



Student Challenge Using Differential Equations Modeling

SUMMARY REPORT for SCUDEM VI 2021
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Overview and Problems Offered

SIMIODE VI 2021 is an international student team challenge in which teams of three students from high schools and undergraduate programs select one of three problems and produce a mathematical model using differential equations. They then prepare a ten-minute video and post it Unlisted in YouTube for judges to score and render constructive comments.

The three problems for SCUDEM VI 2021 can be found at this website:

https://www.contest.comap.com/scudem/2021_Problems/SCUDEM_VI_2021_Problems.pdf.

These three problems are in the general area of (A); Chemistry/Life Sciences; (B) Physics/Engineering; and (C) Social Sciences/Humanities. We give the title of each problem.

- Problem A: Hair Pulling To Line Your Nest
- Problem B: Throw The Bike Or Throw The Race
- Problem C: Submitted a Tweet, Now What?

Problems were released on 23 October 2021 and team videos were to be posted by 14 November while judging was completed by 12 December 2021.

Judges were asked to use a Scoring Rubric found at this website

https://www.contest.comap.com/scudem/flyers/SCUDEM_Scoring_Rubric.pdf and to add constructive comments for each team.

Summary Statistics

317 students participated, forming 106 three student (or less) teams, with 62 coaches. In some cases coaches worked with multiple teams.

265 volunteer faculty and industry personnel served as judges. The judges rendered 849 team scores and constructive comments, thus giving each team, on average, 10.35 scores and comments for a great deal of feedback through which to grow with respect to their modeling abilities.

Students engaged from the following countries and regions: Australia, Bangladesh, Canada, Columbia, India, Indonesia, Nigeria, Philippines, Russia, Spain, United States, and Viet Nam.

Coaches engaged from the following countries and regions: Australia, India, Indonesia, Iran, Russia, United States, and Viet Nam.

Judges engaged from the following countries and regions: Albania, Argentina, Australia, Austria, Bangladesh, Brazil, Bulgaria, Canada, Columbia, England, Germany, Ghana, Hong Kong, Hungary, India, Italy, Japan, Malaysia, Mexico, Namibia, Nepal, New Zealand, Nigeria, Norway, Oman, Pakistan, Panama, Philippines, Poland, Portugal, Russia, Saudi Arabia, Spain, Turkey, United Arab Emirates, United States, and Wales.

Awards

Overall the following awards, with numbers of teams and percentage of each award level were:

Award Level	Number	Percent
Outstanding	26	31.71%
Meritorius	40	48.78%
Successful	16	19.51%
Totals	82	100.00%

The breakouts of problem selection and awards for each problem were:

Problem A Summary	29 Submissions
Outstanding	8
Meritorius	16
Successful	5

Problem B Summary	33 Submissions
Outstanding	10
Meritorius	15
Successful	8

Problem C Summary	20 Submissions
Outstanding	8
Meritorius	9
Successful	3

Announcement of Awards

SIMIODE publicly announces only the Outstanding Team Awards and will formally invite these teams to post their team video at the [SIMIODE's YouTube Channel](#).

The SCUDEM VI 2021 26 Outstanding Team Award videos will be solicited from the teams and put in place at [SIMIODE's YouTube Channel](#) along with the 27 Outstanding Team Award videos from SIMIODE V 2020.

All teams and their coaches are provided with award information, including all judges scores, average score, and complete set of judges' comments, as well as certificates for awards and participation. All coaches and judges are given certificates of appreciation.

We thank all for making SCUDEM VI 2021 a successful and meaningful event for students.