

## **DISCOUNT PROMOTION**

### **ROAD AND HIGHWAY DESIGN WITH CIVIL 3D AND AUTODESK VEHICLE TRACKING**

Since its inception in 2018, we have been dedicated to bridging the gap between academic institutions and the industry through the provision of project-based training programs. Our mission is to seamlessly integrate classroom knowledge with practical skills, transforming qualifications into market-ready qualities.

We are committed to upskilling and nurturing the next generation of technical experts by promoting the use of advanced CAD, CAM, CAE, GIS, BIM, and Digital Twin technologies across companies, government entities, and organizations. Our comprehensive training programs ensure that our participants are equipped with the latest industry standards and practices.

We are proudly accredited to represent some of the world's leading technology brands in construction, architecture, and engineering, including Autodesk, Midas, Bentley Systems, and Protia Software to name a few. As the premier training, certification, and software-licensing center in the region, we strive to deliver unparalleled educational and professional development opportunities.

## **ABOUT ROAD AND HIGHWAY COURSE**

For many years, we have been dedicated to upskilling civil infrastructure engineers. However, Rwanda continues to face a shortage of trained road and highway engineers capable of addressing the major challenges prevalent in African countries, such as:

1. A big number of college graduates who ended up in other sectors like selling shops or supermarket, due to lack of capabilities to apply college knowledge into job market.
2. A big number of degree holders who end up working at site due to lack of design thinking and leadership skills, influenced by lack of necessary skills needed to lead projects.
3. Designers with insufficient skills tend to over-engineer solutions as a safety measure, increasing material and labor costs unnecessarily.

4. The shortage of skilled engineers limits the capacity to design and construct new roads, hindering the expansion of the road network necessary to connect remote areas and support economic growth
5. Insufficient expertise in road and highway engineering results in substandard construction and inadequate maintenance of existing roads, leading to deteriorating infrastructure and increased costs for repairs.
6. The scarcity of qualified engineers often leads to significant delays in the planning and execution of critical infrastructure projects, affecting timelines and economic progress.
7. The lack of technical expertise often leads to cost overruns, inefficiencies, and wastage in road construction projects, placing additional financial burdens on governments and stakeholders.
8. The shortage of engineers skilled in highway design hampers efforts to improve regional connectivity across borders, which is vital for trade and economic integration within Africa.
9. Inadequate expertise in road and highway design can result in projects that fail to consider environmental sustainability and social impact, leading to negative consequences for communities and ecosystems.

The training aims to equip engineers with the advanced skills necessary to design, model, and manage road and highway projects effectively using Civil 3D and Autodesk Vehicle Tracking, an industry-standard software. This helps to fill the existing gap in technical expertise that is crucial for infrastructure development.

With Autodesk certifications backing your expertise, you will stand out as a proficient a Road and Highway Engineer ready to tackle complex projects.

## **WHAT WILL BE TRAINED**

Our training program covers:

**1. Points and Surveying:** Participants will learn how to manage and manipulate survey data in Civil 3D. This includes the creation, adjustment, and analysis of points derived from field surveys. The course covers data collection methods, importing point data into Civil 3D, and ensuring accuracy for integration into design workflows.

**2. Surfaces and Grading:** This module will teach participants how to generate and analyze surface models. Surfaces are critical for understanding existing ground conditions, and the training

will cover surface creation, editing, grading design, and volume calculations for cut and fill. Grading tools will be used to shape and adjust terrain for road design and construction projects.

**3. Parcels:** Participants will explore how to create and manage land parcels within a Civil 3D environment. The course will cover parcel creation methods, adjusting parcel geometry, and annotating parcel data for use in right-of-way acquisition, land division, and infrastructure projects.

**4. Alignments and Profiles:** This section will focus on designing road alignments and vertical profiles. Participants will learn how to create, edit, and analyze horizontal alignments and generate vertical profiles that define road gradients and elevations. This process is essential for ensuring the proper layout of road infrastructure in accordance with design standards.

**5. Corridors and Sections:** Participants will develop dynamic 3D road corridor models, which include integrating alignments, profiles, and assemblies to create detailed cross-sections of roads. The training covers the generation of corridor models, analyzing cross-sections, and producing accurate representations of road infrastructure that help in visualizing the final constructed project.

**6. Road Junctions Design:** This module covers the design of complex road junctions, including intersections and roundabouts. Participants will learn how to model 3-way and 4-way junctions, ensuring they adhere to safety and design standards. Civil 3D tools will be used to design and evaluate the flow of traffic through these junctions and optimize vehicle movements.

**7. Using Vehicle Tracking in Autodesk Civil 3D:** Participants will be introduced to Vehicle Tracking, a Civil 3D add-on used for vehicle swept path analysis. This tool helps evaluate road design in relation to the movement of vehicles through intersections, parking lots, and roundabouts, ensuring safety standards and geometric requirements are met.

**8. Gravity and Pressure Pipe Networks:** This section will cover the design and analysis of stormwater, sanitary sewer, and water distribution networks. Participants will learn how to create gravity and pressure pipe networks, analyze flow capacities, and ensure that the infrastructure meets design specifications for drainage and utility systems.

**9. Plan Production and Data Management:** Participants will gain expertise in automating plan production and managing design data. This includes generating plan and profile sheets, using data shortcuts, and managing large project data sets efficiently. Automated workflows for generating construction drawings and ensuring data consistency across the project lifecycle will also be covered.

**10. Advanced Topics:** Advanced topics will focus on specialized techniques in Civil 3D, such as customizing assemblies, optimizing road designs for cost-performance balance, and integrating external data sources for enhanced project outcomes. Participants will also explore advanced analysis tools for evaluating design performance and sustainability.

**11. Real -World Project Study:** As part of the course, participants will apply their knowledge to a real-world project involving the design of a road. This comprehensive project will incorporate all aspects of road design, from initial surveying to final plan production. Participants will complete the project under the supervision of experienced instructors, gaining hands-on experience with real-world constraints and deliverables.

## **ABOUT THE CERTIFICATION**

Upon successful completion of the Road and Highway Design with Civil 3D and Vehicle Tracking training, you will receive an internationally recognized Autodesk certificate for Civil 3D. This certification validates your practical skills and expertise in road and highway design, including proficiency in BIM practices. Your certification will be a testament to your capabilities, making you a valuable asset to any organization involved in infrastructure development.

### **Who Should Attend This Training?**

Our training programs are specifically tailored for certain categories of professionals. While we welcome all participants, please note that our center can only ensure optimal learning experiences for those within the following categories:

**1. Civil Engineers and Infrastructure Professionals:** Engineers involved in road and highway design, construction, and maintenance who want to enhance their technical skills and proficiency in Civil 3D.

**2. Surveyors and Geospatial Analysts:** Professionals responsible for capturing and analyzing survey data, who need to streamline data transfer processes and integrate survey results into 3D modeling.

**3. Urban Planners and Transportation Engineers:** Individuals working in urban planning and transportation engineering who require advanced knowledge of road corridor modeling, intersection and roundabout design, and safety standards compliance.

**4. Project Managers and Supervisors:** Those overseeing infrastructure projects who want to understand the technical aspects of road design and optimize project costs and performance using advanced tools.

**5. Architects and Designers:** Architects and designers involved in infrastructure projects, looking to gain expertise in dynamic 3D modeling, plan production, and alignment analysis.

**6. Students and Recent Graduates:** Aspiring engineers and recent graduates in civil engineering or related fields who want to build a strong foundation in road and highway design using industry-standard software.

## **TRAINING STRUCTURE:**

**Registration Period: September 9,2024 to September 30,2024.**

### **Part 1: Online Learning Period**

Training will start on October 1, 2024, and End on November 15, 2024.

**Notice:** The learning period will be completed through our online training platform. Trainees are responsible for managing their own schedules and must complete the training within the allotted time.

### **Part 2: Project Study and Verification Period**

**Duration:** November 16, 2024, to December 11, 2024

**Notice:** -The project delivery period will be conducted in-person with our engineers at Nziza Training Academy. Sessions will be scheduled during evening hours (6 p.m. - 9 p.m.) and weekends where needed and possible.

-Please note that failure to complete the project will result in not receiving certification.

### **Physical Sessions**

- **November 13,14 and 15, 2024:** Instructor assist participants in understanding what they have learned and catching up on online content.
- **November 15, 2024:** Final Projects Assignment by Instructor.
- **November 22, 2024:** First Project Review by Instructor.
- **November 29, 2024:** Last Project Review by Instructor.

### Final Project Period

- **November 30 – December 11, 2024:** Final Project errors corrections by Trainees.
- **December 12, 2024:** Final Project Submission by Trainees.
- **December 13-18, 2024:** Final Project Correction and Marking by Instructor.

### INSTRUCTOR:

**Course Title: Road and Highway Design with Civil 3D**



**Rajendra Meena** is an experienced Software Specialist with a focus on Civil 3D, Infracore, Recap Pro, and Vehicle tracking software. He holds a master's degree in transportation engineering & planning and has extensive expertise in road infrastructure projects, as well as a track record of offering specialized training in various infrastructure companies throughout Asia.

Meena highly understands the technical parts of AutoCAD Civil 3D and has a strong ability to integrate that knowledge into practical solutions needed according to the nature of a project. His expertise encompasses BIM management, design and drawing, 3D modeling, and transportation infrastructure visualization, with the potential to expedite procedures, improve accuracy, and improve overall project quality.

He is an Autodesk-approved instructor for Civil 3D, Infracore, and Vehicle tracking software, and his capabilities are backed by a proactive and results-driven attitude. He takes pride in providing high-quality work while meeting tight deadlines.

### **PAYMENT DETAILS: Initial Price: 500 USD**

#### Methods of Payment:

- ✓ **Early Bird Discount: September 9, 2024 to September 20, 2024**
- One-time Payment **40%: 300 USD.**
- Two Installments' Payment **before September 30, 2024 30%: 350 USD**
- ✓ **Final Chance Discount: September 21, 2024 to September 30, 2024**

- One-time Payment **20%**: 400 USD.
- Two Installments' Payment **before October 15,2024 10%**: 450 USD

Currency	RWF Account	USD Account
Bank Name	Equity Bank Rwanda Plc	Equity Bank Rwanda Plc
Account Name	Nziza Training Academy	Nziza Training Academy
Account Number	4003200580012	4003200990889
Swift Code	EQBLRWRW XXX	EQBLRWRW XXX

Notice: Once you have completed your payment, please send the payment proof to our WhatsApp number at +250785568718.

**SEPTEMBER 20,2024 AT 5PM: ONLINE WEBINAR: TUBAZE TUGUSUBIZE**

**Moderators: Salvator & Emmanuel**

### **CONTACT DETAILS:**

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**End!**