

# DIGITAL CORE FORM



University: \_\_\_\_\_

System Name: \_\_\_\_\_

## DIGITAL CORE

1. How many different layers does your test bed contain (including the ice)? \_\_\_\_\_

2. Sequence the layers in order from SOFTEST to HARDEST by filling in the boxes below:



3. Using the chart below, estimate the depth of each layer in centimeters:

	Layer	Depth.
	Layer A =	_____ cm
	Layer B =	_____ cm
	Layer C =	_____ cm
	Layer D =	_____ cm
	Layer E =	_____ cm
	Layer F =	_____ cm
	Layer G =	_____ cm
	Layer H =	_____ cm
	Layer I =	_____ cm

### SCORING FOR PROSPECTING (Using Drilling Telemetry to Deliver a Digital Core) – Max 90 points

Identify the correct number of layers and list the layers in order from softest to hardest, scoring up to 50 points for getting all layers in the correct order in the sequence).

- Partial points will be awarded if teams can correctly identify some of the correct spots for the layers sequence.
- For each layer greater than or less than the current number of layers, teams will lose 50/N points (*where N is the true number of layers*). Each layer will be compared with the correct layer sequencing to determine accuracy of the team’s suggested order. An error term will be calculated based on how far off the team’s remaining ordering is from the true ordering (based on the square of the difference between team’s suggested ordering and the correct ordering), and remaining points will be scaled based on how large the error term is.

$$Error = \sum_{i=1}^N (Correct\ Layer\ Order_i - Your\ Layer\ Order_i)^2$$

$$Points\ Deducted = \frac{Error}{Max\ Possible\ Error} * Remaining\ Points$$

Estimate the thickness of each layer, scoring up to 40 points if the estimate of the layers are determined within the established MOE for each layer.

- Partial points will be awarded for estimates that are slightly outside the MOE
- Starting from the top, the suggested thickness of each layer will be compared to the actual thickness of that layer.
  - If the estimate is within the MOE for that layer, teams will receive 40/N points (*where N is the true number of layers*).
  - If the estimate is within 2 \* MOE for that layer, teams will receive 40/(2N) points (half-credit).
  - If the estimate is greater than 2 \* MOE for that layer, zero points will be given for estimating the thickness of that layer.
- This process will continue until the judges have checked all estimates against the true number of layers, regardless of whether the team estimated fewer or more layers (i.e., if there are 6 layers but a team only estimates thicknesses for 4, their estimate for the thicknesses of layers 5 and 6 will be treated as 0 cm, and no points will be awarded for estimating the thickness of unidentified layers).