



INTERNSHIP OFFERS!

Period: February-July 2024

Title: Automation Engineering Intern

Key words: SCADA, Digital Twin, Prognostics (PHM), HMI, Drives, Industrie 4.0, Industrial Internet of Things, Industrial Automation, sustainability

Supervision: Prof. Eng Jean B. BYIRINGIRO, Mr. Vincent Mworira

Summary:

The education process of industrial automation and integrated systems has multiple levels of granularity, parallel to the granularity level of the physical automated systems. The lowest granularity level starts at working with individual components, such as sensors, actuators, robots, vision systems, etc. then controlling them with PLCs and drives, and building a network of controllers and PLCs in a distributed control system (DCS). Moving up in the granularity level would be teaching students about industrial communication protocols, integrating Human Machine-Interface (HMI) and building a Supervisory Control and Data Acquisition (SCADA) system. On top of that knowledge comes the implementation of Industry 4.0 and industrial internet of things (IIoT). The hands-on experience in such a learning process is crucial, specially working with industrial grade components, and with a neutral approach toward technology, i.e. not focusing on a specific automation supplier. While advanced automated systems are supplied by many vendors, with some digital twin (DT) capabilities, they are mostly a closed box, with very little flexibility to change the underlying architecture or technology, hindering the maximum benefit of student hands-on experience. This internship intends to build a simulated changeable automated elevator system and link it to the physical system to create a digital twin (DT).

Internship Project:

Designing, Fabrication and automation of an Elevator using advanced sustainable technologies

Tasks and Responsibilities:

- Design for manufacturing and maintainability
- Fabrication and Mechanical Metalworks
- Communication Systems
- PLC & HMI programming
- Digital twin



- MES, SCADA Systems
- Safety Programming
- Overload Protection
- Lift Monitoring and Remote-Control Systems
- Emergency Rescue Operations
- Prognostics and Health Management of Industrial Assets
- Elevator integration (Integrators)
- Compliance with relevant standards
- Use of sustainable technologies
- Documentation

Eligibility:

- Minimum SMSCP Level 2
- Minimum Bachelor's Degree or Equivalent in Mechanical Engineering, Electrical and Electronics Engineering, Mechatronics Engineering, Electronic & Computer Engineering, Control Engineering and Instrumentation, Industrial Engineering, Manufacturing Engineering

Benefits to Students:

- Possibility of Masters Scholarship
- KShs 30,000
- Full-time access to Siemens Centre facilities
- EBK Registration Support

Employment Type:

Full-time – 8:00AM to 5:00PM
6 Months Internship

Title: 3D Printer Engineering Intern

Key words: Internet of Things, PCB

Supervision: Prof. Eng Jean B. BYIRINGIRO, Mr. Peterson Nyaga

Summary:

Additive manufacturing (AM), one of the cornerstones of Industry 4.0, has recently gained popularity. Three-dimensional (3D) printing technology is a part of AM, operating at the heart of the new technology. The growing competitiveness has prompted considerable changes in the product development process for corporations and their designers. The topic of unit cost in AM remains inconclusive. While some authors have found that the relationship between production quantity and unit cost is absent in AM, others recent studies have argued that the average unit cost in AM depends on the manufactured quantity. Currently,



the unit cost of AM can be higher than traditional methods, as most applications that have been reported use AM to produce small-scale products. This remains an obstacle to realizing the full potential of AM technology, as it can overshadow the potential positive benefits of increasing AM. This internship aimed at democratizing 3D printing and making technology available to individual entrepreneurs or the public. In addition, it will address the need for knowledge to achieve behavioral changes, arguing that an inexperienced 3D printing user would produce significant waste, use more material, and require longer printing times.

Internship Project:

Designing and Fabrication of a 3D Printer and an application using advanced sustainable technologies

Eligibility:

- Minimum SMSCP Level 1
- Minimum Bachelor's Degree or Equivalent in Mechanical Engineering, Electrical and Electronics Engineering, Mechatronics Engineering, Electronic & Computer Engineering, Control Engineering and Instrumentation, Industrial Engineering, Manufacturing Engineering

Tasks and Responsibilities:

- Design for manufacturing and maintainability
- Finite Element Analysis
- Fabrication and Mechanical Metalworks
- PCB Design
- Embedded Systems Programming
- Networking (IoT)
- Development of G-Codes for additive manufacturing
- Application Development
- 3D-Printer integration (Integrators)
- Compliance with relevant standards
- Prognostics and Health Management of Industrial Assets
- Use of sustainable technologies
- Documentation

Benefits to Students:

- Possibility of Masters Scholarship
- KShs 30,000
- Full-time access to Siemens Centre facilities
- EBK Registration Support

Employment Type:



Full-time – 8:00AM to 5:00PM
6 Months Internship

Title: Digital Learning Solutions Intern

Key words: Internet of Things, Virtual Reality, Augmented Reality, Mixed Reality, Industrial 4.0

Supervision: Prof. Eng Jean B. BYIRINGIRO, Mr. Benson Gathitu

Summary:

Integrating information technology as an ancillary tool in education is indispensable, especially in an era witnessing a remarkable transition in teaching and learning. The paradigm shift to the industrie 4.0 is a significant problem educators face and requires a rapid response through development of digital industrialization skill sets. The concepts of virtualization for facilitating learning have become the focus of attention in several countries. Yet, the limited understanding of how technologies such as augmented reality (AR) and virtual reality (VR) can be used to improve the learning and teaching of science makes it difficult for educational policy makers to apply additional measures in order to ensure the availability of equipment and trained staff. VR allows students to interact and explore objects artificially created in a Three-Dimensional (3D) world. The process involves developing an Android-built application viewable with a Head-mounted display (HMD) device with a combined audio input. The Unity game engine is used to bring the application to actualization. On the other hand, the Robot Operating System (ROS) is Linux-based. ROS is a collection of tools, libraries, and conventions that aim to simplify the task of creating complex and robust robot behavior across a wide variety of robotic platforms. This internship is aimed at providing practical concepts to educational policy makers learners using digital media devices and computer-based interactive platforms, including VR, AR, ROS etc.

Internship project:

Development of Virtual resources and digital twins

Eligibility:

- Minimum SMSCP Level 1
- Minimum Bachelor's Degree or Equivalent in Mechanical Engineering, Electrical and Electronics Engineering, Mechatronics Engineering, Electronic & Computer Engineering, Control Engineering and Instrumentation, Industrial Engineering, Manufacturing Engineering

Tasks and Responsibilities:

- Digital tools and Assets development



- Development of digital/Virtual labs
- Application development
- Augmented Reality for industrial application
- Embedded Systems Programming
- Networking (IoT, OPC-UA, MQTT)
- ROS and VR/AR Integration for HRC (Integrator)
- Compliance with relevant standards
- Documentation

Benefits to Students:

- Possibility of Masters Scholarship
- KShs 30,000
- Full-time access to Siemens Centre facilities
- EBK Registration Support

Employment Type:

Full-time – 8:00AM to 5:00PM
6 Months Internship

Title: Software Developer Intern

Key words: Website, ERP

Supervision: Prof. Eng Jean B. BYIRINGIRO, Mr. Joseph Maina

Internship Project:

The last three decades showed heightened advancements in the field of information technology (IT). This started with the evolution of the Internet, electronic data interchange, and the world wide web (WWW). In addition, IT innovation continued with a new generation such as Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), supply chain management (SCM), and Manufacturing Execution Systems (MES). There are various limitations institutions might face that make their ability to innovate very difficult such as absence of advantaged information from experts, human resources, and technology particularly in developing countries. This internship intends to make Siemens Centre internal procedures more efficient. This will involve development of various applications, including interactive websites, desktop applications, and cross-platform mobile applications. The team will work on projects related to ERP and MES. The scope of responsibilities encompasses full-stack development, UI/UX design, adherence to relevant standards, research activities, and comprehensive documentation. The goal is to build innovative and user-friendly solutions while ensuring compliance with industry standards and best practices.

Tasks and Responsibilities:



- Development interactive website, desktops and cross platform mobile applications
- ERP, MES
- Full stack Development
- UI/UX design
- Compliance with relevant standards
- Research
- Documentation

Eligibility:

- Minimum SMSCP Level 1
- Minimum Bachelor's Degree or Equivalent in Mechanical Engineering, Electrical and Electronics Engineering, Mechatronics Engineering, Electronic & Computer Engineering, Control Engineering and Instrumentation, Industrial Engineering, Manufacturing Engineering

Benefits to Students:

- Possibility of Masters Scholarship
- KShs 30,000
- Full-time access to Siemens Centre facilities
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Employment Type:

Full-time – 8:00AM to 5:00PM
6 Months Internship

Application deadline 12th January 2024

[Begin Application now!](#)

For more information, Please Contact:

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