Curriculum Vitae

NAME Chris Maharaj
CREDENTIALS BSc (Eng)(UWI), MSc (UWI), PhD (Imperial), CEng, REng (TT), FIMechE, FASME, SMAPETT
DEPARTMENT Mechanical & Manufacturing Engineering
FACULTY Engineering
UNIVERSITY University of the West Indies (UWI)
POSITION Senior Lecturer in Materials and Manufacturing
NATIONALITY Trinidad and Tobago (by birth)
MARITAL STATUS Married with 1 child
AGE 42
CONTACT Office: 1 (868) 662-2002 (Ext. 84158)
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chrismaharaj@yahoo.com

SUMMARY

Engineering Academic with research experience in alternative use of waste materials, mechanical design optimization, failure analysis, component life assessment, asset management, innovation management, flipped classroom methods, and student motivation. Experience in teaching engineering courses and supervising final year projects for engineering students. Industrial experience in inspection and condition monitoring in the petrochemical and petroleum refining sector.

RESEARCH SPECIALISATION

- Alternative use of waste materials (e.g. plastic and tyre waste)
- Mechanical design optimization (mechanical and electromechanical systems)
- Failure analysis of mechanical and structural components
- Life assessment of components subjected to severe conditions
- Innovation management
- Student motivation
- Flipped classroom methods

EDUCATION

- Ph.D. Mechanical Engineering, Imperial College London, 2009. Dissertation Title: Researching methods to assess creep damage in high temperature plant components.
- M.Sc. Engineering Management, University of The West Indies, 2006
- P.G. certificate in University Teaching and Learning, University of The West Indies, 2014
- B.Sc. Mechanical Engineering (First Class Honours), University of the West Indies, 2001
- Dip. Fundamentals of Aluminium Processing, Norwegian Institute of Science and Technology, 2010
- Dip. Creep Strain Measurement/Damage in Metals, Imperial College London, 2009
- Dip. Process Plant Operations, MIC/NSDP, 1997

TRAINING

- Creating Critical Thinking Learning Outcomes, Centre for Excellence in Teaching and Learning, 2016
- Open-Ended questions, Centre for Excellence in Teaching and Learning, 2016
- Teaching Portfolio Development, Centre for Excellence in Teaching and Learning, 2016
- Helping students succeed in large classrooms, Centre for Excellence in Teaching and Learning, 2014

- Implementing the new UWI GPA system, Centre for Excellence in Teaching and Learning, 2014
- Academic Advising workshop, Centre for Excellence in Teaching and Learning, 2014
- Weightings, Marks and Grades: Debunking some Assessment Myths, Instructional Development Unit, 2012
- Blended Learning: Using myelearning for Teaching and Learning II, Instructional Development Unit, 2012
- Blended Learning: Using myelearning for Teaching and Learning I, Instructional Development Unit, 2012
- Matching Assessment Methods to Learning Outcomes and Teaching, Instructional Development Unit, 2012
- Certified Welding Inspector, American Welding Society, 2005
- Machinery Vibration Analyst (Category II), Vibration Institute, 2003

PEER-REVIEWED PUBLICATIONS

1. Jordan, P. and **Maharaj, C**., and Maharaj, R., *Asset Management Strategy for HAZ Cracking caused by Sigma-Phase and Creep Embrittlement in 304H Stainless Steel Piping.* Engineering Failure Analysis. 2020. https://doi.org/10.1016/j.engfailanal.2020.104452 {Impact Factor 2.4; SJR H Index 51} 1st Quartile in Mechanical Engineering Subject Category.

2. Zhang, X., Liu, H., **Maharaj, C.,** Zheng, M., Mohagheghian,I., Zhang, G., Dear, J.P., *Impact Response of Laminated Glass with Varying Interlayer Materials. International Journal of Impact Engineering.* 2020. 139 https://doi.org/10.1016/j.ijimpeng.2020.103505 {Impact factor 3.83; SJR H Index 104} 1st Quartile in Mechanical Engineering Subject Category.

3. Zhang, X., Zheng, M., Ge, Y., Wang, T., Liu, H., **Maharaj, C**., Dear, J.P., Yan, Y., *Microstructure and Tensile Properties of Injection Molded Thermoplastic Polyurethane with Different Melt Temperatures.* Journal of Applied Polymer Science. 2020 https://doi.org/10.1002/app.48891 {Impact factor 2.28; SJR H Index 149} 1st Quartile in Polymers and Plastics Subject Category.

4. Wilson, S., **Maharaj, C.,** and Maharaj, R., *Formalising the National Innovation System in a Developing Country.* West Indian Journal of Engineering. 2020. 42(2): p.4-16

5. **Maharaj, C.**, Sirjoosingh, V., Ali, A., Primus, S., and Arjoon, S., *Help me else I may fail! Solutions for academically challenged university students.* Journal of College Student Retention: Research, Theory & Practice. 2019 https://doi.org/10.1177/1521025119865747 {Impact factor 1.5; SJR H Index 21} 2nd Quartile in Education Subject Category.

6. Sieunarine, S., Maharaj, R., White, D., and **Maharaj, C.,** *Ceramic potential of some Trinidad clays.* Clay research. 2019. 37(2): p.41-49 {Impact factor 0.211; SJR H Index 4} 4th Quartile in Materials Science Subject Category.

7. **Maharaj, C.**, Ragoo, K., Sirjoosingh, V., Sahadeo, S., Lall, D. and Chowdary, B., *Design and performance evaluation of 3D printed writing and typing assistive devices: A pragmatic single participant study.* Technology and Disability. 2019. 31 (1-2): p. 51-61 {Impact factor 0.30; SJR H Index 32} 3rd Quartile in Rehabilitation Subject Category.

8. **Maharaj, C.**, Marquez, A., and Khan, R., *Failure Analysis of Incoloy 800HT and HP Modified alloy materials in a Reformer*. Journal of Failure Analysis and Prevention. 2019. Online First DOI 10.1007/s11668-019-00621-1 {Impact factor 0.62; SJR H Index 19} 3rd Quartile in Mechanical Engineering Subject Category.

9. Marquez, A., Ramnanan, A., and **Maharaj, C**. *Failure Analysis of Carbon Steel Tubes in a Reformed Gas Boiler Feed Water Preheater*. Journal of Failure Analysis and Prevention. 2019. 19(3): p 592-597 {Impact factor 0.62; SJR H Index 19} 3rd Quartile in Mechanical Engineering Subject Category.

10. Rampat, K. and **Maharaj, C.,** *Creep embrittlement in aged HP-Mod Alloy Reformer Tubes. Engineering Failure Analysis.* 2019. 100 (1): p 147-165 {Impact Factor 2.4; SJR H Index 51} 1st Quartile in Mechanical Engineering Subject Category.

11. **Maharaj, C.** and Marquez, A., *Failure Analysis of a Stainless Steel Pipe Elbow in a Purge Gas Line*, Journal of Failure Analysis and Prevention. 2019. 19 (1): p 15-23 {Impact factor 0.62; SJR H Index 19} 3rd Quartile in Mechanical Engineering Subject Category.

12. Maharaj, R., **Maharaj, C.,** and Mahase, M., *The Performance and Durability of Polyethylene Terephthalate and Crumb Rubber Modified Road Pavement Surfaces.* Progress in Rubber, Plastics & Recycling Technology. 2019. **35** (1): p 3-22 {Impact factor 0.4; SJR H Index 11} 3rd Quartile in Polymers and Plastics Subject Category.

13. Rampat, K. and **Maharaj, C.,** *Improving the Weld Procedure for Aged HP-Mod Alloy Reformer Tubes.* Metallography, Microstructure, and Analysis. 2018. **7** (5): p 493-503 {Impact factor 0.92; SJR H Index 10} 2nd Quartile in Metals and Alloys Subject Category.

14. Y. Ibrahim, Z. Li, C. M. Davies, P. A. Hooper, **C. Maharaj**, J. P. Dear, *Acoustic resonance testing of additive manufactured lattice structures.* Additive Manufacturing. 2018. **24:** p 566-576 {Cited by 2; Impact factor 6.4; SJR H Index 19} 1st Quartile in Industrial and Manufacturing Engineering Subject Category.

15. Ragoo, K., Sirjoosingh, V., Sahadeo, S., Chowdary, B., **Maharaj, C.** *Design and development of a pool and billiards assistive device for the physically challenged*. Disability and Rehabilitation: Assistive Technology. 2018 {Cited by 0; Impact factor 0.93; SJR H Index 34} 3rd Quartile in Rehabilitation Subject Category.

16. Maharaj, R., **Maharaj, C.**, and Hosein, A. *Performance of Waste Polymer Modified Road Paving Materials*. Progress in Rubber, Plastics & Recycling Technology. 2018. **34** (1): p 19-33 {Cited by 1; Impact factor 0.4; SJR H Index 10} 3rd Quartile in Polymers and Plastics Subject Category.

17. **Maharaj, C**., White, D., Maharaj, R. and Morin, C. *Re-use of Steel Slag as an aggregate to asphaltic road pavements*. Cogent Engineering. 2017. **4** (1): p 1-12 {Cited by 4; SJR H Index 8} 3rd Quartile in Engineering Subject Category.

18. Nathai-Balkissoon, M., **Maharaj, C.**, Guerrero, R., Mahabir, R., and Dialsingh, I., *Pilot development of innovation scales for beverage manufacturing companies in a developing country*. Cogent Business & Management. 2017. **4** (1): p 1-27 {Cited by 2}

19. **Maharaj, C.,** Blair, E., and Chin Yuen Kee, S. Performance and perception in the flipped classroom. Education and Information Technologies, 2016. 21 (6): p 1465-1482 {Cited by

111; Impact Factor 2.01; SJR H Index 31} 1st Quartile in Library and Information Sciences Subject Category.

20. Mylan, R., **Maharaj, C**. and Maharaj, R., *Creating the optimal formula for use by a heavy clay block manufacturer*. Clay research. 2016. **35**, (2): p 17-29 {Impact factor 0.211; SJR H Index 4} 4th Quartile in Materials Science Subject Category.

21. Narayanan, A., **Maharaj, C.**, Kelly, M., Morris, A. Davies, C.M. and Dear, J.P.*Recent developments in measuring creep strain in high temperature plant components.* Strain. 2016. **52** (6) 467-477 {Cited by 1; Impact Factor 1.7; SJR H Index 36} 1st Quartile in Mechanical Engineering Subject Category.

22. Maharaj, K., **Maharaj, C.** and Persad, U. *Design of a Special-Effects Wrist-Mounted Flamethrower*. West Indian Journal of Engineering. 2016.**38** (2): p 71-80

23. Blair, E., **Maharaj, C.** and Primus, S., *Performance and perception in the flipped classroom.* Education and Information Technologies, 2016. **21** (6): p 1465-1482 {Cited by 74; Impact Factor 1.3; SJR H Index 27} 2nd Quartile in Education Subject Category.

24. **Maharaj, C.** and Maharaj, R., *Physical properties of LDPE, PVC and Used Engine Oil modified Asphalt*. Progress in Rubber, Plastics & Recycling Technology 2015.**31** (3): p 145-159 {Cited by 2; Impact factor 0.4; SJR H Index 10} 3rd Quartile in Polymers and Plastics Subject Category.

25. **Maharaj, C.**, Maharaj, R., and Maynard, J., *The effect of Polyethylene Terephthalate particle size and concentration on the properties of asphalt and bitumen as an additive*. Progress in Rubber, Plastics & Recycling Technology 2015. **31** (1): p 1-24 {Cited by 10; Impact factor 0.4; SJR H Index 10} 3rd Quartile in Polymers and Plastics Subject Category.

26. Ramesar, K.,**Maharaj, C.**, and Persad, U., *A mechanism for cutting coconut husks*. West Indian Journal of Engineering, 2015. **37** (2): p 54-62.{Cited by 0}

27. Maharaj, R.,Grierson, L.H., and **Maharaj, C.**, Ramjattan-Harry, V., *Rheological study of cement modified with a lignin based admixture*. West Indian Journal of Engineering, 2015. **37** (2): p 68-73.{Cited by 0}

28. Maharaj, R., **Maharaj, C.,** White, D., Penjilia, C., and Ramlagan, S., *Optimization of Ingredients for Clay Block Manufacture: Unfired Characteristics*. Trends in Applied Sciences Research, 2014. **9** (10): p 574-587. {Cited by 3}

29. Maharaj, R., Singh-Ackbarali, D., **Maharaj, C.**, and Hosein, S., *The Influence of Particle Size and Concentration of Recycled Tyre Rubber on the Rheological Properties of Trinidad Lake Asphalt and Petroleum Bitumen.* International Journal of Applied Sciences and Engineering Research, 2014. **3** (2): p 545-561. {Cited by 2}

30. Hosein, S., **Maharaj, C.**, Maharaj, R., and Singh-Ackbarali, D., *The effect of particle size and concentration of crumb rubber on the rutting and fatigue cracking resistance of Trinidad Lake Asphalt and Petroleum Bitumen.* International Journal of Arts and Sciences, 2013. **6**(4): p 321-335. {Cited by 3}

31. **Maharaj, C.**, A. Morris, and Dear, J. *Modelling of creep in Inconel 706 turbine disc fir-tree*. Materials Science and Engineering A, 2012. **558**: p. 412-421. {Cited by 12; Impact Factor 3.72; SJR H Index 192} 1st Quartile in Mechanical Engineering Subject Category.

32. Morris, A., **Maharaj, C.**, Kourmpetis, M., Dear, I., Puri, A., and Dear, J., *PVT-07-1116 - Optical strain measurement techniques to assist in life monitoring of power plant components.* Journal of Pressure Vessel Technology, 2009. **131**. {Cited by 8; Impact Factor 1.1; SJR H Index 40} 1st Quartile in Mechanical Engineering Subject Category.

33. **Maharaj, C.**, Dear, J.P., and Morris, A., *A review of methods to estimate creep damage in low-alloy steel power station steam pipes.* Strain, 2009. **45**(4): p.316-331.{Cited by 33; Impact Factor 1.7; SJR H Index 36} 1st Quartile in Mechanical Engineering Subject Category.

34. **Maharaj, C.**, Imbert, C.A.C., and Dear, J., *Failure analysis and creep remaining life of hydrogen reformer outlet pigtail tubes.* Engineering Failure Analysis, 2008. **15**: p. 1076-1087. {Cited by 24; Impact Factor 2.4; SJR H Index 51} 1st Quartile in Mechanical Engineering Subject Category.

35. Morris, A., Puri, A, **Maharaj, C.**, Kourmpetis, M., Sjödahl, M., and Dear, J., *Predicting lifetimes of components in power station engineering plant.* Energy Materials, 2007. **2**(2): p. 89-94. {Cited by 1; Impact Factor 0.08; SJR H Index 5} 3rd Quartile in Energy Engineering and Power Technology Subject Category.

36. Morris, A., Dear, J., Kourmpetis, M., **Maharaj, C.**, Puri, A., and Fergusson, A., *Monitoring creep strain in power station engineering plant.* Applied Mechanics and Materials, 2007. **7-8**: p. 31-36. {Cited by 2; Impact Factor 0.09; SJR H Index 26} 3rd Quartile in Engineering Subject Category.

37. **Maharaj, C.,** *The role of the Internet in Fostering University Education, Training, Research, and Development in the 21st Century*. West Indian Journal of Engineering, 2001. **23**(2): p. 21-24. {Cited by 0}

CONFERENCE PUBLICATIONS

1. Hosein, S., Maharaj, **C., Maharaj**, R., and Singh-Ackbarali, D., The effect of particle size and concentration of crumb rubber on the rutting and fatigue cracking resistance of Trinidad Lake Asphalt and Petroleum Bitumen*. Conference of the International Journal of Arts and Sciences*, 2013 (Upgraded to Journal Paper)

2. Persad, P., Loutan Jr., K, and **Maharaj, C.**, Dynamic stress analysis of a spring actuated manipulator with tip payload. IASTED *Proceedings of the International Conference on Robotics*, 2010, DOI: 10.2316/P.2010.703-02

3. Morris, A., Palmer, I., **Maharaj, C.**, Dear, J., ARCMAC Optical Creep Monitoring: Developments in Image Analysis Techniques and Creep Measurement Validation. *ASME Pressure Vessels and Piping Conference*, 2010. 10: p. 195-202.

4. **Maharaj, C.**, Palmer, I., and Dear, J., Validation and Optimization of ARCMAC and Strain Mapping Systems for Creep Measurement. *ASME Pressure Vessels and Piping Conference*, 2009. 5: p. 427-438.

5. Morris, A., **Maharaj, C.**, Puri, A., Kourmpetis, M., and Dear, J., Recent Developments in Methods to Study Creep Strain Variations in Power Station Steam Plant. *ASME Pressure Vessels and Piping Conference*, 2008. 7, p. 529-535.

6. Morris, A., **Maharaj, C.**, Palmer, I., Puri, A., and Dear, J., Developments in Combined ARCMAC and Strain Mapping Systems for Creep Measurement. *ASME Pressure Vessels and Piping Conference*, 2008. 7: p. 521-528.

7. Morris, A., **Maharaj, C.**, Puri, A., Kourmpetis, M., and Dear, J., Researching Methods to Study Creep Strain Variations in Power Station Steam Plant. *ASME Pressure Vessels and Piping Conference,* 2007. 7: p. 35-43.

8. Morris, A., Kourmpetis, M., Dear, J., Puri, A., and **Maharaj, C.**, Resolution of Creep Strain Measurements using the ARCMAC Strain Monitoring System. *ASME Pressure Vessels and Piping Conference*, 2007. 7: p. 25-33.

9. **Maharaj, C.** and Imbert, C.A.C, Creep life assessment of Incoloy 800H reformer outlet pigtail tubes*. IEM-2006 Conference on Building Engineering and Management Competence.* 2006.

10. **Maharaj, C.** and Imbert, C.A.C., Failure analysis of Incoloy 800H reformer outlet pigtail tubes*. IEM-2006 Conference on Building Engineering and Management Competence.* 2006.

BOOKS

1. **Maharaj, C.**, Help yourself and others! Guidance for the attainment of eudaimonia. ISBN-10: 109276349X. 2019. Available at https://www.amazon.com/Help-yourself-others-attainment-eudaimonia/dp/109276349X/ref=tmm_pap_swatch_0?_encoding=UTF8&qid=&sr=

OTHER PUBLICATIONS

1. **Maharaj, C.,** The Leader I Would Like to Have… and Be, *weLead Online Magazine*, 2011. Accessed on 3rd May 2014 and available at http://www.leadingtoday.org/Onmag/2011%20Archives/July%2011/cm-july11.pdf.

WORK YET TO BE PUBLISHED

Currently submitted for review:

1. Purcell, A., Maharaj, R., Forde, M., and **Maharaj, C.,** Reuse of crumb rubber in concrete.
2. Ibrahim, T., Davies, C. M., **Maharaj, C**., Li, Z., Dear, J. P., Hooper, P. A., Post-yield Performance of Additive Manufactured Cellular Lattice Structures.
3. Seecharan, K. and **Maharaj, C**. Critical review of human and latent causes in industrial accidents in the Oil and Gas sector.

In preparation:

1. Burns, M., Primus, S., **Maharaj, C.** Case study on the effect of student mentoring on Academic performance.
2. Sahadeo, S. and **Maharaj, C**. Review of recent human factor causes in aviation accidents.
3. Narace, V., Maharaj, R., Smith, J. and Forde, M., and **Maharaj, C.,** Reuse of shredded PET in concrete.

AWARDS/ACCOLADES

Elected as Fellow of the ASME in 2018.

Elected as Fellow of the IMechE in 2017.

Winner of UWI/Guardian Group Premium Teaching Award in 2016.

Volunteer Role Model of the Year awarded by IMechE in 2016.

Outstanding commitment to Talent Development awarded by IMechE in 2014.

Certificate of Honourable Mention for ASME Pressure Vessels and Piping Conference 2009 paper.

Best Mechanical Engineering undergraduate final project in 2001.

PAPERS PRESENTED

1. Mahase, M., **Maharaj, C.**, and Maharaj, R., The Physical and Performance Characteristics of Polymer Modified Asphaltic Road Paving Mixes*. APETT Technical Conference*, 2015. Couva, Trinidad.
2. Morris, A., **Maharaj, C.**, Puri, A., Kourmpetis, M., and Dear, J., Recent Developments in Methods to Study Creep Strain Variations in Power Station Steam Plant. *ASME Pressure Vessels and Piping Conference*, 2008. 7, p. 529-535. July 27-31, 2008, Chicago, Sponsored by E.ON UK.
3. Morris, A., **Maharaj, C.**, Palmer, I., Puri, A., and Dear, J., Developments in Combined ARCMAC and Strain Mapping Systems for Creep Measurement. *ASME Pressure Vessels and Piping Conference*, 2008. 7: p. 521-528. July 27-31, 2008, Chicago, Sponsored by E.ON UK.
4. **Maharaj, C.** and Imbert, C.A.C, Creep life assessment of Incoloy 800H reformer outlet pigtail tubes*. IEM-2006 Conference on Building Engineering and Management Competence.* 2006. 31st May – 2nd June 2006, Trinidad.
5. **Maharaj, C.** and Imbert, C.A.C., Failure analysis of Incoloy 800H reformer outlet pigtail tubes*. IEM-2006 Conference on Building Engineering and Management Competence.* 2006. 31st May – 2nd June 2006, Trinidad.

PROFESSIONAL ACTIVITY

Period	Activity
April 2017 - Present	Director of Contract Caterers Limited
April 2017 - Present	Director of Allied Caterers Limited
April 2017 - Present	Director of Katerserv Limited
December 2016 - Present	Chair – Operations and Risk Management Committee of Caribbean Airlines Limited
October 2016 - Present	Director of Caribbean Airlines Limited
January 2016 - Present	Member of Editorial Sub-committee for the West Indian Journal of Engineering
March 2014 – Present	Committee member of the following Bureau of standards technical committees: • Roofing Sheets standard (Chair) • Regional toilet tissue standard
December 2013 - Present	Reviewer for the West Indian Journal of Engineering and the Journal of the Association of Professional Engineers of Trinidad and Tobago
August 2013 – Present	IMechE Caribbean Universities Representative and Student Chapter Facilitator

September 2014 – January 2018	Chair of the IMechE pan-Caribbean group
June 2015 – June 2017	Guest Editor for the Journal of the Association of Professional Engineers of Trinidad and Tobago Special Editions on the APETT Technical Conferences 2015 and 2016
March 2015 – March 2017	Vice-President of APETT
October 2015 – June 2016	Chair of the of the Association of Professional Engineers of Trinidad and Tobago (APETT) 2016 Technical Conference Committee
August 2014 – May 2016	IMechE Americas Region Young Member Representative
April 2014 – April 2016	Editor of the APETT Professional Engineering Newsletter (issued monthly)
April 2015 – March 2016	Vice-Chair of the APETT Mechanical Division
July 2015	Judge for National Energy Skills Centre (NESC) Campus Display Competition
November 2014 – June 2015	Vice-Chair of the 2015 APETT Technical Conference Committee
February 2015	Judge for IET 'Present Around The World' Competition for T&T candidates
April 2014 – September 2014	APETT 54th Annual Honours and Awards Ceremony Planning Committee
April 2014 – March 2015	Assistant Treasurer of APETT
March 2013 – March 2014	American Society of Mechanical Engineers (ASME) student mentor
September 2010 - August 2011	Mentor for Business Development Company's Instil Innovation Program

PROFESSIONAL MEMBERSHIPS

Fellow of the Institution of Mechanical Engineers

Fellow of the American Society of Mechanical Engineers

Registered Engineer with the Board of Engineering of Trinidad and Tobago

Senior Member of the Association of Professional Engineers of Trinidad and Tobago

Chartered Engineer with the UK Engineering Council

RESEARCH FUNDING

1. US$5,456 - Campus Research and Publication Fund, UWI, CRP.4.MAR17.19 – Prosthetic and assistive devices for physically disabled persons, March 2017 – Present.
2. US$80,117–Ministry of Planning and Development - Funding for 5 Associate Professionals for the Department of Mechanical and Manufacturing Engineering, September 2016 – September 2018.
3. US$4,400 - Campus Research and Publication Fund, UWI, CRP.4.NOV12.2 - Stress and Failure Analyses of Mechanical and Electromechanical Components, December 2012 – June 2014.
4. US$2,440 - Research Fund, UWI, - Funding to present paper at the Conference of the International Journal of Arts and Sciences, May 2013.

5. US$1541 - Research Fund, UWI, - Funding to present paper at The International Conference on Solid Waste Technology and Management, April 2014.

CONSULTANCY

Mechanical Engineering Consultant for Cumbria Veri-Tech Agencies Ltd who is an approved Certified Verification Agent (CVA) of the T&T Ministry of Energy and Energy Affairs.

1. Performed Mechanical Engineering review of a Boiler and Steam generator for a Refinery.
2. Performed Mechanical Engineering review of an unmanned Natural Gas Production platform.
3. Performed Mechanical Engineering and Safety review of an unmanned Natural Gas Production platform.

RESEARCH AND SUPERVISION

Past BSc projects:

1. Bridgeraj, A. Failure Analysis of Reformer Pigtail Tubes, 2019.
2. Gangadeen, J. Design of a High Cost Per Gram Product Using Fragrance / Essence Extraction Equipment, 2019.
3. Mahadeo, N. The Design and Build of a Hydroponics Growing Tray Cleaning Device, 2019.
4. Ramadhar, V. Design and Build of an Automated Hydroponic System for Home and Commercial Use, 2019.
5. Robinson, N. Addition of Crumb Rubber to Asphalt Pavement, 2019.
6. Rampaul, R., Optimization of manufacturing process for a pre-school desk, 2017.
7. Sundersingh, S. Human and Latent Factors Associated with Major Industrial Accidents, 2017.
8. Maharaj, S. Design and build of community exercise equipment, 2017.
9. Purcell, A. The optimal crumb rubber concentration for concrete, 2017.
10. Jaikaran, A. Optimization of a drop tester, 2017.
11. Charles, D., Design and build of community playground equipment, 2017.
12. Garcia, A., Design and build of community exercise equipment, 2017.
13. Benny, R., Human and latent root cause factors in major manufacturing industry failures/accidents, 2017.
14. Hazell, S., Development of a department foundry lab, 2017.
15. Narace, V., Reuse options for polyethylene terephthalate, 2017.
16. Babooram, R., An exploration of novel table skin materials, 2016.
17. Barnaby, C., Design, build, and test a multi-functional pre-school desk, 2016.
18. Hosein, A., Addition of polymer into road surfaced in T&T, 2016
19. Khudan, A., Automation of a drop testing device, 2016.
20. Morin, C., Reuse of slag in the surface of road pavement, 2016.
21. Ragoo, K., Design of an outdoor mechanical playground set, 2016.
22. Ramdass, S., Multi-functional secondary school desk, 2016.
23. Sieunarine, S., Block potential of Trinidad clays, 2016.
24. Sudama, S., Improvement of cricket helmet design, 2016.
25. Persad, C., Plastic Bottle grinding machine, 2016.
26. Mahase, M., The Physical and Performance Characteristics of Polymer Modified Asphaltic Road Paving Mixes, 2015.
27. Bidaisee, L., Design, Build, and Test of a Drop Test Device to analyse the behaviour of different glass materials, 2015.
28. Chanardip, S., New design to Optimize the Performance of a Subwoofer, 2015.
29. Mylan, R., Optimization of Clay Block Formula at Trinidad Aggregate Products Limited, 2015.
30. Ramlal, J., Failure Analysis of Components in Methanol Production Plants, 2015.

31. George, J., Design and Cast of a Decorative Ornament and Re-commissioning of the Foundry lab. 2015.
32. Rampersad, V., To evaluate and determine the efficiency of the National Innovation System of Trinidad and Tobago, 2015.
33. Williams, S., Development of Innovation Metrics for the Trinidad and Tobago Manufacturing Industry, 2015.
34. Maharaj, K., To Design, Build, and Test a Wrist Mounted Flamethrower for use as a Special Effects Device in the Entertainment Industry, 2015.
35. Mohammed, F., Design, build, and test of a pad-eye loader, 2014.
36. Andrews, K., Static Stress Analysis of Process pipes, 2014.
37. Vasquez, A., A machine to separate metal components from used automobile tyres, 2014.
38. Jaikaran, R., Investigation of the rheological and weathering durability characteristics of polyethylene terephthalate modified Trinidad Lake Asphalt and Trinidad Petroleum Bitumen, 2014.
39. Gobin, M., Automated Shower system with emphasis on Water Conservation, 2014.
40. Singh, A., Feasibility study into the use of Current Asphalt Technology in the production of crumb rubber modified asphalt, 2014.
41. Ramlakhan, P., Design and Build of a Window Cleaning Device, 2014.
42. Mahabir, R., Development of Innovation Metrics for the Trinidad and Tobago Manufacturing Industry, 2014.
43. Bonas, M., Interpretation and Analysis of Microstructures in failed components, 2014
44. Hosein, S., The effect of crumb rubber's particle size and concentration on Trinidad Lake Asphalt and Trinidad Petroleum Bitumen as a modifier for pavement, 2013.
45. Mohammed, S., Conventional and Wire cutting experiment to determine the Yield Strength and Fracture Toughness of Mild Cheddar Cheese and Cereal Bars, 2013.
46. Rasool, R., Design, Build and Test a Semi- Automated System for the Manufacture of Polyurethane Insulated Sandwich Panels for Modular Cold Storage Construction, 2013.
47. Gunness, N., Generating and Modelling Foams using Numerical Methods, 2013.
48. Ramesar, K., Design, Build, and Test of a machine to separate coconut husks into pieces suitable for processing into activated carbon, 2013.
49. Maynard, J., The effect of Polyethylene Terephthalate particle size and concentration on the properties of asphalt and bitumen as an additive, 2013.
50. Gabriel, C. The Design and Fabrication of a Mechatronic Self-Adjusting Surface to be used in the Prevention of Spills in Uncovered Beverages, 2013.
51. Ramjit, B., Developing an Innovation Metric for the Food, Beverage and Tobacco Manufacturing Industry in Trinidad and Tobago, 2013.
52. Deonarine, A., The Weathering Resistance And Compressive Strength Of Rubber Modified Trinidad Lake Asphalt (TLA) And Trinidad Petroleum Bitumen (TPB), 2013.
53. Gopie, A., Design and build of a pineapple peeler, 2013

Past MSc projects:

1. Seecharan, K. Critical analysis of human factors and latent defects in incidents in the Petroleum Industry, 2019.
2. Ramkellawan, R. A feasibility study of corrosion prevention techniques being utilized in water systems on the Point Lisas Estate, 2018
3. Rampersad, R. Improving the reliability of fusible loop systems by mitigating fitting failures on offshore installations, 2018
4. Jagroop, C., Establishment of a CBM programme for WASA's Wastewater Collection System, 2018
5. Ramoutar, S. Improvement of Inspection Management Program for Aging Onshore Crude Oil Pipelines at the Ministry of Energy and Energy Industries (MEEI). 2018

6. Mathura, S. An investigation into the causes of lubrication failure in critical components at an Ammonia production complex. 2018
7. Ramnanan, A. An Investigation into the repeated failures of the Reformed Gas Boiler Feed Water Preheater on the Caribbean Nitrogen Company (CNC) and Nitrogen 2000 (N2000) Ammonia Plants at Industrial Plants Services Limited (IPSL). 2017
8. Seepersad, K., Determination of the root cause of melamine caking in an Ammonia-Urea-Melamine Complex,.2017
9. Rampat, K., Optimization of the Weld Procedure for repairing aged heat resistant Nickel Alloy Components found in steam-methane reformers at IPSL, 2017

Current MSc projects:

1. Jaikaran, R., Reuse options for PET waste.
2. Sealey, D., Strategic foresight analysis on an airline.
3. Ramoutar, S. Human and Latent root causes in aviation accidents.

Current MPhil projects (Supervisor):

1. Babooram, R. Development of prosthetic and assistive devices for the physically disabled.

Current PhD projects (Supervisor):

1. Rampat, K. Factors affecting corrosion of carbon steel in acidic environments.

TEACHING AND RELATED EXPERIENCE

1. First or Second Examiner and Lecturer of the following courses:

Course code	Course name (class size range)	Overall lecturing performance out of 5	Overall course performance out of 5	Dates
MENG3015 (First examiner)	Materials Technology (41 to 71)	4.0/4.3/4.5/4.4/4.3/4.1/4.5	3.7/4.2/4.4/4.4/4.2/4.1/4.3	Sept 2012-present
MENG2008 (First examiner)	Manufacturing Technology (111 to 134)	4.4/4.3/4.3/4.1/4.4/DNT/4.6	4.0/4.1/4.0/4.1/4.2/ DNT/4.3	Jan 2013-present
MENG6202 (First examiner)	Applied Materials Technology (8 to 16)	4.2/4.2/5.0/4.8/4.4/DNT/5.0	3.7/4.0/4.9/4.6/4.0/ DNT/5.0	Jan 2013-present
MENG2011 (First examiner)	Machine Design 1 (88 to 122)	3.7/4.0/3.9/4.1/LSR	3.8/3.9/3.9/4.3/LSR	Sept 2014-present
MENG6703 (Second examiner)	Condition Monitoring and Diagnostics (8 to 15)	4.6/LSR/DNT/DNT	4.5/LSR/DNT/DNT	Jan 2013-Jan 2014

LSR* - Low Sampling Rate, NPA – Not Presently Available, DNT-Did Not Teach

All courses are in Blended mode format. The flipped classroom method has been implemented for all undergraduate courses (MENG3015, MENG2008, and MENG2011)

where Screencasts have been developed. For all courses listed, course outlines have been revised (less weighting on final exam in assessment) and formatted to satisfy departmental requirements and guidelines established by the UWI Centre for Excellence in Teaching and Learning.

CONTRIBUTIONS TO THE DEPARTMENT/UNIVERSITY

Date/Period	Contribution
December 2019 - Present	Faculty Blended Learning Committee member
October 2019 - Present	Open and Distance Learning/ Continuing and Professional Education St. Augustine Campus Stream Anchor for UWI Digital Transformation project
May 2019 - Present	Chair of Faculty Curriculum Review Committee
June 2016 - Present	Lead person in programme re-accreditation exercise (under guidance of HoD)
June 2016 - Present	MSc Production Engineering and Management Programme Coordinator
September 2015 - Present	Committee member of Industrial Liaison Committee, Committee on Quality, and Committee on Bridging Courses
January 2014 – Present	Facilitator for the UWI IMechE student chapter
December 2016 – December 2017	Faculty Assessment & Promotion Committee member
January 2017 – August 2017	MSc Programme Lead Coordinator
January 2016 – December 2017	Entrance committee member representing the BSc Mechanical Engineering program
September 2012 – Present	Department Student Mentor
September 2013 –April 2017	Timetable Coordinator
September 2013 – April 2017	Level 2 Coordinator
September 2013	New Optical Microscope with digital image capture ability was recommended, justified, purchased, and commissioned
December 2012	Developed graduate core competencies of the UWI Mechanical and Manufacturing Engineer

WORK EXPERIENCE

Senior Lecturer - August 2017 to Present

Lecturer - Aug 2012 to July 2017

Department of Mechanical and Manufacturing Engineering, The University of the West Indies

- Teaching Engineering Courses including Materials Technology, Applied Materials Technology, Manufacturing Technology, Machine Design, and Condition Monitoring and Diagnostics.

- Research in alternative use of waste materials, failure analysis, mechanical design optimization, innovation management, student motivation, and flipped classroom approaches.
- Student mentor for the department, MSc Programme Lead Coordinator, Lead person in programme re-accreditation exercise, MSc Production Engineering and Management programme Coordinator, Entrance Committee Member representing the BSc. Mechanical Engineering programme, IMechE student chapter facilitator.

Assistant Professor-Dec 2009 to July 2012

Design and Manufacturing Section, The University of Trinidad and Tobago

- Taught Engineering Courses including Science of Materials, Engineering Thermodynamics, Mechanics of Machines, Strength of Engineering Materials, Engineering Design, and Finite-Element Analysis.
- Supervised Masters and Bachelors students' final year projects.
- Commissioned microstructures lab and used this lab to perform University consulting to the Industry.
- Committee lead in first time international accreditation exercise for undergraduate and graduate manufacturing programs.
- Research in Dynamic Stress Analysis, High Temperature Strain Measurement, and National Innovation Systems.

Mechanical Engineering Researcher - Oct 2006 to Oct 2009

Imperial College London

- Researched and developed techniques to estimate creep damage in high temperature plant components.
- Failure analysis and creep life assessment.
- Creep finite-element modelling.
- Co-Supervision of Masters degree students' capstone project reports.

Inspection Engineer II Jan 2006 to Sept 2006

The Petroleum Company of Trinidad and Tobago Limited

- Reviewed plant design and suggested modifications for improvement.
- Managed corrosion reviews and inspection scope work-lists.
- Developed and Executed Turnaround/Outage contracts.

Condition Monitoring & Inspection Engineer II Jan 2005 to Dec 2005, Engineer I Jul 2002 to Dec 2004

Industrial Plant Services Limited, Point Lisas, Trinidad and Tobago (Methanol Sites)

- Monitored, analyzed, and diagnosed irregularities in rotating and stationary equipment aimed at improving equipment reliability and reducing maintenance costs and safety risks.
- Planned and executed plant Turnarounds and Outages.
- Supervised in-house and contract technicians and engineers.
- Managed capital projects and participated in factory acceptance tests and plant reviews for new plants.

Mechanical Engineering Trainee Aug 2001 to June 2002

Farmland MissChem Limited (Now Point Lisas Nitrogen Company)

- Active role in daily planning and execution of rotating and stationary equipment activities incorporating operations and maintenance procedures.
- Integral involvement in vibration measurement/analysis and RCM.

Operator Technician Trainee July 1997 to July 1998

Trinidad & Tobago Methanol Company

REFERENCES ARE AVAILABLE ON REQUEST