

BIODATA

NAME : DR. DHARMESHKUMAR KANTILAL VYAS
DATE OF BIRTH : 8th October, 1978
ADDRESS : 3, Near Utsav Bunglows, Vavdai Bujarg, Godhra-389001
DESIGNATION : Professor (Renewable Energy Engineering)
INSTITUTION : College of Agril. Engg. & Tech., Anand Agril. University, Godhra
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EDUCATIONAL QUALIFICATIONS :

Sr. No.	Certificate/ Diploma or Degree obtained	Year of passing	Marks obtained with class/ Division	Grade point average (%age of marks obtained)	Institution/ Board/ University	Field of Specialization
1	Ph.D. (Agril. Engg.)	July 2015	First Class	7.63 OGPA (76.30 %)	Anand Agricultural University	Renewable Energy Engineering
2	M. Tech. (Agril. Engg.)	December 2003	First Class	7.71 OGPA (77.10 %)	Gujarat Agricultural University	Renewable Energy Management
3	B. Tech. (Agril. Engg.)	October 2000	First Class	7.31 OGPA (73.10 %)	Gujarat Agricultural University	Agricultural Engineering

WORK EXPERIENCE : **22 years and 09 months**

Sr. No.	Designation	Employer	Period of employment		Y.	M.
			From	To		
1	Professor	Anand Agricultural University	May 2022	Till Date	2	7
2	Associate Professor	Anand Agricultural University	May 2016	May 2022	6	0
3	Assistant Professor	Anand Agricultural University	June 2009	May 2016	6	11
4	Scientific Officer (SO)	Sardar Patel Renewable Energy Research Institute (SPRERI), VallabhVidyanagar, Gujarat	January 2007	June 2009	2	5
5	Research Scientist (RS)	Sardar Patel Renewable Energy Research Institute (SPRERI), VallabhVidyanagar, Gujarat	January 2006	December 2006	1	0
6	Senior Scientific Assistant (SSA)	Sardar Patel Renewable Energy Research Institute (SPRERI), VallabhVidyanagar, Gujarat	December 2003	December 2005	2	1
7	Senior Research Fellow (SRF)	APPE Unit, Anand Agriculture University formerly known as Gujarat Agriculture University, Anand, Gujarat	July 2003	November 2003	0	5
8	Junior Research Fellow (JRF)	CAET, Junagadh Agriculture University formerly known as Gujarat Agriculture University, Junagadh, Gujarat	May 2002	March 2003	0	11
9	Young Scientist	Sardar Patel Renewable Energy Research Institute (SPRERI), VallabhVidyanagar, Gujarat	October 2000	March 2001	0	5

Research Project (Ph.D):

“Design and development of a 500 m³/h capacity biomass gasifier – based – combustor for ginger drying”

Project work done during M. Tech.: “Studies on Biomass Gasification for Power Generation”

Project work done during B. Tech.: “Summer Groundnut Crop Response to Irrigation Interval under Drip System”

Additional Responsibilities Handled

- Head of Department (Renewable Energy Engineering)
- Academic (UG Teaching and PG Teaching)
- M. Tech. (Agril. Engg.) and Ph.D. (Agril. Engg.) Guiding in the field of Renewable Energy
- Guiding B. Tech. student in the field of Renewable Energy.
- One Technology patented and Two Technologies recommended in the field of Renewable Energy
- Handling two In-house Project (AGRESCO) 1 as a PI and 1 as a Co PI
- Project PI of “Development of renewable energy facilities for energy harvesting through solar and biomass energy at College of Agricultural Engineering & Technology, AAU, Godhra”.
- Project PI of “Advanced centre for Research & Trainers Training on Agricultural Engineering based Intervention (Revised)”.
- Departmental Laboratory Development

Research Projects Completed as PI/Co-PI

1. Development of renewable energy facilities for energy harvesting through solar and biomass energy at College of Agricultural Engineering & Technology, AAU, Godhra
2. Advanced centre for Research & Trainers Training on Agricultural Engineering based Intervention
3. Design and development of solar powered pellet machine for biogas slurry
4. Experimental Investigation of energy yield from Bifacial Silicon Solar photovoltaic (PV) module and its comparison with monofacial solar photovoltaic module
5. Development of a biomass gasifier combustor of 200 Nm³/hr capacity hot air production suitable for drying and thermal application
6. Performance evaluation of the developed biomass combustor for drying of ginger and turmeric.
7. Design and development of a throat type down draft biomass gasifier for thermal application.
8. Improving the emission characteristics of stationary engine fueled by bio-diesel
9. Testing of high efficiency KALYAN biomass combustor-cum-hot air generator.
10. ORP and MLT of improved inverted down draft gasifier of 1-3 kg/h capacity for thermal applications for domestic cooking and roadside *Dhabas*.
11. Replacement of hydrocarbon fuel by *Jatropha* oil and bio-diesel in Stationary Engine.
12. Optimization of design and operational parameters of IC engines using producer gas and plant oils in dual fuel mode.
13. Development of hardware for thermal cracking of producer gas tar to improve its quality.
14. Design and development of a functional prototype of cyclone gasifier.
15. Development of technology for pre-heating and briquetting of selected crop residues.
16. Development of a drying system for gasifier feed stock using gasifier system waste heat.
17. MLT of SPRERI design movable platform type wood cutter.
18. Software implementation of effective space vector PWM scheme for a multilevel inverter for standalone/offgrid PV applications.

Extension Activities Conducted

- Scientist during **Krushik Mahotsav 2009, 2010, 2012,2013,2014, 2018, 2023, 2024.**
- Assistant Nodal Scientist during **Krushik Mahotsav 2011.**
- **Member** of Comprehensive District Agriculture Plan- Panchnahal District

Publications:

Internationals:

1. Dedhiya N., Parmar, V., Jogunuri, S. and **Vyas, D. K.** (2024). Short Term Solar Radiation Forecasting Using Machine Learning Models for Sparse Data. 2024 IEEE International Conference on Smart Power Control and Renewable Energy (ICSPCRE): 1-5.
2. Bal, J., **D. K. Vyas**, Sravankumar Jogunuri and F.G. Sayyad. (2024). Mathematical Modelling of Solar Tunnel Dried Ginger (*Zingiber officinale* L.) Slices. *Journal of Agricultural Engineering (India)*, 61(2), 299-310. <https://doi.org/10.52151/jae2024612.1844>.
3. Mangroliya, M., Bhoomi, R., Jogunuri, J. and **Vyas D.K.** (2022). Estimation of Weibull parameters by different methods for assessment of wind energy potential. *2022 International Conference on Intelligent Controller and Computing for Smart Power (ICICCSP)*, Hyderabad, India, 2022, pp. 1-6, doi: 10.1109/ICICCSP53532.2022.9862454.
4. Chavda, J.J., **Vyas, D. K.**, Kumar N. and Seth, N. (2022). Effect of drying temperature and slice thickness on characteristics of beetroot (*Beta vulgaris* L.). *International Journal of Agricultural Sciences*, 14 (12):12068-12074.
5. Dudhat, B.L., and **Vyas, D.K.** (2021). Economics of solar pump irrigation system in Dahod district, Gujarat-a pilot study. *International Journal of Agriculture Sciences*, 13(5): 10769-10771.
6. Sayyad, F.G., Akbari, S.H., **Vyas, D.K.**, and Trivedi, M.M. (2021). Effect of pretreatment on dimensional properties of water chestnut. *Biological Forum – An International Journal*, 13(3b): 94-102.
7. Jethva, K. R., Sutar, R. F., Kumar, N. and **Vyas, D.K.** (2021). Effect of whey protein on sun dried protein enriched kesar mango leather. *Journal of Pharmacognosy and Phytochemistry* 2021; 10(2): 824-830
8. Jogunuri, S., Mehra, V. and **Vyas, D.K.** (2019, November). Reconfiguration of solar photovoltaic panels for water pumping applications. In 2019 International Conference on Smart Systems and Innovative Technology (ICSSIT) (pp. 717-721). IEEE. ISBN: 978-1-7281-2118-5 (Scopus Indexed)
9. Jethva K.R., **Vyas D. K.**, Sutar, R.F., Kumar N. and Sayyad F.G. (2018). Bio-fuels Algae: An alternative Renewable Energy Source (A Review Paper). *International Journal of Agricultural Science and Research*, 8 (2):101-108.
10. Chauhan A.D., Seth, N, **Vyas D. K.** and Kumar N. (2017). A review of different drying techniques of freshly harvested maize cobs. *International Journal of Agricultural Science and Research (IJASR)*, Vol. 7 (3), 173-180, ISSN(P):2250-0057; ISSN (E): 2321-0087.
11. **Vyas D. K.**, Kapdi, S.S., Bhanderi, H.D. and Chavda, J. J. (2016). Development of multifuel biomass based combustor for thermal applications. *International Journal of Agricultural Statistical Sciences*, 12 (1):215-222. (Web of Science- ESCI and Scopus Indexed)
12. Khodifad, B.C., Kumar, N., **Vyas D. K.**, Seth, N. and Prem, M. (2016) Review paper: Pre and post harvest practices, processing and value addition of custard apple. *International Journal of Food Ferment Technology*, 6 (2):1-13.
13. Kumar, D., Tiwari, M. K. and **Vyas, D.K.** (2016). Canal based irrigation scheduling and conjunctive water use planning for optimal cropping pattern- a review. *International Journal of Agriculture Sciences*, 8 (58):3240-3244.

14. **Vyas, D.K.**, Kapdi, S.S., Swarnkar, R. and Seth, N. (2015). Development and evaluation of updraft biomass gasifier for thermal application. *Elixir Thermal Engg.* 81 (2015) 31509-31513, ISSN: 2229-712X.
15. **Vyas, D.K.**, Kapdi, S.S., Bhanderi, H.D. and Varia, S.V. (2015). Evaluation of biomass based combustor for hot air generation using maize cobs. *International Journal of Agricultural Engineering*, Vol. 8 (1):101-106.
16. **Vyas, D.K.**, Sarsavadia, P.N., Akbari, S.H. and Patel, G.R. (2014). Performance Prediction of a Downdraft Gasifier using Equilibrium Modeling for Cotton Stalk. *International Journal of Green and Herbal Chemistry*, Vol.3, No.2, 474-485.
17. Singh, R.N., **Vyas, D.K.**, Srivastava, N.S.L. and Narra, M. (2008). SPRERI experience on holistic approach to utilize all parts of *Jatropha Curcas* fruit for energy. *Renewable Energy*, Vol. 33, pp. 1868-1873.
18. Bhawe, A.G., **Vyas, D.K.** and Patel, J.B. (2008). A wet packed bed scrubber based producer gas cooling cleaning system. *Renewable Energy*, Vol. 33, pp. 1716-1720.
19. Pathak, B. S., KaPatel, D. V. Bhoi, P. R., Sharma, A.M and **Vyas, D. K.** (2007). Design and Development of sand filter for upgrading producer gas to I. C. engine quality fuel. *International Energy Journal. RERIC, Bangkok.* Vol. 8(1) 2007.
20. **Vyas, D. K.**, and Singh, R. N. (2007). Feasibility study of *Jatropha* seed husk as an open core gasifier feedstock. *Renewable energy*, 32(3), 512-517.
21. Srivastava, N.S.L. and **Vyas, D.K.** (2007). Biomass Briquetting in India for Feed, Fodder and Energy. *Proceedings of 3rd International Conference on Solar Radiation and Day Lighting (SOLARIS 2007) February 7 – 9, 2007, New Delhi, Vol. I, pp. 575 – 582.*
22. Rank, H.D., Chaghada, R.H., Saradhara, V.K., Parmar, H.V. and **Vyas, D.K.** (2003). Optimal irrigation scheduling for summer groundnut crop under hot arid climate. *International Seminar on Downsizing Technology for Rural Development (ISDTRD-2003). October 8-9, 2003, Regional Research Laboratory, Bhuvneshwar, India, pp. 254-257.*

Nationals:

1. Chavda, J. J. and **Vyas, D. K.** (2022). Biomass combustor based drying of beetroot. *Agricultural Engineering Today*, 46 (1): 8-16.
2. **Vyas, D. K.**, Seth, N., & Chavda, J. J. (2021). Performance of biomass combustor based drying system for ginger drying. *Agricultural Engineering Today*, 45 (1): 19-25.
3. **Vyas, D. K.**, Sravankumar, J., & Chavda, J. J. (2021). Performance evaluation of throat type updraft biomass gasifier using different biomass fuels. *Agricultural Engineering Today*, 45 (3): 6-12.
4. **Vyas, D.K.**, Kapdi, S.S., Dudhat, B.L. and Akbari, S.H. (2017). Economic feasibility of updraft gasifier based combustor for hot air generation. *Trends in Biosciences*, 10 (5): 1286-1290.
5. Kumar, D., Manjeet, P., Khodifad, B.C. and **Vyas, D.K.** (2016). Energy Audit of lighting systems in hostel. *Advances in life Sciences*, 5 (17):7058-7060.
6. Manjeet, P., Suwarnker, R., **Vyas, D.K.**, Pargi, S.J. and Khodifad, B.C. (2016). Combined tillage tools: A review. *Current Agriculture Research Journal*, 4 (2):179-185.
7. **Vyas, D.K.**, Sayyad, F.G., Khardiwar, M.S. and Kumar, S. (2015). Physicochemical Properties of Briquettes from Different Feed Stock. *Current World Environment* Vol. 10(1): 263-269.
8. **Vyas, D.K.**, Dipak, T., Mendpara, V. and Akbari, S.H. (2014). Design and Development of Inverted Down Draft Gasifier for Cooking Purpose. *Scholars Journal of Engineering and Technology (SJET)*, Sch. J. Eng. Tech., 2014; 2(2A):113-122 ISSN 2347-9523.
9. Singh, R.N., Sharma, S. and **Vyas, D.K.** (2014). Studies on effect of long term storage of *Jatropha* oil, blends of *Jatropha* oil with diesel and bio-diesel on quality. *Nature & Environment*. Vol. 19 (2): 158-163.
10. Srivastava, N.S.L. and **Vyas, D.K.** (2008). Efficient management of crop and agro-processing residues for animal feed and energy through briquetting. Paper presented by Dr. N.S.L. Srivastava

in Theme Session in 42nd ISAE Convention & Symposium, February 1-3, 2008 at Central Institute of Agricultural Engineering, Bhopal.

11. Singh, R.N., Sharma, A.M., Jena, U., Bhave, A.G. and **Vyas, D.K.** (2007). Gasifier system for cooking. Renewable Energy “Akshay Urja”, Ministry of New and Renewable Energy, Government of India, Vol. 1 (1):19-20.
12. **Vyas, D.K.** and Singh, R.N. (2007). Feasibility study of Jatropha seed husk as an open core gasifier feedstock. Renewable Energy, Vol.32 (3):512-517.
13. Singh, R.N., Sharma, A.M., Jena, U., Bhave, A.G. and **Vyas, D.K.** (2006). Case study of Open Core Down Draft Gasifier System for Cooking Applications. Journal of Agricultural Engineering Today, Vol. 30(3):26-32.
14. Singh, R.N., Sharma, A.M., Jena, U., Bhave, A.G. and **Vyas, D.K.** (2006). Case study of Open Core Down Draft Gasifier System for Cooking Applications. Journal of Agricultural Engineering Today, Vol. 30(3):26-32.
15. Joshi, D.C., Sutar, R.F. and **Vyas, D.K.** (2005). Development of a seed-extracting machine for brinjal fruits. Journal of Agricultural Engineering. Vol. 42 (4): 57-59.

Popular Articles:21 Nos.

Training Organized:

As a Course Director 10 days ICAR short course on “Renewable Energy for Environmental Protection and Energy conservation” has been organized by Department of Renewable Energy Engineering, College of Agricultural Engineering & Technology, Anand Agricultural University, Godhra during 14th - 23rd October 2019.

As a Course Director 8 days Model Training Course (MTC) on “Green Energy Initiatives in Agriculture to Combat Climate Change” has been organized by Department of Renewable Energy Engineering, College of Agricultural Engineering & Technology, Anand Agricultural University, Godhra during 17th-24th December, 2018.

SUMMER/Winter School/training ATTENDED and participated:

1. Participated in Short course on “Innovative Application of Renewable Energy Technologies for Rural Sector” held at PDKVV, Akola, (2018).
2. Participated in the training programme on “Personality Development” jointly organized by AAU and SMART Series, Bangalore, (2015).
3. Participated in Winter school on “Renewable Energy sources as option for mitigating climate change” held at AECRI, TNAU, Coimbatore, (2014)
4. Participated in the training for NSS Programme Officer organized by Govt. of India at Gujarat Vidhyapeeth, Ahmedabad, (2013).
5. Participated in Winter school on “Biomass Conversion and utilization for sustainable energy development” held at PDKVV, Akola, (2010).
6. Participated in 42nd ISAE Annual Convention and Symposium held at CIAE, Bhopal, (2008).
7. Participated and presented in Biannual Workshop of AICRP on Renewable Energy Sources held at CIAE, Bhopal, (2008).
8. 41th ISAE Annual Convention and Symposium at College of Agricultural Engineering and Technology, Junagadh Agricultural University, Junagadh, (2007).
9. 39th ISAE Annual Convention and Symposium at Acharya N. G. Ranga Agricultural University, Hyderabad, (2005).

10. One day seminar at APPE Unit on “Production and Processing of Vegetable Seeds” conducted by Agricultural Product Process Engineering Unit, GAU, Anand (2003).

Paper presented and attended:

1. **Vyas, D.K.** and Srivasatava, N.S.L. Studies on the combustion behaviour of crop residue briquettes for their suitability as domestic and industrial fuel for thermal applications. Paper presented by D. K. Vyas in 42nd ISAE Convention and Symposium, February 1-3, 2008 at Central Institute of Agricultural Engineering, Bhopal.
2. Singh, R.N., Sharma, A.M., Jena, U., Bhave, A.G. and **Vyas, D.K.** SPRERI’s experience using a open core down draft gasifier system for community kitchen – a case study. Paper presented by R. N. Singh in 41th ISAE Convention and Symposium, January 29 - 31, 2007 at College of Agricultural Engineering and Technology, Junagadh Agricultural University, Junagadh (Paper No. EN-2007-II-02, Page No. 4.5).
3. Srivastava, N.S.L. and **Vyas D.K.** Briquetting of Crop and Agro-Processing Residues for Energy. Paper presented by Dr. N.S.L. Srivastava in 41th ISAE Convention and Symposium, January 29 - 31, 2007 at College of Agricultural Engineering and Technology, Junagadh Agricultural University, Junagadh (Paper No. EN-2007-II-04, Page No. 4.6).
4. **Vyas, D.K.** and Srivastava, N.S.L. Briquetting of sugarcane baggase – Effect of Sieve size of hammer mill and moisture content of the feedstock on power requirement and output of the hammer mill and quality of briquettes. Paper presented by D. K. Vyas in 41th ISAE Convention and Symposium, January 29 - 31, 2007 at College of Agricultural Engineering and Technology, Junagadh Agricultural University, Junagadh (Paper No. EN-2007-II-06, Page No. 4.7).
5. Singh, R.N. and **Vyas, D.K.** Effect of de-waxing, de-gumming, filtration and trans-esterification on characteristics of Jatropha oil. Paper presented by D.K.Vyas in 39th ISAE Convention & Symposium, March 09-11, 2005, Hyderabad.
6. **Vyas, D.K.** and Rank, H.D. Summer groundnut crop response to irrigation interval under drip system. Abstract published in 39th ISAE Convention & Symposium, March 09-11, 2005, Hyderabad.

Seminar Attended:

1. Participated and attended in 2 days workshop on “Waste utilization and management for energy conservation” organized by NAHEP-IDP, Junagadh Agricultural University, Junagadh during 16-17/02/2023.
2. Participated and attended in 3 days 52nd Annual Convention of Indian Society of Agricultural Engineers (ISAE) and National Symposium on “Doubling Farmers’ Income through Technological Interventions” held at Anand Agricultural University, Anand during 8-10/01/2018.
3. Participated in 4 days National Conference on “Technological changes and Innovations in Agriculture for Enhancing Farmers’ Income” organized by Junagadh Agricultural University, Junagadh during 28-31/05/2017.
4. International Conference on Water, Environment, Energy and Society, at AISECT University, Bhopal during 15-18/03/2016.
5. 29th National Convention of Agricultural Engineers at College of Food Processing Technology & BioEnergy, Anand Agricultural University, Anand during 20-21/02/2016.
6. A National seminar on “Biomass Based Decentralized Power Generation” at SPRERI during 21-22 January 2005 at Vallabh Vidyanagar, Gujarat.
7. A National seminar on “Biomass Management for Energy Prospects – Issues and Strategies” at SPRERI during 11-12 December 2004 at Vallabh Vidyanagar, Gujarat.
8. National seminar on “Value Added Products : Opportunities for Agro Industrial units ” at CAET, GAU during 16-17 December 2002 at Junagadh, Gujarat.

MEMBERSHIP OF SOCIETIES :

- Life member -- Indian Society of Agricultural Engineering (ISAE) (LM-10113)

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