



Introduction to Drones for Sustainable Mining

Presented by the Department of Mining Engineering, University of Pretoria in collaboration with Drone Safety & Legal (DSL)

5 ECSA CPD Points | CPD Reg No: P007711-2021

5 SACNASP CPD Points | CPD Reg No: 2021-0115-001630

Mining companies are confronted by major challenges, such as declining ore grades, volatility in commodity prices, security risks and safety concerns. Cutting-edge solutions are needed for sustainable operational excellence and technological advances and innovations. Securing our future in the Fourth Industrial Revolution (4IR) through technology; increasing economic pressures in the Southern African mining industry means that mine operators are exploring and using technological advanced means to extract minerals more efficiently, cost-effectively and safely meeting shareholder expectations.

The **Introduction to Drones for Sustainable Mining** course is an industry-specific short course, focused on the application of drones in the mining industry covering aspects of surveying, photographic methodologies, drilling & blasting, draglines and various downstream activities in the mining value chain.

The practical experience brought by DSL combined with the University of Pretoria's academic excellence in these sectors will provide delegates with a holistic course from theory through to in-field practice towards increased productivity and operational excellence.



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Shifting knowledge to insight



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Course content

This course covers the following aspects:

- Understanding the basics of Land Survey & Photogrammetry Accuracy Principles (Ground Control)
- Identifying and selecting the most appropriate drone & sensor for aerial surveying
- Planning Nadir & Oblique flights
- Understanding basic image processing software to generate & visualise aerial survey outputs (orthomosaics, DSM, 3D models & contours)
- Basic Hardware Maintenance & Care procedures
- Basic mining terminology and understanding.

Learning outcomes

After completion of the course, delegates will be able to:

- Apply drones in the mining industry
- Do geotechnical modelling,
- Provide drilling and blasting assistance and
- Do performance analysis,
- Perform equipment inspection,
- Do load and haul monitoring and optimisation,
- Do Dragline monitoring and planning,
- Identify high-risk areas,
- Monitor tailings dams and settling ponds, etc.

*Delegates are required to bring their own laptops to the training.

Course Duration and Presentation:

Option 1: The course will be presented as blended (various modes: online, virtual and contact sessions) learning for five (5) consecutive days. This option is excluding the Remote Pilot's License (RPL).

Option 2: The course will be presented as blended (various modes: online, virtual and contact sessions) learning, for 20 days focusing on the RPL and five (5) consecutive days on the application. This option is including the Remote Pilot's License (RPL).

DSL is an accredited training provider of the RPL. DSL will be responsible for the training on the RPL and the South African Civil Aviation Authority (SACAA) will issue the RPL.

Course Fees

Option 1: Excluding the Remote Pilot's License (RPL). R18 687.50 (VAT Inclusive) per delegate

Course fee includes all online course material and theoretical sessions for a period of five (5) consecutive days.

Option 2: Including the Remote Pilot's License (RPL). R46 000.00 (VAT Inclusive) per delegate

Course fee includes online course material, theoretical and practical sessions for a period of five (5) consecutive days, as well as the RPL's 20 days training.

Course fees must be paid in full 14 days prior to course start date. Proof of payment can be enrolments@enterprises.up.ac.za

Who Should Enrol?

This course is ideal for:

- professionals in the mining and survey space and would like to integrate technology into their current systems; or
- RPL holders who wish to broaden their skills.

Assessment and Certification:

Delegates will be assessed through online assessments, written exams and on-field practical assessment. Successful delegates will be issued a University of Pretoria certificate. In addition, delegates who enrol for the inclusive of Remote Pilot's License (RPL) option, will be issued a SACAA RPL license by Drone Safety & Legal (DSL).

Accreditation and Certification

Enterprises University of Pretoria (Pty) Ltd is wholly owned by the University of Pretoria. As a public higher education institution, the University of Pretoria functions in accordance with the Higher Education Act 101 of 1997. Enterprises University of Pretoria offers short courses on behalf of the University and these short courses are not credit-bearing, and do not lead to formal qualifications on the National Qualifications Framework (NQF) – unless stated otherwise. Delegates who successfully complete a short course and comply with the related assessment criteria (where applicable) are awarded certificates of successful completion and/or attendance by the University of Pretoria.

Registration and Enquiries

Client Information Centre

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Course Leader

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Shifting knowledge to insight

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