RESUME

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Designation : Professor

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1. Academic Record

Course	Institute	Specialization	Year
B. Tech.	Indian Institute of Technology (B. H. U.), Varanasi 221005	Chemical Engineering	1986
M. Tech.	Indian Institute of Technology, Madras 600 036	Process Control and Instrumentation	1988
Ph. D.	Indian Institute of Technology, Powai, Bombay 400 076	Systems and Control Engineering	1994

2. Areas of Research

- Nonlinear and Adaptive Model Predictive Control
- Nonlinear Bayesian State and Parameter Estimation
- On-line Fault Diagnosis and Fault Tolerant Control Systems
- Control Relevant Black-box Dynamic Modeling of Nonlinear Systems
- Stability analysis of nonlinear dynamic systems

3. Visiting Assignments

No	*University*	*Designation*	*From To*
1	Dept. of Chemical Engineering, Carnegie Mellon University, U.S.A.	Visiting Research Scholar	15.08.08 31.05.09
2	Dept. of Chemical and Materials Engineering, University of Alberta, Canada	Visiting Professor	(a) 3.12.2000 - 11.11.2001 (b) 6.5.2004 – 10.7.2004 (c) 1.5.2007 – 30.6.2007
3	Technical University of Munich, Germany	Visiting Professor	(a) 15.5.1998 – 25.7.1998 (b) 16.5.1999 – 15.7.1999

4. Awards and Recognition

1. Fellow, Indian National Institute of Engineering (INAE)
2. Institute Chair Professor in Chemical Engineering, I.I.T. Bombay (2015 to 2018).
3. S. P. Sukhatme Excellence in Teaching Award for 2021, I.I.T. Bombay
4. Departmental Excellence in Teaching Award for 2016, I.I.T. Bombay.
5. Indira Manudhane Best Post Graduate Teacher Award in Chemical Engineering, 2004-2005.
6. Manudhane Award for Best Applied Research in Chemical Engineering, 2003.

5. Editorial Assignments

1. Associate editor for Journal of Process Control
2. Technical Chair and Editor of proceedings of Advances in Control and Optimization of Dynamical Systems (ACODS 2020), Feb. 16-19, 2020.

6. Publications

Citation Statistics

Data base	No. of Documents	Total No. of Citations	h-index
SCOPUS	167	2701	27
Google Scholar	200	3684	31

6.1 International Journal Papers

1. Seth, G., Patwardhan, S. C., Bhushan, M., Constrained profile estimation for distributed parameter system in one dimension using orthogonal collocation, *Journal of Process Control*, 128 (2023) 103011, **2023** *(https://doi.org/10.1016/j.jprocont.2023.103011).*
2. Kumar, K., Patwardhan, S. C., Noronha, S., Development of Adaptive Dual Predictive Control Schemes based on Wiener-Hammerstein Models, *Journal of Process Control*, 119, 68-85, **2022**.
3. Varshney, D., Patwardhan, S. C., Bhushan, M., Biegler, L. T., Moving Horizon Estimator for Nonlinear and non-Gaussian Stochastic Disturbances, *Journal of Process Control*, 116, 234–254, **2022.**
4. Rangegowda, P. H., Valluru, J., Patwardhan, S. C., Mukhopadhyay, S., "Simultaneous and Sequential State and Parameter Estimation using Receding-Horizon Nonlinear Kalman Filter", *Journal of Process Control*, 109(18), 13-31, **2022**.
5. Rangegowda, P. H., Valluru, J., Patwardhan, S. C., Biegler, L. T., Mukhopadhyay, S., "Development of Robust Receding-horizon Nonlinear Kalman Filter using M-estimators", *Industrial & Engineering Chemistry Research*, 61(4), 1808-1829, **2022**.
6. Pandey, B., Bohara, B., Pungaliya, R., Patwardhan, S. C., Banerjee, R., "A thermal comfort-driven model predictive controller for residential split air conditioner", *Journal of Building Engineering*, 42, 102513, **2021**.
7. Tarakanath, K., Rao, V., Patwardhan, S. C., Agarwal, V., "Improved Set-point tracking and Disturbance Rejection of DC-DC Converters using Voltage-Mode Digital Control", Accepted for publication in *IEEE Journal of Emerging and Selected Topics in Power Electronics*, DOI: 10.1109/JESTPE.2020.2999955, **2020**.

8. Kumar, K., Patwardhan, S. C., Noronha, S., "Development of an Adaptive and Explicit Dual Model Predictive Controller based on Generalized Orthogonal Basis Filters", *Journal of Process Control,* 83, 196-214, **2019**.
9. Rajhans, C., Griffith, D. W., Patwardhan, S. C., Biegler, L. T., Pillai, H. K., "Terminal Region Characterization and Stability Analysis of Discrete Time Quasi Infinite Horizon Nonlinear Model Predictive Control", *Journal of Process Control,* Aug., 83, 30-52, **2019**.
10. Reddy, P. S.**,** Patwardhan, S. C., Rani, K. Y., "Robust Trajectory Tracking in a Reactive Batch Distillation Process using Multi-rate Nonlinear Internal Model Control", *Industrial and Engineering Chemistry Research, 58, 11364−11381* May, **2019**.
11. Varshney, D., Bhushan, M., Patwardhan, S. C., "Robust State Estimation and Parameter Estimation for Linear and Nonlinear Direct Feed-through Systems with Correlated Disturbances", *Industrial and Engineering Chemistry Research,* 58, 11532−11552, **2019**.
12. Varshney, D., Bhushan, M., Patwardhan, S. C., "State and Parameter Estimation using Extended Kitanidis Kalman Filter", *Journal of Process Control,* 76, 98–111, **2019.**
13. Vallaru, J., Patwardhan, S. C., "An Integrated Frequent RTO and Adaptive Nonlinear MPC Scheme based on Simultaneous Bayesian State and Parameter Estimation", *Ind. Eng. Chem. Res.*, 58, 7561-7578, **2019**.
14. Griffith, D. W., Biegler, L. T, Patwardhan, S. C., "Robustly Stable Adaptive Horizon Nonlinear Model Predictive Control", *Journal of Process Control,* 70, 109–122, **2018**.
15. Vallaru, J., Patwardhan, S. C., Biegler, L. T., "Development of Robust Extended Kalman Filter and Moving Window Estimator for Simultaneous State and Parameter/Disturbance Estimation", *Journal of Process Control,* 69, 158–178, **2018**.
16. Vallaru, J., Lakhmani, P., Patwardhan, S. C., Biegler, L. T., "Development of Moving Window State and Parameter Estimators under Maximum Likelihood and Bayesian Frameworks", *Journal of Process Control*, 60, 48–67, **2017**.
17. Reddy, P. S.**,** Rani, K. Y., Patwardhan, S. C., "Multi-objective optimization of a Reactive Batch Distillation process using Reduced order model", *Compt. Chem. Eng.,* 106, 40-56, **2017**.
18. Tarakanath, K., Patwardhan, S. C., Agarwal, V., "Experimental Evaluation of Internal Model Control Scheme on a dc-dc Boost Converter Exhibiting Non-minimum Phase Behavior", *IEEE Transactions on Power Electronics, 32, 8880-8891*, **2017**.
19. Bavdekar, V. A., Nandola, N., Patwardhan, S. C., "Estimation of Noise Covariance Matrices for State Estimation of Autonomous Hybrid Systems", *Computers and Chemical Engineering*, 94, 28–44, **2016**.
20. Bavdekar, V. A. , Prakash, J., Patwardhan, S. C., Shah, S. L., "A Moving Window Formulation for Recursive Bayesian State Estimation of Systems with Irregularly Sampled and Variable Delays in Measurements", *Ind. Eng. Chem. Res.,* 53 (35), 13750–13763, **2014**.
21. Kiasi, F., Prakash, J., Patwardhan, S. C., Shah, S. L., "A Untied Framework for Fault Detection and Isolation of Sensor and Actuator Biases in Linear Time Invariant Systems using Marginalized Likelihood Ratio Test and Uniform Priors", *Journal of Process Control,* 23, 1350– 1361, **2013**.
22. Purohit, J., Patwardhan, S.C., Mahajani, S., "DAE EKF Based Nonlinear Predictive Control of Reactive Distillation Systems Exhibiting Input and Output Multiplicities", *Industrial and Engineering Chemistry Research*, 52, 13699−13716, **2013**.

23. Purohit, J., Mahajani, S., Patwardhan, S.C., "Analysis of steady state multiplicity in reactive distillation columns", *Industrial and Engineering Chemistry Research*, 52, 5191−5206, **2013**.
24. Huang, R., Patwardhan, S. C., Biegler, L. T., "Robust stability of nonlinear model predictive control with extended Kalman Filter and target setting", *Int. J. of Robust and Nonlinear Control*, 23, 1240–1264, **2013**.
25. Patwardhan, S. C., Narasimhan, S., Prakash, J., Gopaluni, R.B., Shah, S. L., "Nonlinear Bayesian State Estimation: Review And Recent Trends", *Control Engineering Practice*, 20, 933–953, **2012**.
26. Detroja, K, Gudi, R. D., Patwardhan, S. C., *"*Data reduction algorithm based on principle of distributional equivalence for fault diagnosis", *Control Engineering Practice*, 20, 1033–1041, **2012.**
27. Bavdekar, V. A. and Patwardhan, S. C., "Development of Grey Box State Estimators for Systems Subjected to Time Correlated Unmeasured Disturbances", *Journal of Process Control, 22, 1543– 1558*, **2012**.
28. Huang, R., Patwardhan, S. C., Biegler, L. T., "Robust nonlinear model predictive control based on discrete nonlinear extended observers", *Journal of Process Control, 22, 82– 89,* **2012**.
29. Badwe, A., Patwardhan, S. C., Gudi. R. D., "Closed-loop Identification Using Direct Approach and high order ARX / OBF-ARX Models", *Journal of Process Control*, 21, 1056– 1071, **2011**.
30. López-Negrete, R., Patwardhan, S. C., Biegler, L. T. , Approximation of Arrival Cost in Moving Horizon Estimation Using a Constrained Particle Filter, *Journal of Process Control*, 21, 909–919, **2011**.
31. Bavdekar, V. A., Deshpande, A. P., Patwardhan, S. C., "Identification of Process and Measurement Noise Covariance for State and Parameter Estimation Using Extended Kalman Filter", *Journal of Process Control*, 21, 585–601, **2011**.
32. Prakash, J., Patwardhan, S. C., Shah, S. L., "On The Choice Of Importance Distributions For Unconstrained and Constrained State Estimation Using Particle Filter", *Journal of Process Control*, 21, 3–16, **2011**.
33. Kumar, S., Narasimhan, K., Patwardhan, S. C., and Prasad, V., "Extensions to Experiment Design and Identification Algorithms for Large-Scale and Stochastic Processes", *International Journal of Advanced Mechatronics System*, 3, 1, 3-13, **2011**.
34. Huang, R., Patwardhan, S. C., Biegler, L. T. , "Stability of a Class of Discrete Nonlinear Extended Observers", *Journal of Process Control, 20, 1150–1160,* **2010**.
35. Prakash, J., Patwardhan, S. C., Shah, S. L., "State Estimation and Nonlinear Predictive Control of Autonomous Hybrid System Using Derivative Free State Estimators", *Journal of Process Control*, 20, 787–799, **2010**.
36. Badwe, A., Singh, A., Patwardhan, S. C., Gudi. R. D., "A Constrained Recursive Pseudo-linear Regression Scheme for On-line Parameter Estimation in Adaptive Control", *Journal of Process Control*, 20, 559–572, **2010**.
37. Huang, R., Biegler, L. T., Patwardhan, S. C., "Offset-free Advanced Step Nonlinear Model Predictive Control Based on Moving Horizon Estimation", *Industrial and Engineering Chemistry Research*, 49, 7882–7890, **2010**.

38. Prakash, J., Patwardhan, S. C., Shah, S. L., "Constrained Nonlinear State Estimation Using Ensemble Kalman Filter", *Industrial and Engineering Chemistry Research*, 49, 2242–2253, **2010**.
39. Methekar, R. N., Patwardhan, S. C., Rengasamy, R., Gudi, R. D., Prasad, V., "Control of PEMFC using Data Driven State Space Models", *Chemical Engineering Research and Design*, Dec., 8 8, 861–874, **2010**.
40. Methekar, R. N., Patwardhan, S. C., Gudi, R. D., Prasad, V., "Adaptive Peak Seeking Control of a Proton Exchange Membrane Fuel Cell", *Journal of Process Control, 20, 73–82*, **2010**.
41. Deshpande, S., Patwardhan, S. C., Methekar, R., Rengasamy, R., "Unconstrained NMPC Based on a Class of Weiner Models: A Closed Form Solution", *Industrial and Engineering Chemistry Research*, 49, 148–165, **2010**.
42. Badwe, A., Shah, S. L., Patwardhan, R. S., Patwardhan, S. C., Gudi. R. D., "Quantifying the impact of model-plant mismatch on controller performance", *Journal of Process Control*, 20, 408–425, **2010**.
43. Muddu, M., Anuj Narang, A., Patwardhan, S. C., "Reparameterized ARX Models for Predictive Control of a Distillation Column", *Control Engineering Practice*, 18, 114–130, **2010**.
44. Tufa, L. D., Ramasamy, M., Patwardhan, S. C., Shuhaimi, M., "Development of Box-Jenkins type Time Series Models by Combining Conventional and Orthonormal Basis Filter Approaches", *Journal of Process Control*, 20, 108–120, **2010**.
45. Muddu, M., Anuj Narang, A., Patwardhan, S. C., "Development of ARX models for Predictive Control using Fractional Order and Orthonormal Basis Filter Parameterization", *Industrial and Engineering Chemistry Research*, 48, 8966–8979, **2009**.
46. Badwe, A., Gudi. R. D., Shah, S. L., Patwardhan, R. S., Patwardhan, S. C., "Detection of Model-Plant Mismatch in MPC Applications", *Journal of Process Control*, 19, 1305–1313, **2009**.
47. Deshpande, A., Patwardhan, S. C., Narasimhan, S., " Intelligent State Estimation for Fault Tolerant Nonlinear Model Predictive Control", *Journal of Process Control*, 19, 187–204, **2009**.
48. Manuja, S.; Patwardhan, S.C. ; Narasimhan, S., "Unknown Input Modeling and Robust Fault Diagnosis using Black Box Observers", *Journal of Process Control*, 19, 25–37, **2009**.
49. Deshpande, A., Zamad, U., Patwardhan, S. C., "On-line Sensor / Actuator Failure Isolation and Reconfigurable Control using Generalized Likelihood Ratio Method", *Industrial and Engineering Chemistry Research*, 48, 1522-1535, **2009**.
50. Deshpande, A., Patwardhan, S. C., "Online Fault Diagnosis in Nonlinear Systems using Multiple Operating Regime Approach", *Industrial and Engineering Chemistry Research*, 47, 6711–6726, **2008**.
51. Srinivas, K., Shaw, R., Patwardhan, S. C., Noronha, S., "Adaptive Model Predictive Control of Multivariable Time-Varying Systems", *Industrial and Engineering Chemistry Research*, 47, 2708-2720, **2008**.

52. Thornhill, N., Patwardan, S. C., Shah. S. L., "A Continuous Stirred Tank Heater Simulation Model with Applications", *Journal of Process Control***,** 18, 347–360, **2008**.
53. Manuja, S., Narasimhan, S., Patwardhan, S. C., "Fault Diagnosis and Fault Tolerant Control Using Reduced Order Models", *Canadian Journal of Chemical Engineering*, 86, 4**,** 791-803, **2008.**
54. Detroja, K. P. ; Gudi, R. D., Patwardhan, S. C., "Plant-Wide Detection and Diagnosis using Correspondence Analysis", *Control Engineering Practice*, 15, 1468–1483, **2007**.
55. Yamunarani, K. ; Patwardhan, S. C. Data-Driven Model Based Control of a Multi-Product Semi-Batch Polymerization Reactor", *Chemical Engineering Research and Design*, 85(A10), 1397–1406, **2007**.
56. Srinivasarao,M.; Patwardhan,S. C.; Gudi, R. D., "Nonlinear Predictive Control of Irregularly Sampled Multi-Rate Systems using Nonlinear Black Box Observers", *Journal of Process Control*, 17, 17–35, **2007**.
57. Detroja, K. P., Gudi, R. D., Patwardhan, S. C., "A Possibilistic Clustering Approach to Novel Fault Detection and Isolation", *Journal of Process Control***,** 16, 1055-1073, **2006**.
58. Srinivasrao, M., Patwardhan, S.C., Gudi, R. D., "From Data to Nonlinear Predictive Control. 2.. Improving Regulatory Performance using Identified Observers", *Industrial and Engineering Chemistry Research,* **2006,** 45, 3593-3603**.**
59. Srinivasrao, M., Patwardhan, S.C., Gudi, R. D., "From Data To Nonlinear Predictive Control. 1. Identification of Multivariable Nonlinear State Observers", *Industrial and Engineering Chemistry Research,* **2006,** 45, 1989-2001**.**
60. Detroja, K. P. ; Gudi, R. D.; Patwardhan, S. C.; Roy, K. Fault detection and isolation using correspondence analysis. *Industrial and Engineering Chemistry Research*, 45, 223-235, **2006**.
61. Patwardhan, S.C., Manuja, S., Narasimhan, S., Shah, S. L., "From Data to Diagnosis and Control using Generalized Orthonormal Basis Filters", Part II: Model predictive and fault tolerant control. *Journal of Process Control*, 16, 157–175, **2006**.
62. Patwardhan, S.C. ; Shah, S. L. From Data to Diagnosis and Control Using Generalized Orthonormal Basis Filters. Part I: Development Of State Observers", *Journal of Process Control*, 15, 819–835, **2005**.
63. Prakash, J.; Patwardhan, S. C.;Narasimhan, S., "Integrating Model Based Fault Diagnosis with Model Predictive Control*", Industrial and Engineering Chemistry Research*, 44, 4344-4360., **2005**.
64. Rani, K. Y. ; Patwardhan, S. C., "Data-driven Modeling and Optimization of Semi-Batch Reactors using Artificial Neural Networks", *Industrial and Engineering Chemistry Research*, 43, 7539-7551, **2004**.
65. Saha, P.; Krishnan, S. H. ; Rao, V. S. R. ; Patwardhan, S. C., "Modeling And Predictive Control Of MIMO Nonlinear Systems Using Weiner-Laguerre Models", *Chemical Engineering Communications*, 191, 1083-1119, **2004**.
66. Prakash, J.; Patwardhan, S. C.; Narasimhan, S., "A Supervisory Approach to Fault Tolerant Control of Linear Multivariable Systems", *Industrial and Engineering Chemistry Research*, 41, 2270-2281, **2002**.

67. Kumar, K. K.; Patwardhan, S. C., Nonlinear Predictive Control of Systems Exhibiting Input Multiplicities Using Multi-Model Approach, *Industrial and Engineering Chemistry Research*, 41, 3186-3198, **2002**.
68. Saha, P., Patwardhan, S. C., Rao, V. S. R., "Adaptive Optimizing Control of Continuous Fermenter Using Nonlinear Laguerre Models", *Bioprocess Engineering*, 20, 1, 15-21**, 1999**.
69. Patwardhan, S. C., Madhavan, K.P., "Nonlinear Internal Model Control Using Quadratic Prediction Models", *Computers and Chemical Engineering*, 22, 4/5, 587-601, **1998**.
70. Patwardhan, S. C.; Madhavan, K.P. Improved Techniques for Development of Quadratic Perturbation Models", *Industrial and Engineering Chemistry Research*, 35, 4281-4290**, 1996**.
71. Patwardhan, S. C.; Madhavan, K.P. Nonlinear predictive control using approximate second order perturbation models. *Industrial and Engineering Chemistry Research*, 32, 334, **1993**.

6.2 Book Chapters

1. Deshpande, S., Patwardhan, S. C., Unconstrained NMPC Based on a Class of Weiner Models: A Closed Form Solution, in *Nonlinear Model Predictive Control,* Magni, L., Raimondo; D. M.; Allgöwer, F. (Eds.), *Lecture Notes in Control and Information Sciences*, **2009**, pp 481-480, Springer, Berlin.
2. Prakash, J., Deshpande, A. P., Patwardhan, S. C., State Estimation and Fault Tolerant Nonlinear Predictive Control of an Autonomous Hybrid System Using Unscented Kalman Filter. in *Nonlinear Model Predictive Control,* Magni, L., Raimondo; D. M.; Allgöwer, F. (Eds.), *Lecture Notes in Control and Information Sciences*, **2009**, pp 285-293, Springer, Berlin.
3. Srinivasarao, M., Patwardhan, S. C.; Gudi, R. D. Nonlinear Predictive Control of Irregularly Sampled Nonlinear Systems Using Identified Observers, *In Assessment and Future Directions of Nonlinear Model Predictive Control*, Findeisen, R., Allgower, F. Biegler, L. T. (Eds.), *Lecture Notes in Control and Information Sciences*, **2007,** pp. 141-150**,** Springer, Berlin.
4. Deshpande, A.; Patwardhan, S. C., Narasimhan, S. Integrating fault diagnosis with nonlinear model predictive control. *In Assessment and Future Directions of Nonlinear Model Predictive Control*, Findeisen, R., Allgower, F. Biegler, L. T. (Eds.), *Lecture Notes in Control and Information Sciences*, **2007,** 513-522, Springer, Berlin.
5. Munawar, S.A. ; Kapadi, M. D.; Patwardhana, S.C. ; Madhavan, K.P. ; Pragathieswaranb, S.; Lingathurai, P.; Gudi, R. D. Integration of planning and scheduling in multi-site plants: Application to paper manufacturing. *Elsevier Series on Computer Aided Chemical Engineering*, 20, 2, 1621-1626, **2005**.

6.3 Proc. of Scopus Indexed (Reviewed) International Conferences

1. Patwardhan, S. C., Pillai, H. K., A Lyapunov Based Method for Designing State Feedback Controllers for a class of Discrete-time Systems, *Proc. Of IFAC World Congress 2023, Yokohama, JAPAN***,** 9 to 14 July, **2023**.
2. Bagla, G., Valluru, J., Deshpande, A P., Patwardhan S. C., Intelligent State Estimation for Online Optimizing Control of a Reactor System exhibiting Input Multiplicity, *Proc. of 13th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS 2022)*, Busan, Republic of Korea, June 14-17, **2022**. (Keynote Address)
3. Singh, S., Kumar, K., Patwardhan, S. C., Development of Block Oriented Recursive and Constrained Parameter Estimation Schemes for ARMAX Models, *Proc. of 13th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS 2022)*, Busan, Republic of Korea, June 14-17, **2022**.
4. Patel, J., Kumar, K., Patwardhan S. C., Development of Wiener-Hammerstein Models Parameterized using Orthonormal Basis Filters and Deep Neural Network, *Proc. of 13th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS 2022)*, Busan, Republic of Korea, June 14-17, **2022**.
5. Seth, G., Rangegowda, P. H., Patwardhan S. C., Bhushan, M., Sensor Fault Accommodation for a Plug Flow Reactor using an M-Estimator, *Proc. of 13th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS 2022)*, Busan, Republic of Korea, June 14-17, **2022**.
6. Sailo, S., Kumar, K., Patwardhan, S. C., Nataraj, P. S. V., Development of Non-Cooperative Distributed Adaptive MPC Schemes Based on ARX Models Parameterized Using Orthonormal Basis Filters, *Proc. of 11th International Symposium on Advanced Control of Chemical Processes (ADCHEM)*, Venice, Italy, 13 – 16 June, **2021**.
7. Varshney, D., Patwardhan, S., Bhushan, M., and Biegler, L., MHE Based State and Parameter Estimation for Systems subjected to Non-Gaussian Disturbances, *Proc. of IFAC World Congress 2020*, Berlin, Germany, July 11-27, **2020**.
8. Kumar, K., Patwardhan, S. C., Noronha, S., Grade Transition Control of Tennessee Eastman Process using Adaptive Dual MPC, *Proc. of IFAC World Congress 2020*, Berlin, Germany, July 11-27, **2020**.
9. Mohapatra, S. R., Sekhar, P., Agarwal, V., Patwardhan, S.C., Experimental Evaluation of Internal Model Control for 3φ Grid-tied Solar PV Inverter, 2020 International Conference on Power Electronics and IoT Applications in Renewable Energy and its Control (PARC 2020), February **2020**, Article number 9087164, Pages 432-436.
10. Bagla, G., Valluru, J., Patwardhan S. C., "Efficient Operation of Continuous Reactor Systems using Economic Nonlinear MPC Formulations", *Proc. of Advances in Control and Optimization of Dynamical Systems (ACODS-2020*), Chennai, India, Feb. 16-19, **2020**. (IFAC-PapersOnLine Volume 53, Issue 1, 2020, Pages 512-517)
11. Seth, G., Patwardhan S. C., Bhushan, M., "Estimation of Spatial Concentration Profiles in a Plug Flow Reactor using Reduced Dimensional Models", *Proc. of Advances in Control and Optimization of Dynamical Systems (ACODS-2020*), Chennai, India, Feb. 16-19, **2020**. (IFAC-PapersOnLine Volume 53, Issue 1, 2020, Pages 39-44)
12. Kumar, K., Patwardhan, S. C., Noronha, S., "Tracking Economic Optimum of a Continuous Fermenter using Adaptive Dual Nonlinear MPC", *Proc. of SICE Annual Conference 2019*, Hiroshima, Japan, Sept.10-13, **2019.**

13. Valluru, J., Patwardhan S. C., "An Adaptive Optimizing Control Scheme Robust to Gross Errors in Measurements", *Proc. of SICE Annual Conference 2019*, Hiroshima, Japan, Sept.10-13, **2019.**
14. Varshney, D., Patwardhan, S. C., Bhushan, M., Biegler, L. T., "Batch and Moving Horizon Estimation for Systems subjected to Non-additive Stochastic Disturbances", Proc. of 12'th *IFAC Symposium on Dynamics and Control of Process Systems* (*DYCOPS-2019)*, Florianopolis, Brazil, April 23-25, **2019**. (IFAC PapersOnLine 52-1, 2019, Pages 16–21)
15. Rangegowda, P. H., Patwardhan, S. C., Biegler, L. T., Mukhopadhyay, S., "Simultaneous State and Parameter Estimation using Robust Receding-horizon Nonlinear Kalman Filter", Proc. of 12'th *IFAC Symposium on Dynamics and Control of Process Systems* (*DYCOPS-2019)*, Florianopolis, Brazil, April 23-25, **2019**. (IFAC-PapersOnLine. Volume 52, Issue 1, 2019, Pages 10-15)
16. Kumar, K., Patwardhan, S. C., and S. Noronha, "Control of Systems Exhibiting Input Multiplicities using Dual Nonlinear MPC", *Proc. of 6th IFAC Conference on Nonlinear Model Predictive Control (NMPC 2018)*, Wisconsin, Madison, August 19-22, **2018**. (IFAC-PapersOnLine, Volume 51, Issue 20, 2018, Pages 110-115)
17. Rajhans, C., Griffith, D. W., Patwardhan, S. C., Biegler, L. T., Pillai, H., "Two Approaches for Terminal Region Characterization in Discrete Time Quasi-Infinite Horizon NMPC", *Proc. of 6th IFAC Conference on Nonlinear Model Predictive Control (NMPC 2018)*, Wisconsin, Madison, August 19-22, **2018**.
18. Rangegowda, P. H., Valluru, J., Patwardhan, S. C., Mukhopadhyay, S., "Simultaneous State and Parameter Estimation using Receding-horizon Nonlinear Kalman Filter", *Proc. of 10th IFAC Symposium on Advanced Control of Chemical Processes (ADCHEM-2018)*, Shenyang, China, July 25 - 27, **2018**. (IFAC-PapersOnLine, Volume 51, Issue 18, 2018, Pages 411-416)
19. Griffith, D. W., Patwardhan, S. C., Biegler, L. T., "Quasi-Infinite Adaptive Horizon Nonlinear Model Predictive Control", *Proc. of 10th IFAC Symposium on Advanced Control of Chemical Processes (ADCHEM-2018)*, Shenyang, China, July 25 - 27, **2018**. (IFAC-PapersOnLine, Volume 51, Issue 18, 2018, Pages 506-51)
20. Purohit, J. L., Patwardhan, S. C., "Development of Iterative EKF for Differential – Algebraic Equations Systems (DAEs)", *Proc. of Advances in Control and Optimization of Dynamical Systems - 5th ACODS 2018*, Hyderabad, 18-22 Feb., **2018**. (IFAC-PapersOnLine, Volume 51, Issue 1, 2018, Pages 691-696).
21. Kumar, K., Patwardhan, S. C., and S. Noronha, "An Adaptive Dual MPC Scheme based on Output Error Models Parameterized using Generalized Orthonormal Basis Filters", *Proc. of 20th World Congress of International Federation of Automatic Control*, 50(1), pp. 9077-9082, Toulouse, France, 10-14 July, **2017**. (IFAC-PapersOnLine, Volume 50, Issue 1, July 2017, Pages 9077-9082).
22. Rajhans, C., Patwardhan, S. C., Pillai, H. "Discrete Time Formulation of Quasi Infinite Horizon Nonlinear Model Predictive Control Scheme with Guaranteed Stability". *Proc. of 20th World Congress of International Federation of Automatic Control*, 50(1), 7181-7186, Toulouse, France, 10-14 July, **2017**. (IFAC-PapersOnLine, Volume 50, Issue 1, July 2017, Pages 7181-7186)

23. Tarakanath K., Patwardhan S. and Agarwal, V., "Implementation of an internal model controller with anti-reset windup compensation for output voltage tracking of a non-minimum phase DC-DC boost converter using FPGA", *Proc. of 2nd IEEE Annual Southern Power Electronics Conference (SPEC),* Auckland, New Zealand, 5th-8th, Dec. **2016**.
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6.4 International Conference Presentations

90. López-Negretea, R., Patwardhan, S. C., Biegler, L. T., Estimation of the Arrival Cost in MHE Using Particle Filters. *AIChE Annual Meeting*, Nashville, USA on 8-13 Nov., **2009**.
91. Huang, R., Patwardhan, S. C., Biegler, L. T., Nonlinear Observer Based Robust And Offset-Free Nonlinear Predictive Control Of Air Separation Unit In A Power Plant. *AIChE Annual Meeting*, Nashville, USA on 8-13 Nov., **2009**.
92. Huang, R., Patwardhan, S. C., Biegler, L. T., Online Model Maintenance And Robust Adaptive Nonlinear Model Predictive Control. *AIChE Annual Meeting*, Nashville, USA on 8-13 Nov., **2009**.
93. Methekar, R., Prasad, V., Patwardhan, S. C., Gudi, R. D., Control of PEMFC Using Empirical Dynamic Models in An Imc and LQG Framework, *presented at AIChE National Meeting*, Salt Lake City, U.S.A. , Nov. 4 -9, **2007**.

94. Manuja, S.; Patwardhan S.C.; Narasimhan S., "Fault Tolerant Control with Identified Models: An Experimental Case Study", *Int. Conference on Intelligent Sensing and Information Processing ICISIP'04*, Chennai, January, **2004**.
95. Manuja, S.; Patwardhan S. C.; Narasimhan, S.; Shah, S.L.; "Fault Tolerant Control of A Distillation Column Using Optimal State Observer Identified From Input-Output Data**",** *presented at CSChE National Meeting*, Halifax, Canada, 14-17 Oct., **2001**.
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97. Yamuna Rani K ; Rao, V. S. R.; Patwardhan, S. C.; "Data Driven Modeling for Operating Trajectory Optimization of a Fed-Batch Fermenter"**,** *presented at CSChE National Meeting*, Halifax, Canada, 14-17 Oct., **2001**.
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99. Prakash, J., Shankar Narasimhan and S. C. Patwardhan " Integrating Model Based Fault Diagnosis with Model Predictive Control ", *presented at AIChE National Meeting*, Reno, U.S.A., 4-9 Nov. , **2001**.
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101. Prakash, J., S. C. Patwardhan and Shankar Narasimhan " Fault Tolerant Control of Continuous Stirred Tank Reactor", *Proc. of International Conference on Communication, Control and Signal Processing,* Banglore, pp 117-121, July, **2000**.

6.5 Keynote / Plenary Address in Conferences

International

- "Intelligent State Estimation for Online Optimizing Control of a Reactor System exhibiting Input Multiplicity", Keynote talk in *13th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS 2022),* Busan, Republic of Korea, June 14-17, **2022**.
- "Development of Nonlinear Black Box Models using Orthonormal Basis Filters: A Review", Keynote talk in *International Symposium on Advanced Control of Industrial Processes 2014*, Hiroshima, Japan, 28-30 May, **2014**.
- "Soft Sensing and State Estimation: Review and Recent Trends". Plenary address in *In IFAC Conference on Cost Effective Automation in Networked Product Development and Manufacturing,* Monterrey, Mexico, 3-5 Oct., **2007**.

National

- "Advanced in State and Parameter Estimation and Fault Tolerant Control", Plenary Lecture, 1'st Indian Process Systems Engineering Conference, 19'th Aug., 2019.
- "Advanced Process Monitoring and Control: An Overview", Keynote Address, Aditya Birla Group Simulation Conference 2012, Mumbai, 5'th Dec., **2012**.

- "Soft Sensing and Nonlinear State Estimation: A Review and New Results", Plenary Lecture, International Conference on Process Automation, Control and Computing, (IEEE-PACC 2011), Coimbatore, India, 20-22 July, **2011**.
- "Nonlinear Bayesian State Estimation: A Tutorial Review", International Conference on Trends in Industrial Automation (*TIMA 2011),* Chennai, 6-8 Jan., **2011**.
- "Nonlinear Model Predictive Control", In *National Conference on Identification, Control and Diagnosis*, Chennai, India, 15-16 Dec., **2005**.

6.6 Technical Reports

1. Kapadi, M ; Munawar, S. A.; Patwardhan, S. C. and K. P. Madhavan, "Advanced Planning and Scheduling Solutions for P3 (Paper, Pulp and Printing) Industries", *Technical Report submitted to Honeywell Technology Solutions Lab., Bangalore.* April, 2004.

2. Darji, A.; Patwardhan, S. C.; Gudi, R. D. and H. Pillay, "Performance of Evaluation of Wireless Sensor Networks for Control Applications". *Technical Report submitted to Honeywell Technology Solutions Lab., Bangalore.* July, 2006.

3. Badwe, A. ; Gudi, R. D. ; Patwardhan, S. C., "Model Maintenance in Advanced Process Control Schemes". *Technical Report submitted to Honeywell Technology Solutions Lab., Bangalore.* July, 2006.

4. Dasgupta, D. and Sachin C. Patwardhan, "Nonlinear Black-Box Model Identification For Predictive Control of Fluidized Bed Reactor For Polyethylene Production", *Technical Report submitted to Honeywell Technology Solutions Lab., Bangalore.* March, 2011.

5. Patwardhan, S. C., "Dynamic Data Driven Model Based Predictive Control of Nuclear Steam Generator", *Technical Report submitted to B.R.N.S., Feb.2015.*

7. Supervision of Ph. D. Students

1. Prabir Kumar Saha, "Model Predictive Control of Chemical Processes using Nonlinear Laguerre Models", I.I.T. Madras, **1999**.
2. J. Prakash, "On-line Fault Tolerant Control Strategies for Linear Multivariable Systems", I.I.T. Madras , **2002**. (Co-supervisor: Shankar Narasimhan, I.I.T. Madras)
3. K. Yamuna Rani, "Optimization and Control of Semi-Batch Processes Using Artificial Neural Networks", I.I.T. Madras , **2002**.
4. Seema Manuja, "Fault Tolerant Control of Complex Systems", I.I.T. Madras, **2004**. (Co-supervisor: Shankar Narasimhan, I.I.T. Madras)
5. M. Srinivasrao, "Nonlinear Predictive Control using Black-Box Nonlinear Observers", I.I.T. Bombay, **2006**. (Co-supervisor: R. D. Gudi, I.I.T. Bombay)
6. Ketan Detroja, "Fault Detection and Diagnosis in Large Scale Systems", I.I.T. Bombay, **2007**. (Co-supervisor: R. D. Gudi, I.I.T. Bombay)
7. Anjali Deshpande, "A Unified Framework for Online Fault Identification and Accommodation in Nonlinear Systems", I.I.T. Bombay, **2008**.

8. Ravi Methekar, “Advanced Control of PEM Fuel Cell using Data Driven Models”, I.I.T. Bombay, **2009**. (Co-supervisor: R. D. Gudi, I.I.T. Bombay).
9. Abhijit Badwe, “Model Maintenance For Linear Model Predictive Control”, I.I.T. Bombay, July, **2010**. (Co-supervisor: R. D. Gudi, I.I.T. Bombay).
10. Muddu , M. “Predictive Control of High Order and Distributed Parameter Systems using Data Driven Models.”, I.I.T. Bombay, July, **2010**.
11. Shraddha Deshpande, “Computationally Efficient Model Based Control for Nonlinear and Fast Dynamic Systems”, I.I.T. Bombay, Sept., **2010**.
12. Vinay Bavdekar, “Identification of Discrete Stochastic Unmeasured Disturbance Models for Nonlinear Bayesian Grey Box Observers”, I.I.T. Bombay, Aug., **2011**.
13. Jalesh Purohit, “Nonlinear Dynamic Analysis, State Estimation and Nonlinear Predictive Control of Reactive Distillation Systems”, I.I.T. Bombay, June, **2014**. (Co-supervisor: S. M. Mahajani, I.I.T. Bombay)
14. Swapna Reddi, “Computationally Efficient Modeling and Model based Optimal Control of Butyl Acetate Production using Reactive Batch Distillation”, I.I.T. Bombay, Dec. **2017**. (Co-supervisor: K. Yamuna Rani, IICT, Haderabad).
15. K. Taraknath, “Application of Model Based Control Strategies to Non-minimum Phase Power Electronic Systems”., ***2017***. (Co-supervisor: Vivek Agarwal, Electrical Engineering, I.I.T. Bombay)
16. V. Jayram, “Real-Time Adaptive Optimizing Control using Bayesian State and Parameter Estimators”, ***2018***.
17. Chinmay Rajhans, “Terminal Region Characterization and Stability Analysis of Quasi Infinite Horizon Nonlinear Model Predictive Control Schemes”, July, **2020**. (Co-supervisor: Harish Pillai, Electrical Engineering, I.I.T. Bombay)
18. Devyani Varshney, “State Estimation and Parameter Estimation Strategies for Nonlinear systems with Non-additive Disturbances”, (Co-supervisor: Mani Bhushan, Chemical Engineering, IIT Bombay), Dec., **2020**.
19. Kunal Kumar, “Development of Adaptive MPC and Nonlinear MPC Schemes based on Dual Control Framework”, **2021.**
20. Pavanraj, H. R., “Development of Moving Window based State and Parameter Estimation Schemes under Bayesian Frameworks”, **2023.** (Student of Homi Bhabha National Institute)

In Progress

21. Gaurav Seth, “State and Parameter Estimation of Distributed Parameter System using Orthogonal Collocations”, (Co-supervisor: Mani Bhushan, Chemical Engineering, IIT Bombay).
22. Giriraj Bagala, “Fault Tolerant Online Optimizing Control using Intelligent State Estimation”.
23. Ashutosh Kumar Singh, “Dual Adaptive and Predictive Control of Nonlinear and Distributed Systems”, (Co-supervisor: Sharad Bhartiya, Chemical Engineering, IIT Bombay)
24. Abhilash Dev, “Online Optimizing Control of Nonlinear Processes using Machine Learning Techniques (Co-supervisor: Sharad Bhartiya, Chemical Engineering, IIT Bombay)

8. Conference Technical Chair / Associate Editor / Editor

- Technical Chair and Editor of proceedings of Advances in Control and Optimization of Dynamical Systems (ACODS 2020), Feb. 16-19, 2020.
- Served as "IPC Program Area Co-chair" (associate editor for conference proceedings) in *Advances in Model-based Control* area in Dynamics and Control of Process Systems (DYCOPS-2010), Leuven, Belgium, 5-7 July, **2010**.
- Served as associate editor for conference proceedings for IEEE Conference on Control Applications (CCA-2013), Hyredabad, India, Aug. 28-30, **2013**.

9. Patents filed

The following patents have been jointly filed by Honeywell Technology Solutions Limited, Bangalore and I.I.T. Bombay based on consulting project carried out for HTSL, Bangalore

1. US Patent Title: Paper Manufacturing System and Method, Filing Date: 3rd August **2005**, Patent Assignment Number: 11/196705.
2. Indian Patent Title: Paper Manufacturing System and Method, Filing Date: 5th May **2005**, Serial Number : 1145/DEL/2005.

10. Projects

10.1 Sponsored Research Projects

1. Development of a Multi-variable Self-Learning Embedded Model Predictive Controller for Steam Generator Systems. (95 Lakhs)
   Project sanctioned under Ucchatam Aavishkaar Yojana (UAY 2017):
   Sponsors: Forbes Marshall, Pune and Ministry of New and Renewable Energy, Govt. of India.
2. Controller Design for Simultaneous Saccharification and Fermentation. (78 Lakhs, On-going from Dec., 2014)
   Sponsors: Dept. of Biotechnology, Govt. of India
   Collaborator: Prof. Santosh Noronha
3. Data Driven Model Based Predictive Control of Nuclear Steam Generator. (2008 – 12), (35 lakhs)
   Sponsors: Board of Research for Nuclear Sciences, India.
   Collaborator: Prof. Samtanu Bandyopadhyay, IIT Bombay
4. Development of on-line fault detection and diagnosis (FDD) methodologies in integrated scale complex plants. (2002-06) (25 lakhs)
   Sponsors: Board of Research for Nuclear Sciences, India.
   Collaborator: Prof. R. D. Gudi, IIT Bombay

5. Advanced Control and Intelligent Monitoring using a Networked Controller. (18 lakhs, 1999-2002)
   Sponsors: Dept. of Science and Technology, Govt. of India.
   Collaborator: Prof. Shankar Narasimhan
6. MERMAID – Model Based Environmental Resource Management Aid
   Sponsors: D.L.R., Germany and D.S.T., India. (96-99)
   Collaborators: Prof. Deepak Khemani, I.I.T Madras and Prof. Peter Struss, Tech. University of Munich.
7. Model Predictive Control of Nonlinear Processes Using Laguerre Models. (10 lakhs)
   Sponsors: All India Council for Technical Education, New Delhi, 1995-1998.

10.2 Industrial Research Projects

8. Model Based Control of Continuous Annealing Process (2017).
   Sponsors: Tata Steel, Jamshedpur
9. Nonlinear Model Identification For Predictive Control. (2009-10)
   Sponsors: Honeywell Technology Solutions Lab., Bangalore.
10. Model Maintenance in Advanced Process Control Schemes. (2004-06)
    Sponsors: Honeywell Technology Solutions Lab., Bangalore.
    Collaborator: Prof. R. D. Gudi, IIT Bombay
11. Development of Intelligent Wireless Control Networks. Phase I: Wireless Control of Distillation Column. (2004-06)
    Sponsors: Honeywell Technology Solutions Lab., Bangalore.
12. Advanced Planning and Scheduling for Paper, Pulp and Printing Industries. (2003-04)
    Sponsors: Honeywell Technology Solutions Lab., Bangalore.
    Collaborator: Prof. K. P. Madhavan, IIT Bombay
13. Development of a Hardware Module using Multi-Chip Module (MCM) from TLON GmbH, Germany for Low Cost Automation. (1998-99)
    Collaborators: Prof. Ashok Jhunjhunwala, IIT Madras
    Sponsors: Infranet System Integrators, Chennai and TLON GmbH, Germany.

10.3 Other Sponsored Project

14. Knowledge incubation under TEQIP (500 lakhs), Sponsor: M.H.R.D., Govt. of India and World Bank, Collaborator: Prof. Vikram Gadre, Electrical Engineering, IIT Bombay

11. Invited Lectures / Seminars

1. Model Predictive Control of Chemical Processes, Dept. of Computer Science, Technical University of Munich, Germany, June, 1999.
2. Fault Tolerant Control of Linear Multivariable Systems, Department of Chemical Engineering, University of Alberta, Canada, 12 Dec., 2000.
3. Nonlinear Predictive Control Using Quadratic Perturbation Models, Department of Chemical Engineering, University of Alberta, Canada, 28 Feb., 2001.

4. On-line Fault Identification Using Kalman Filters, Matrikon Consulting, Edmonton, Canada, 9'th May, 2001.
5. Fault Tolerant Control of Linear Multivariable Systems, National University of Singapore, 14 June, 2002.
6. Selection of Modeling Techniques for Process Industries, Honeywell Technology Research Lab, Bangalore, 24 April, 03.
7. On-line Fault Diagnosis and Fault Tolerant Control Systems, John F. Welsh Global Research Centre, G.E., Bangalore, 25 April, 03.
8. Identification of Nonlinear Observers for Multivariable Systems Subjected Unknown Disturbances, Department of Chemical Engineering, University of Alberta, Canada, 16 June, 04.
9. Model Predictive Control of Level in a Steam Generator, Nuclear Power Corporation of India Limited, Mumbai, 11 Sept., 04.
10. Data Driven Dynamic Modeling and Fault Tolerant Control of Chemical Processes, Dept of Chemical Engineering, National University of Singapore, 26'th Feb, 2007.
11. Data Driven Dynamic Modeling and Fault Tolerant Control of Chemical Processes, in Dept of Chemical Engineering at Nanyang Technological University of Singapore on 28'th Feb, 07.
12. Delivered a seminar on "Advanced Process Control : A Tutorial Review" in Dept. of Chemical Engineering, Universiti Teknologi PETRONAS (UTP), Malasiya on March 2, 2007.
13. A Tool Oriented Approach to Numerical Analysis, John F. Welsh Global Research Centre, G.E., Bangalore, 18 Dec., 2007.
14. Series of seminars delivered at Dept. of Chemical and Materials Engineering, University of Alberta during May-June, 2007.
    - Identification Of Non-Uniformly Sampled Multirate Systems Using Orthonormal Basis Filters
    - LQG Control With Reconfigurable State Estimator Under Sensor and Actuator Failures
    - Constrained Recursive Parameter Estimation For Adaptive Control
    - Nonlinear Internal Model Control of PEM Fuel Cell
    - Adaptive Model Predictive Control of Dissolved Oxygen in a Bioreactor
15. "Nonlinear Bayesian State Estimation: A Review and New Results" at Dept. of Chemical Engineering, Carnegie Mellon University on 27'th March, 09.
16. "Robust Stability of EKF based Nonlinear MPC", Université Claude Bernard Lyon 1, France, 28'th Jan., 2011.
17. One day workshop on "Bayesian State Estimation", Dept. of Chemical and Biological Engineering, Univ. British Columbia, 25'th May, 2012.
18. Series of two lectures titles "Bayesian Nonlinear State Estimation: A Tutorial Review", Dept. of Chemical and Materials Engineering, University of Alberta during 29'th and 30'th May, 2012.

19. A Model Based Framework for Intelligent Process Monitoring and Control, at Centre of Advanced Study, Department of Chemical Engineering, I.I.T. (B.H.U.), Varanasi, 19'th March, 2012.
20. A Model Based Framework for Advanced Control, National Conference on "Modeling, Optimization and Control" (NCMOC 2015), organized at Vishwakarma Institute of Technology, Pune, 5th, March, 2015.
21. "A Model Based Framework for Intelligent System Automation: An Overview", Workshop on Control Systems, D.R.D.O. Pune, Tuesday, 11 Feb 2020.
22. "Intelligent State Estimation for Fault Tolerant Online Optimizing Control", Chemical Engineering, Carnegie Mellon University, 19 May, 2023.

12. Development of post-graduate level courses/lab under NPTEL and NMICT:

1. Developed web course on *Advanced Numerical Analysis* for post-graduate students in Chemical Engineering (http://nptel.ac.in/courses/103101009/)
2. Developed video lecture course on Advanced Numerical Analysis consisting of 49 one-hour lectures for post-graduate students in Chemical Engineering (http://nptel.ac.in/courses/103101111/)
3. Developed video lecture course on Advanced Process Control consisting of 25 ninety-minute lectures for post-graduate students in systems and control engineering (http://nptel.ac.in/courses/103101003/)
4. Developed *single board multi-heater system hardware* and a virtual lab on Advanced Process Control under Virtual Labs project sponsored by National Mission on Education through ICT (NMICT).

13. Teaching Experience

Postgraduate Courses

1. Computational Methods in Chemical Engineering
2. Advanced Process Control
3. Process Optimization
4. Process Modeling and Identification
5. Modern Control Theory
6. Nonlinear Systems Analysis

Undergraduate Courses

1. Process Control and Instrumentation
2. Computational Methods in Chemical Engineering
3. Mathematical Methods in Chemical Engineering
4. Unit Operations (*Taught at Carnegie Mellon University in Spring, 09*).
5. Introduction to Computer Control of Processes
6. Process Control Laboratory

14. Organization of International Conferences

- Organizing Secretary, International Symposium on Process Systems Engineering and Control (ISPSEC'03) held at I.I.T Bombay on 3-4, January, 2003.
- Co-chair, National Organizing Committee, Dynamics and Control of Process Systems (DYCOPS 2013), 18-20 Dec., 2013, IIT Bombay, Mumbai

15. Institute level administrative responsibilities

- Head, Dept. of Chemical Engineering, From Jan. 2011 to Nov., 2013.
- Head, Parimal and Pramod Choudhary Centre for Learning and Teaching, From Oct., 2017 To May, 2022.