This year's challenge is to use AM to design and manufacture the most aesthetic, ergonomic, and overall impressive pen. All entries will have their pen printed to keep and to show off. Give it your best shot and have fun designing and making! Guidelines and rules included on the next pages.

TOP 3 IN THE FINAL ROUND WILL WIN AKHANI 3D VOUCHERS TO THE VALUE OF:

1ST: R10 000  
2ND: R5 000  
3RD: R2 000
This year’s design competition will be run by Akhani 3D in two rounds:

**Round 1 : SLS**
- A pen is to be designed for Selective Laser Sintering (Nylon).
- Pen parts will be manufactured as white or black. Any other dyeing or painting, while allowed, is to be done by the participant personally upon receiving their pen components.
- Each participant will be allowed **three** attempts to print and receive parts in order to get their pen designs right. Iteration will almost certainly be needed, and participants are encouraged to learn from each attempt and improve upon their previous designs by testing and fitting.
- Participants will receive a pen refill with their **first** pen parts shipment.
- The top 10 pens of round 1 will go through to round 2.

**Round 2 : Multi-material (DMLS + SLS)**
- A pen is to be designed for a combination of parts for Direct Metal Laser Sintering (Stainless Steel) and Selective Laser Sintering (Nylon).
- There are no restrictions on any of these two materials/techs for any specific components, however participants are encouraged to think about each technology’s strengths and limitations, and design to get the best out of each for the final pen’s design.
- Each participant will have only **one** attempt at this round so be sure to ask if unsure about design viability/success.
- Participants will receive a pen refill with their pen parts shipment.
- Your pens will be yours to keep and showcase after this competition, so remember to make it truly yours!

**Scoring**
Both rounds will be scored by an independent panel of judges within the Akhani 3D team against the following criteria and weightings:

- Overall Aesthetic and Design - **/10 points**
- Ergonomics and Practicality as a pen - **/10 points**
- Innovative/Smart use of AM capabilities - **/5 points**
**RULES**

**Round 1:**
- Each participant will be allowed **three** attempts at manufacturing
- SLS pens must be less than **160 mm** in total length (any number of parts)
- Round 1 **manufacturing** submission deadline is **20 June 2024**
- Round 1 **scoring (Photo/Video)** submission deadline is **28 June 2024**
- Results of round 1 will be announced on LinkedIn on **8 July 2024** and round 2 will commence immediately for the top 10

**Round 2:**
- Each participant will be allowed **one** attempt at manufacturing
- Individual metal components **cannot exceed 80 mm in length**
- Only one of each metal part will be printed, however multiple polymer parts can be submitted (in one go) to test and find perfect fits at interfacing locations
- **Support structures are not allowed** - metal parts must be designed as self-supporting
- Round 2 **manufacturing** submission deadline is **3 October 2024**
- Round 2 **scoring (Photo/Video)** submission deadline is **18 October 2024**
- Results of round 2 will be announced at the **25th Annual International RAPDASA-RobMech-PRASA-AMI Conference** (from 28-31 October 2024 at the Boardwalk Hotel and Conference Venue in Gqeberha)

**General:**
- All designs submitted must house an existing pen refill, whose CAD model and engineering drawing are available here: 📁
- RAPDASA’s full terms and conditions are available here: 📁
- All designs must be submitted in either **.STL or .STP/.STEP** format on Akhani 3D’s online portal on their website - www.akhani3d.com
- All designs must be submitted with the pen’s axis in the **Z-direction**
- Pens must be **less than 25 CC** in material volume (excluding refill)
- Final submission for scoring needs to be in the form of a high quality **photo and/or video** that best showcases your pen and its features/mechanisms. These must be submitted using the button below
- For any queries, rules clarification, or manufacturability questions, reach out to Akhani 3D and they will gladly assist.

**SUBMIT YOUR ENTRY HERE**