RECF Educational Video (Essay)

VEX Robotics is about building robots and programming them to do certain tasks and in the process it helps develop future engineers. This year’s VEX game is called Sack Attack. In this game there are two alliances, one “red” and the other “blue” and the objective is to get a higher score then your opponent. There are ninety-eight sacks and four bonus sacks on the field. There are three goals; the high goal, the trough, and the floor goal. In the high goal each scored sack is worth ten points while bonus sacks are fifteen points. A sack scored in the trough is worth five points and a bonus sack is worth ten points. In the floor goal each scored sack is worth one point while bonus sacks are six points. The task is to score on your alliance color. The robot is placed on a colored tile of your alliance color. You are allowed to have one regular sack as your pre-load at the start of a match. The game round starts with an autonomous mode for the first fifteen seconds of the match. At the end of autonomous mode you have to score points manually for one minute and forty-five seconds. The rules state that your robot has to have two identification cards on both side of your robot. The robot’s dimensions have to be within 18x18x18 inches. The alliance color flag is placed on the robot. The robot parts have to be Official VEX products. The number of motors cannot exceed ten. A maximum of two controllers are allowed. The robot can be made by attaching five C-Channels together or by creating two sets of parallel C-Channels and connecting them with one of the C-Channels. Next you take two more C-Channels and place them on top of the base with just enough space between them to put two more C-Channels for the arm. You then take two more C-Channels and put them between the gaps to hold your arm. You then take four wheels, four axles, eight screws, and four bearings and then affix them together with the base. To build the arm, you attach two motors on the arm so it can move the arm up and down. You then take four C-Channels and attach to the two other C-Channels. On the lower two bars you have to create a basin to hold your sacks and on the upper two bars you take three gears with chain on them. You attach a motor to the spinner so it can scoop sacks into the basin and scoop them out to score. There are two types of robot programming, the operator mode and autonomous. In operator control, you have to assign the motors on the VEX-Net to each control on the controller. In autonomous mode, you have to tell the robot which command to perform and for how long of a time. One needs to learn and understand all the things mentioned above regarding VEX Robotics.