencies through Course Outcomes: Some Examples”, 3rd World Summit on Accreditation: Quality Assurance through Outcomes Based Education, by National Board of Accreditation, 18 to 20 March 2016, New Delhi, India http://wosa.nbaind.org:8081/proceedings/Web%20page/articles/036.pdf 13. B Kanmani, ‘Engineering Education in India’, International Conference on ‘Liberal Education and the Future of the University’, held on 10 and 11 June 2016, at BMS College of Engineering, Bangalore 14. B Kanmani, ‘Continuous Quality Improvement through OBE’, ICITEE-2017, held at Vardhaman College of Engineering, Hyderabad, January 4 to 6, 2017 15. B Kanmani, ‘Enhancing student performance through effective development of Program Outcomes’, 4th World Summit on Accreditation: Quality Assurance through Outcomes Based Education, by National Board of Accreditation, 6 to 8 September 2018, New Delhi, India 16. B Kanmani, ‘Enhancing Industry Institute Collaboration’, 4th World Summit on Accreditation: Quality Assurance through Outcomes Based Education, by National Board of Accreditation, 6 to 8 September 2018, New Delhi, India
Courses Handled/List	• Analog Signal Processing • Discrete Time Signal Processing • Analog Communication • Digital Communication
Additional Responsibilities	• Regular Teaching • Research leading to publications • Execution of AICTE funded projects • Active engagement with industry representatives from National Instruments, Mathworks • Regular Department Administration (as HoD for 13 years) • Responsibilities associated as Dean Academics (for 2 years)

Grants received	- Completed AICTE-MODROBS for Modernization of Signal Analysis & Synthesis lab during 2002 (Rs 11.5 lakhs, three years) - Completed AICTE-MODROBS for Modernization of Analog & Digital Electronics Lab during 2008 (Rs 6 lakhs, two years) - Along with Prof Rajeshwari Hegde, completed AICTE-MODROBS for Modernization of Signal Processing and embedded lab during 2014 (Rs 14.3 lakhs, two years) - Completed In-house R&D project on Study & implementation of Telecommunication Engineering Circuits & Systems during 2008 (Rs 6.3 lakhs, two years) - Completed the AICTE-IIPC project in collaboration with National Instruments during 2010 (Rs 9 lakhs, two years) - Completed AICTE-MODROBS for Modernization of Digital Communication Lab during 2013 (Rs 9.17 lakhs, one year) - NOT COMMENCED, the AICTE-Research Park on Study, Design, Implementation and Performance Analysis of Wireless Communication Concepts, with matching Grants from National Instruments (2013, three years)
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