Official responses to questions supersede original competition statements as well as any earlier question responses where there is contradiction. The questions are numbered sequentially as responded to, where Answer 1 is the earliest response.

Information about the ASME E-Fests can be found at: https://efests.asme.org/

(Questions will answered about the 2024 ASME SDC until February 1, 2024)

Q&A Update September 29, 2023

Question 1:

- Do you have the obstacle CAD files to share so I can 3D print them for our local course? Obstacle D, E, G, H specifically, and the ramp to get to the elevated platform.
- Does the robot need to travel under the platform for Hole #4? Assuming they miss and need to get to their ball on the other side of the platform? Or can they reset the ball to tee off again?

Answer 1:

- Yes, .stl files of all obstacles will be made available for manufacture to all competitors. See the SDC website to access these. Teams should recognize that the fabricated obstacles at competitions may have slight variations.
- Teams may choose to play the golf ball where it lies or have the caddy transport it back to the designated tee with approval from the judges (see Rules 15, 22 and 32). Transporting the golf ball back to the tee counts toward the scoring as one stroke. However, the device must be capable of accessing any part of the field under its own capability – it may climb over barriers. For example, during the elimination round, the first stroke must be made from Tee #1 (see Rule 20), and the device must traverse the field without physical assistance from the team.
Question 2:

- How do we move the robot from tee #6 to tee #7? Are we supposed to take the bot over the wall using big tires or something else because increasing the size of the wheels may cause problem in moving the bot from below the elevated surface between tee #5 and tee #4.

Answer 2:

- The “wall” between tees #6 and #7 will be a standard 2x4 lumber on end. Teams may choose to pass over or under the elevated surface between tees #4 and #5. How the device navigates obstacles is part of the design challenge.

Question 3:

- What are the dimensions of the tees? Are the tees flat mini-golf tee mats with an indent, t-shaped stands, or do the golf balls start directly on the ground within a marked circle?
- Once we have putted the golf ball off the tee, are we allowed to have more than momentary contact with the ball? i.e. can we "hold" or center the ball with a mechanism prior to the putting action (without engaging the robot's travel function).
- Can we use Pneumatics (with proper safety precautions)?

Answer 3:

- Golf balls will be placed directly on the ground within a marked area at each of the tee locations.
- See the rules for legal putting given in “Expected Device Functionality.” Devices may secure the ball before making contact with the ball as long as the ball does not touch the device after impact. The stoke ends when the device breaks contact with golf ball.
- Pneumatics are allowed as long as they meet the other requirements in the rules (for example rule #4). Safety precautions are expected but ASME SDC does not provide specific safety requirements regarding pneumatic systems.
Question 4:

- We're interested in competing in the SDC competition this year, and had several questions regarding some specific rules. On the website, it says that an official Q&A forum will open "in September", but as we're getting closer to the end of the month we wanted to know when the forum will open up.

Answer 4:

- The Q&A forum is now posted, please direct all questions to sdc@asme.org

Question 5:

- Can we use pneumatic systems?
- Is having stored air within the rules?
- Can you define the rules for chipping in more detail?
- Can we hit the ball into our own system in order to elevate the ball?

Answer 5:

- Pneumatics are allowed, see rule #4.
- Teams may not start with any stored mechanical energy such as compressed air, but must compress any air during the competition. See rule #4: "...any stored potential energy at the start of the device’s duty cycle must be returned to the original state under its own power by the end of each run."
- Chipping the ball should follow all the rules for legal putting given in "Expected Device Functionality." The primary difference is that the chipped golf ball will travel in the air, not roll along the ground after being struck.
- After the device makes contact with the ball and imparts energy, the ball must not touch the device again until the next attempt to putt or chip the ball at the next location.

Question 6:

- The rules state:
  "Students participating in the competition must be undergraduate engineering students, including community college students and students in associate degree programs (any engineering discipline is allowed) and must be ASME student members"

Does the wording suggest that only engineering students would be interested, emphasizing that all disciplines can participate- or is it strict that the students must be
engineering and cannot be (for example) a business student that has robotics experience?

Answer 6:

- While the primary audience is undergraduate engineering students, we welcome all undergraduate students who are interested in participating, regardless of their major.
- All students who wish to participate must join ASME, regardless of their major.
- This is a competition intended for undergraduate students only. Graduate students who wish to be involved in the competition are welcome to reach out to ASME to enquire about finding a role.

Q&A Update October 4, 2023

Question 7:

- Can the robot pick up the ball and launch it?
- And if so, once the ball is picked up is the robot allowed to move to aim?
- Also, Answer #1 says the STL files are available on the SDC webpage, can you confirm that and share the link?

Answer 7:

- Yes, provided that the travel function is disengaged while the device is in contact with the golf ball.
- The robot may pick up the golf ball to initiate the stroke, actuate various functions to aim the golf ball, and then launch the ball to complete the stroke (once contact with the golf ball is ended). However, the travel function specifically may not be engaged during the stroke, so any tertiary actuation must not be part of the device’s travel function.
- Yes, the .stl files are available for download in a zip file at the SDC website.

Question 8:

- In between holes, do we need to transport the golf ball to the next tee or does the ball get placed for each hole?
- Obstacle I says it is a target outside of the field, will that target have raised edges or is it something like a flat tape circle?
• In response to question 3 in the Q&A, you said “Devices may secure the ball before making contact with the ball as long as the ball does not touch the device after impact.” Can you clarify what you mean by securing the ball before making contact with it? Are we allowed to stay in contact with the ball while it is moving so long as the travel function is not moving?

Answer 8:

• See Rule #21. During the Initial testing round, teams may choose to either play the golf ball where it lands or have the team designated caddy manually transport it to a tee of their choice with the approval of the judges (see Rule 15). Transporting the golf ball back to a tee while trying to complete an obstacle counts toward the scoring as one stroke. Once an obstacle has been completed or all the strokes have been used up, the golf ball will be manually placed at the next obstacle’s tee without a stroke penalty. The team’s device must move itself to that obstacle.
• The specifics will depend upon the field fabricators at the venue. Obstacle I may indeed be a tape circle, or it may be a mat with slightly raised lips. Please be prepared for minor variations such as this.
• The robot may make contact with the golf ball (up to and including picking it up), to initiate the stroke, actuate various golf ball aiming functions or move it about the device, and then launch the ball to complete the stroke (once contact with the golf ball is ended). However, travel functions must not be engaged during the stroke, so any device action taken while in contact with the golf ball must not be part of the device’s travel function.

Q&A Update October 11, 2023

Question 9:

• The rules state that the golf ball may be manipulated about the device as long as the travel function is not engaged. Does this involve turning?

Answer 9:

• If the “turning” motion in question is part of the device travel function that assists the device in traversing the field, then no. However, if the “turning” motion is a separate function from the travel capabilities, then it is indeed permitted to have a component hold and “turn” the golf ball to aim the launch.
Question 10:

- What is the terrain being used? Is it similar to actual grass or is it more like turf? Also how tall is the grass/turf?
- In Figure 6 (Obstacle E Detailed View), the distance between the ground and the bottom of the rocking arm is listed to be 1.95 inches while the distance between the ground axle of the rocking arm is listed to be 1.04 inches. Visually in the Figure, the latter distance seems larger than the former distance. Are the listed measurements in Figure 6 correct? If not, what are the actual dimensions?
- As California State University, Northridge is located in southern California, we would like to know the location where the competition will be held so that our team can manage the process and cost of traveling. From my understanding, an official location has not been picked for the competition. With that being said, is there a general time range on when we will know the location?
- For tee #7, the appearance of the terrain resembles sand; however, we are not sure if the actual terrain is indeed sand. Can we have confirmation about the terrain at this tee?

Answer 10:

- The specifics of the terrain will depend upon the field fabricators at the venue. The terrain may range from carpet, to turf, to flooring, etc. Please be prepared for variations such as this.
- **Dimension correction**: The distance between the ground and the bottom surface of the arm is ~1.06" (27 mm), and the distance from the ground to the rotational axis of the bearing is ~1.95" (49.6 mm). The .stl files of the obstacle are available for download if more specific dimensions are desired.
- ASME is currently working to confirm and finalize location(s) that will host the SDC competitions. As soon as this information is made available, and announcement will be made on the ASME SDC website.
- There will indeed be actual sand around tee #7.

Q&A Update November 9, 2023

Question 11:

- The STL for the Tollbooth is mirrored. Is this the intended orientation for the tollbooth?
- Are the field pieces going to be fixed to the field? If not, will there be a penalty for moving the obstacles with just the ball?

**Answer 11:**

- The intended orientation is that which is shown on the field rendering (i.e. the motor housing will be against the side wall). In some event locations, there may be multiple fields, some of which could have a mirrored layout due to space/safety considerations.
- The obstacles may or may not be fixed in place, depending on the substrate utilized by the competition venue. If the golf ball strikes the obstacle in such a way that it moves, the team may choose to leave it in the new orientation or ask a judge to return the obstacle to its original position. If an obstacle becomes unplayable, a judge will return the obstacle to its original position without exception (ex: If Obstacle D is knocked over, it will be placed upright so the team may try again). Additionally, see Rule 42: Obstacles may not be intentionally moved by the device.