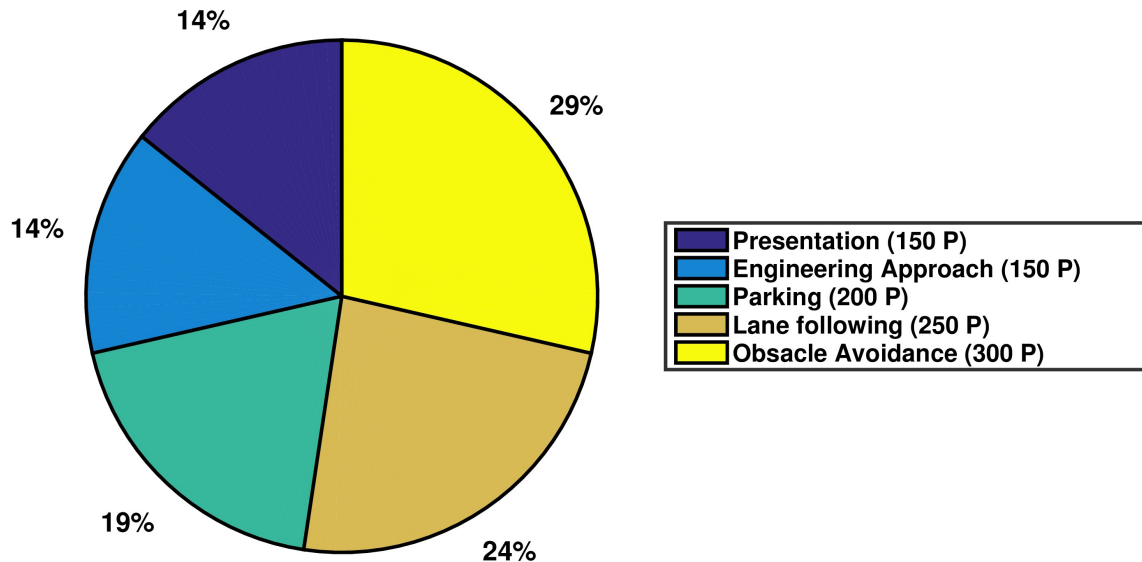


Carolo Cup 2016 Rules Update (Errata Sheet for the 2015 Rules)

1.3 Point distribution

There are 1050 Points in total which are distributed as follows:



3.8.1 Activation of RC-Mode

The RC mode is turned on and off by remote control. The active RC mode must be signaled with a sufficiently bright and all around visible blue flashing LED/lamp at the highest point of the vehicle. The flashing frequency must be 1 Hz with a duty cycle of 50% and the LED must light up immediately when RC mode is activated. The RC mode must be used only in a clear case of misbehavior of the vehicle. Examples for this include the leaving of the track (that is the desired lane is missed completely) or when the continuation is blocked, e.g. due to an obstacle on the track.

3.8.2 Driving functions in RC mode

By enabling the RC mode, the vehicle is stopped immediately until it reaches standstill. The car must stand still for 1 second before it can be controlled with the RC.

In RC mode, the vehicle can only be moved after the prescribed duration of a complete standstill with a maximum speed of 0.3 m/s in forward and backward direction. During Training, the maximum allowed speed in RC mode is 1 m/s. When activating the RC mode during Training, the car must stop immediately but no waiting time must be considered. In RC mode the vehicle may be steered. Other functions are not allowed.

3.9 Vehicle Buttons

Three mechanical push buttons must be mounted at the vehicle. The car is started to perform an individual discipline by pressing one of these buttons. The buttons must be labeled in an unambiguous way and easy accessible such that the vehicle can be started by a non-member of the team.

4.1 Presentation of the overall concept

Each team has the possibility to outline the overall concept of their vehicle including the hardware and software architecture. Furthermore, the team must describe how they managed energy-balance and manufacturing costs. Moreover, the method how the acquired knowledge will be preserved for subsequent team's must be presented (knowledge management).

5.1.2.1 Parking: Start

The vehicle is asked to find a parking spot while driving along on the right lane of a straight road. Once the parking spot is found it needs to park as quickly as possible and without touching any bounds. The car starts on a straight road at a white 40mm wide start line by pressing a button on the vehicle by a jury member or an arbiter. Then it starts driving alongside the stationary obstacles searching for a sufficiently large parking spot. Once the parking spot is found, the parking process must be indicated by a flashing direction signal. Illuminating all direction indicators three times indicates the end of the parking process. The regulations from Sec. 5.2.3.1 apply for waiting times.

5.2.2.1 Lane-following w/o obstacles: Start

The goal in this discipline is to drive autonomously as many rounds as possible on a previously unknown course.

The vehicle starts out of a start box, attached to the track. The position of the start box can be seen in the sketch 7.6. The start box may be separated from the track by a white line. In this case the line has to be crossed when driving on the track. The attempt starts when a jury member or an arbiter presses the corresponding button on the vehicle. The measurement if the current trial is failed starts also with pressing the button.

The evaluation of the current trial and hence the timing for the discipline at hand starts as soon as the vehicle crosses the marked start line but at latest after 30 seconds.

The organizers will announce the starting order prior to the competition. All teams have to be ready according to the traffic light system described in 6.3.2.

5.2.3.2 Penalties

Violation	Maximum Number	Penalties
Use of RC mode within its limitations	infinity	5 m
Illegal use of RC mode	infinity	25 m
Incorrect illumination of brake lights	3	5 m
Interruption of ongoing trial and continuation with second trial	1	40 m
Leaving of the dedicated lane (right lane) with more than one wheel	inf	5 m

5.3.1.1 (Obstacle avoidance)

A number of obstacles are placed on the track either on the dedicated lane or on the opposite lane. It is also possible that some obstacles are placed off the track i.e. not on one of the lanes. The **outer dimension** of all obstacles is indicated in Chapter 7.4 and are build out of white cardboard. The obstacle could possibly be fixed on the ground or have **sufficient high weight** which makes it not possible to push them. The minimal distance between two consecutive obstacles is 1000 mm. The obstacles could occupy one of the lanes **but it will be always the case that one of the lanes is passable**.

6.1 Training

The available training time is divided into timeslots to guarantee a safe and fair training procedure for all teams. **The number of teams which are training at the same time and their timeslots are communicated prior to the training**. The committee has the right to adjust the duration and number of available training slots according to the number of registered teams. All information regarding training times will be published in good time on the homepage. **When a team fails to shows up repeatedly within their designated timeslots the committee is allowed to put penalty points on their final result**.

6.3.1 Preparation of the main competition

All teams must hand over their cars no later than 30 min prior to the start of the main competition to the Parc Fermé. It is not allows to work on the car during the competition. **The batteries must be removed from the system and the cars must be switched off. All external tools must be removed from the car. All wireless communication interfaces (e.g. WLAN, Bluetooth, etc.) must be switched off. This yields not for the RC remote control interface. The remote control itself must, however, be switched off and handed over together with the vehicle.** In order to make the overall procedure as seamless as possible **the teams must clearly indicate the disciplines they will take part in to the head of the jury committee**.

6.3.2. Traffic light system

A traffic light system indicates when the teams are allowed to pick the car up from the Parc Fermé and prepare the car for the discipline. The states of the traffic light system are as follows:

Red: No action required

Yellow: The car must be prepared for the competition. **The car may be picked up from Parc Fermé. The available time for preparation is 5 min.** The team is allowed to use a precharged battery. **No additional tools and aids are allowed for the preparation of the car.** The fully prepared car must be placed in the startbox within the 5 min preparation timeslot. In case the car is not ready in time, the timing of the ongoing trial will be started anyway.

Green: After the traffic light switched to green, the team has 30 seconds for starting the discipline. The car will be started by a member of the jury or **an arbiter** who presses the corresponding button at the car.