प्रकृति 2022 *agri and food innovation fest* & ALTAIR

presents

Machine Freaks

Farm Machinery Simulation Event

PRAKRITI-2022 brings to you MACHINE FREAKS in collaboration with Altair. In this event, you would be challenged to use the software provided to you to simulate the various parameters of a soil engaging tool.

About Altair

Altair (Nasdaq: ALTR) is a global technology company, which provides software and cloud solutions in the areas of simulation, high-performance computing (HPC), and artificial intelligence (AI). Altair enables organizations in nearly every industry to compete more effectively in a connected world while creating a more sustainable future.

About Altair EDEM Software

EDEM is high-performance software for bulk and granular material simulation. Powered by DEM, EDEM quickly and accurately simulates and analyzes the behavior of coal, mined ores, soils, fibers, grains, tablets, powders, and more.

EDEM simulation provides engineers with crucial insight into how those materials will interact with their equipment during a range of operation and process conditions. It can be used stand-alone or combined with other CAE tools.

Leading companies in the heavy equipment, off-road, mining, steelmaking, and process manufacturing industries use EDEM to understand and predict granular material behaviors, evaluate equipment performance, and optimize processes.

To know more about Altair EDEM software, visit their youtube channel and learn the intricacies.

Problem Statement

Use Discrete Element Modelling (DEM) to effectively simulate the soil-tool interaction for tillage applications in ALTAIR EDEM simulation software with an appropriate physics model. Study the draft forces with respect to tillage speed while taking soil cohesion and adhesion into account. (soil bed is available at the link; Sample interaction simulations can be viewed at the altair.com website).

Steps To Follow

a. **Register for PRAKRITI-2022 and fill the following form: https://bit.ly/Machine-Freaks-Registration**

b. **Once you fill the form, the trial licence to the Altair EDEM software would be share with you.**

c. **Open the software link provided to you after you successfully register.**

d. **Select a soil-engaging tool (active or passive) For instance, Ploughs, Cultivators, Tiller blades, Rotavator etc.**

e. **Prepare a 3D-drawing (CAD, Solid Works, Creo etc.) considering dimensions (Take Bed dimensions into account)**

f. **Define your objective of the modelling: It can be Force simulation, Torque simulation, Power simulation, Soil disturbance simulation, Stress simulation etc.**

g. **Use the soil bed (provided here) to create the interaction of this soil bed with your selected/designed tool.**

a. Run the simulation; upload your simulation files in your google drive. Upload the drive-link to the file in the submission form.

b. Infer the results, and present in graph, table or any other form. Convert the results into a PDF and upload it in the submission form.

Things To Note

- This is a group event
- All the stages of this event would be done ONLINE
- The minimum allowed team size is of 2 members maximum allowed team size is of 5 member
- This competition has two phases:
  a. Report and Simulation Submission
  b. Final Presentation
- The last date of report and simulation submission is 31st march, 2022
- Teams selected in the first round would be required to virtually present their work in front of the judges in the second round
- The presentation round would be organized on MS Teams
- Prizes will be given to those participants who will be registering through the Registration portal of Prakriti 2022.
- The decision of judges is final and binding. Team Prakriti reserves the right to disqualify any team in case of violation of any of the above rules or if found doing illicit actions.

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Link To Soil Bed:

https://bit.ly/Soil-Bed-Link

Link To Get The EDEM Software License:

https://bit.ly/Machine-Freaks-Registration

Link To Submission Form:

https://bit.ly/Machine-Freaks-Submission

Contact Us

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