**Name:** Dr. Jackson Wachira Muthengia (Ph.D)

**Date of Birth:** 31St December, 1976

**Gender:** Male

**Permanent Address:** Box 6 – 60100 Embu

**Telephone Number:** (+254) 0723176514

**E-mail address:** [wachira.jackson@embuni.ac.ke](mailto:wachira.jackson@embuni.ac.ke), [mundu1977@gmail.com](mailto:mundu1977@gmail.com)

**Citizenship:** Kenyan

**Academic Qualification**

|  |  |  |  |
| --- | --- | --- | --- |
| **Institution Attended** | **Year of Award** | **Certification** | **Grade/Classification** |
| Kenyatta University | 2009 | Ph.D. by Research and Thesis | N/A |
| Kenyatta University | 2003 | Master of Science | N/A |
| Kenyatta University | 2000 | Bachelor of Education (Science) | First Class Honors |
| Baringo High School | 1996 | Kenya Certificate of Secondary Education | B (Plain) |
| Mogotio Primary School | 1990 | Kenya Certificate of Primary Education | 530 out of 700 marks |

**Employment History/Work Experience**

|  |  |  |  |
| --- | --- | --- | --- |
| **Employment Dates** | **Position Held** | **Place of Work** | **Duties and Responsibilities** |
| 2013 – To Date | Senior Lecturer | University of Embu | Teaching, Research and Extension services |
| 2009 – 2013 | Lecturer | Kenyatta University | Teaching, Research and Extension services |
| 2004 - 2013 | Tutorial Fellow | Kenyatta University | Teaching, Research and Extension services |

**Administrative Responsibilities**

|  |  |  |
| --- | --- | --- |
| **Administrative Position Held** | **Institution** | **Dates** |
| Registrar (Academics, Research and Extension) | University of Embu | 2016 to Date |
| Dean, School of Pure and Applied Sciences | University of Embu | 2013 – To 2016 |
| Dean, School of Education and Social Sciences | University of Embu | 2014 - 16 |
| Dean, School of Nursing | University of Embu | 2015 - 16 |
| Standing in for Deputy/Vice-Chancellor | University of Embu | Several Occasions |
| University Committees | University of Embu | 2013 – To date |
| University Board Members | University of Embu | 2013 – To date |
| Departmental Board Members | Kenyatta University | 2004 - 2013 |

**Postgraduate Supervision**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Students Names** | **Registration Number** | **Thesis Title** | **Institution** | **Date of Completion** | **Year of Graduation** | **Degree Certificate Awarded** |
| Njoroge Peter Waithaka | I84/21312/2010 | Chemical Analysis and Concentration of Iron in Laterites in Kamahuha in Murang’a | KU | Dec, 2014 | Dec, 2014 | Ph.D. |
| Muriithi Genson | I84/21440/2010 | Industrial Waste Water Treatment Using Biomass and Other Potential Adsorbents | KU | Dec, 2017 | Dec, 2017 | Ph.D |
| Mutembei Peterson Kugeria | B801/112/2014 | Alternative and Locally Viable Method for Extraction of Copper and Concentration of Titanium from their Ores Using Biomass, Hydrazones and Electrochemical Method in Maragwa Location in Tharaka - Nithi County | UoEm |  |  | Ph.D on-going |
| Daniel Karanja Mutitu | B801/174/2016 | Effects of Microbial Biocementation on the Physico-Mechanical Properties of Kenyan Made OPC and PPC Mortar |  |  |  |  |
| Marangu Joseph Mwiti | I84/32253/2015 | Investigations on the Effects of Chloride Ions on a Potential Alkali Activated Calcined Clay Cement | KU | Dec 2018 | Dec 2018 | Ph.D |
| Onesmus Munyau | I84/37352/2017 | Effects of Microbial Biodeterioration on the Physico-Chemical and Mechanical Properties of Selected Kenyan Made Cements | KU |  |  | Ph.D on-going |
| Regina Wangui Ngari | I84/32235/2015 | Effect of Selected Microbial Biocementation to Improve Physico-Chemical and Mechanical Properties of Hydrated Cement | KU |  |  | Ph.D on-going |
| Mu |  |  |  |  |  |  |
| Kenyanya Omanga | I56/CE/22766/2010 | Studies on Potassium Requirements for Maize in Nyamira County, Kenya | KU | 2015 | 2015 | M.Sc. |
| Musyimi Ngui Festus | I56/CE/15079/2008 | Pozzolanicity, Compressive Strength and Ingress of Selected Aggressive Ions in Kibwezi Bricks Based Cement | KU | 2015 | 2015 | M.Sc. |
| Warui Stephen Kariuki | I56/CE/22243/2010 | Beneficiation of Low Grade Titanium Ore from Selected Sites in Meru, Murang’a and Tharaka Nithi County, Kenya | KU | 2015 | 2015 | M.Sc. |
| Mulwa Onesmus | I56/21196/2012 | Effect of Mix Water on Performance of Cement | KU | 2015 | 2015 | M.Sc. |
| Wangui Ngari Regina | I56/CE/15538/2008 | Sulphate and Chloride Ingress and the Effect in Selected Cements Mortar Prisms Immersed in Sea Water and Leather Industry Effluent | KU | 2014 | 2014 | M.Sc. |
| Mutembei Peterson Kugeria | I56/CE/15242/2008 | Concentration of Iron in Laterites from Different Localities of Tunyai Division in Tharaka Nithi County in Kenya Using Magnetic Separation | KU | Dec. 2013 | Dec. 2013 | M.Sc. |
| Marangu Joseph Mwiti | I56/CE/14210/2009 | Pozzolanicity, Chloride Ingress and Compressive Strength of Laboratory Made Kenya Clay – Portland Cement Blends | KU | Dec. 2013 | Dec. 2013 | M.Sc. |
| Kinyua, Leonard John | I56/10360/2007 | Pozzolana Cement Made from and Rice Husks and Clays Calcined in Situ | KU | July, 2013 | July, 2013 | M.Sc. |
| Mutitu Daniel | I56/CE/10358/2007 | Diffusivity of Chloride and Sulphate Ions in Selected Ordinary Portland and Portland Pozzolana Cements | KU | July, 2013 | July, 2013 | M.Sc. |
| Jane Mburu | EET30-2935/2014 | Pyrolysis Studies for Post Consumer Polyethylene Waste Conversion and Upgrading of Resultant Fuel Oils | JKUAT | November, 2016 | 2016 | M.Sc. |

**Conferences**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date of Attendance** | **Conference Theme** | **Presentation Title** | **Conference Place** |
| 22nd – 25th August, 2016 | Quality University Research and Innovation  In *1st Biennial Conference on The State of Higher Education in Kenya* | *An Overview of Alternative Cementing Materials, Kenyan Case* | KU |
| 19th – 21st July, 2016 | Role of Indigenous Discourse and Innovative Technologies to Catalyze Development and human Wellness  *In 10th Annual Decolonizing the Spirit Conference* | *Indigenous House Construction and Building Materials and Technology, Kenyan Case* | UoEm |
| 12th – 13th November, 2015 | Science, Technology, Innovation and Entrepreneurship for Sustainable Development  *In The10th JKUAT Scientific Technological and Industrialization Conference and Exhibitions* | *Pyrolysis Process Studies for Post Consumer Polyethene Waste Conversion and Upgrading of the Pyrolysis Oil* | JKUAT |
| 4th – 7th November, 2014 | Science, Technology and Innovation for Enhanced Economic Growth  *In the 1st Dedan Kimathi University of Technology Conference* | *Concentration of Titanium in Iron-Rich Laterites Using In-Situ Carbonized Biomass* | DeKUT |
| 5th – 8th May, 2015 | Applied Chemistry and Technology in Industry  *In The 8th Kenya Chemical Society International Conference* | *Fixed Column Study for the Removal of Zinc (II) ions from Wastewater by Animal Charcoal and Rice Husks Ash – Mixture* | UoN |
| 5th – 8th May, 2015 | *Thermal – Chemical Characteristics of Potential Gasifier Fuels in Selected Regions of the Lake Victoria Basin* | UoN |
| 5th – 8th May, 2015 | *Investigation on the Effects of Mixing Water in Cement Mortar Performance* | UoN |

**Governance Trainings/Workshops**

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| --- | --- | --- | --- |
| **Date of Attendance** | **Workshop/Training** | **Facilitator/Resource Person** | **Workshop Place** |
| 23rd – 26th September, 2018 | Cooperate Governance and Governance Audit | Institute for Capacity Development, InCAD | Sagana, Kenya |
| 20th – 24th March, 2018 | Board/Council Management | Assoture Consulting LTD, Horrizon Business solutions | Nyeri, Kenya |
| 13th – 17th May, 2018 | Mandate of State Cooperation Appeals Tribunal | State Cooperation Appeals Tribunal | Mombasa, Kenya |
| 1st – 5th October, 2017 | Cooperate Governance, Risk Management and Council Evaluation | Kenya School of Government | Mombasa, Kenya |

**Workshop/Seminars**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date of Attendance** | **Seminar Theme** | **Facilitator/Resource Person** | **Workshop Place** |
| 28th – 30th April, 2015 | Advanced Chemical Safety and Security Workshop | Participant | UoN |
| 3rd – 5th June, 2013 | Implementation of ISO 9001: 2008 Seminar | Participant | EUC |
| 2015 | University Teaching Pedagogy | Participant | EUC |

**Publications**

1. **Wachira, J. M.** and Marangu, J. M. (2019) Chloride Diffusivity in Blended Cement Made from Selected Industrial and Agrowastes *Advances in Materials Science and Engineering,* Volume 2019, Article ID 2814320, 7 pages, <https://doi.org/10.1155/2019/2814320>
2. **Wachira, J. M.** Thiongó J. K., Marangu, J. M. and Murithi L. G. (2019) Physicochemical Performance of Portland – Rice Husk Ash-Calcined Clay – Dried Acetylene Lime Sludge Cement in Sulphate and Chloride Media, *Advances in Materials Science and Engineering,* Vol. 2019, <https://doi.org/10.1155/2019/5618743>
3. **Wachira, J. M.** (2019) Effects of Chlorides on Corrosion of Simulated Reinforced Blended Cement Mortars, *International Journal of Corrosion*, Vol. 2019, <https://doi.org/10.1155/2019/2123547>
4. Marangu, J. M., Thiongó J. K. and **Muthengia, J. W.** (2019) Review of Carbonation Resistance in Hydrated Cement Based Materials, *Journal of Chemistry*, Volume 2018, <https://doi.org/10.1155/2018/1595230>
5. Marangu, J. M., Thiongó J. K. and **Wachira, J. M.** (2018) Properties of Activated Blended Cement Containing High Content of Calcined Clay, *Heliyon*, Volume 4 Issue 8. <https://doi.org/10.1016/j.heliyon.2018.e00742>
6. Kugeria, P. M., Mwangi, I. **Wachira, J.** and Njoroge, P. (2018) Copper Extraction by Wet Chemical Method, *Journal of Sustainable Mining*, <https://doi.org/10.1016/j.jsm.2018.07.003>
7. Marangu, J. M., Thiongó J. K. and **Wachira, J. M.** (2018) Chloride Ingress in Chemically Activated Calcined Clay-Based Cement, *Journal of Chemistry,* <https://doi.org/10.1155/2019/8489671>
8. Mbugua, G.W., Mbuvi, H. M. and **Muthengia, J. W.** (2014) Rice Husk Ash Derived Zeolite Blended with Water Hyacinth Ash for Enhanced Adsorption of Cadmium Ions, *Current World Environment Journal,* <http://dx.doi.org/10.12944/CWE.9.2.08>
9. Mutitu, D. K., Karanja, J. K. and **Wachira, J. M.** (2014) Diffusivity of Sulphate in Selected Ordinary Portland Cement and Portland Pozzolana Cements, *Journal of the Kenya Chemical Society*, Volume 8 Issue 1, pp 13 - 25
10. **Wachira, J. M.**, Ngari, R. W., Thiongó J. K. and Marangu, J. M. **(2019)** Effect of Sulphate and Chloride Ingress on Selected Cements Mortar Prisms Immersed in Sea Water and Leather Industry Effluent, *Advances in Civil Engineering*, in the Issue: The Effect of Coastal Environment on the Degradation of Reinforced Concrete Structures, Volume 2019, <https://doi.org/10.1155/2019/8191689>
11. Ngui, F., **Wachira, J.****M.,** Marangu, J. M., Thiongó, J. K. and (**In Press**) Performance of Ground Clay Brick Mortars in Simulated Chloride and Sulphate Media, *Journal of Engineering*
12. Mutitu, K. D., Munyao, M. O. **Wachira, J. M.** Mwirichia, R., Thiongó J. K. and Marangu, M. J. (2019) Effects of Biocementation on Some Properties of Cement-Based Materials Incorporating *Bacillus Species* Bacteria, *Journal of Sustainable Cement – Based Materials,* <https://doi.org/10.1080/21650373.2019.1640141>
13. Mwiti M. J., Karanja T. J., **Muthengia W. J**. (2018) Thermal Resistivity of Chemically Activated Calcined Clays-Based Cements. In: Martirena F., Favier A., Scrivener K. (eds) Calcined Clays for Sustainable Concrete. RILEM Bookseries, vol 16. Springer, Dordrecht, <https://doi.org/10.1007/978-94-024-1207-9_53>

**Patent/Innovations**

1. Muriithi, N., Waithaka, P., Wanjau, R. and **Muthengia J. W.** (2015) Concentration of Laterites Using Biomass, Industrial Property Journal, KIPI

**Peer Reviewed Conference Papers**

1. Kariuki, S. W., Onindo, C. and **Muthengia, J. W.** (2014) Concentration of Titanium in Iron – Rich Laterites Using In-Situ Carbonized Biomass, *The First DeKUT International Conference on Science, Technology and Innovation*, Conference Proceedings, Nyeri, Kenya.
2. Mburu, J. N., Njogu, P. M. and **Muthengia, J. W.** (2015) Pyrolysis Process Studies for Post-Consumer Polyethene Waste Conversion and Upgrading of the Pyrolysis Oil, *The10th JKUAT Scientific Technological and Industrialization Conference and Exhibitions,* Conference Proceedings, Kenya
3. **Muthengia, J.W.,** John, L. K. and Marangu, J. (2019) Potential Cement Replacement Materials from Clays and Rice Husks calcined in Situ, Kenyan Case, *Second International Conference Jaramogi Oginga Odinga University of Science and Technology Conference*, Kisumu.

**Grants**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of Grant** | **Grant Organization** | **Period** | **Amount of Grant** | **Sole or Collaborative** |
| Research | National Commission for Science, Technology and Innovation (NACOSTI) | 2014 - 16 | KShs. 2,000,000 | Partnership |
| Research | 2014 - 16 | KShs. 748, 915 | Principal Investigator |

**Academic Leadership**

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | **Category** | **Authors** | **Year** |
| Bachelor of Science in Nursing (Direct Entry), B.Sc. (Nursing – Upgrading), B.Sc., B.Sc. (Analytical Chemistry), B.Sc. (Industrial Chemistry) | University Curriculum Reviews and Value addition in EUC | Leadership in all | 2014 - 2016 |
| Concentration of Laterites Using Biomass | Patented Utility Model | Muriithi, N., Waithaka, P., Wanjau, R. and **Muthengia J. W.** | June, 2015 |
| Remediation of Chlorinated Organic Compounds in Treated Drinking Water by the Use of Substrate Immobilised Zero – Valent Bimetallic Nanoparticles | Leading Research Project and Principal Investigator | Muthengia. J. W., Waweru. I and Swaleh, S. | 2014 - 16 |
| Diploma in Information Technology | Curriculum Development | Lead person | 2014 |
| Student – Lecturer Evaluation | Quality Assurance | Teaching Units (ACH 101, AWM 106, SCH 204) | 2014 |

**Recognition**

|  |  |  |
| --- | --- | --- |
| **Description** | **Participation Level** | **Dates** |
| External Examiner, Meru University of Science and Technology | External Examiner, Chemistry Department | 2016 - 18 |
| Dum Dam Youth Polytechnic | Board Member | 2015 - 19 |
| Embu Town Clean up | Participant | 14th March, 2015 |
| 10th Annual Decolonizing the Spirit Conference | Abstracts Review and Editorial Committee Member | 2016 |

**Others**

|  |  |  |
| --- | --- | --- |
| **Description** | **Dates** | **Referees** |
| Member, 1st Embu University College Graduation Organizing Committee Member | 2016 | Vice Chancellor, UoEm  [vc@embuni.ac.ke](mailto:vc@embuni.ac.ke)  0733601635 |
| Member, Embu University College Charter Award Committee Member | 2016 |
| Chairman, Embu University College ISO Certification Steering Committee | 2013 – To date |
| Staff Performance appraisal by Head of Department | 2013 – To date |
| Several Student – Lecturer Evaluation | 2013 – To date |
| Career Mentoring Various Embu County Students within UoEm and County | 2013 – To date |
| University Strategic Appointments for Financing and Resource Mobilization | 2013 – To date |
| National Secretary, Branch Organizing Secretary and Member, The Kenya Chemical Society | 2013 – 15 | Dr. Leonard Gitu  KCS – Chairman  [gitumleo@gmail.com](mailto:gitumleo@gmail.com) |
| Select Sub-Committee for Nominations of the Kenya Chemical Society Fellows | 2016 |
| Member, Anglican Church of Kenya | 2009 – To date | ACK St. Stephen’s Ngoingwa Vicar |

**Referees**

1. **Prof. Gerald Muthakia**

Deputy Vice-Chancellor (Academic Affairs)

Dedan Kimathi University of Technology

[gkmuthakia@gmail.com](mailto:gkmuthakia@gmail.com)

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1. **Prof. Kiplagat Kotut**

Deputy Vice-Chancellor (Academics, Research and Extension)

University of Embu

+254(0)722288471

1. **Dr. Karanja wa- Thiong’o**

Senior Lecturer, Department of Chemistry, Kenyatta University

[karanjwat@yahoo.co.uk](mailto:karanjwat@yahoo.co.uk)

+254(0)733764313

1. **Prof. Ruth Wanjau**

Associate Professor, Department of Chemistry, Kenyatta University

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