

# RoboCup Junior Australia

## Dance Advice and Rules 2015



[www.robocupjunior.org.au](http://www.robocupjunior.org.au)

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## Introduction

### Spirit

It is expected that all participants, students and mentors, will respect the aims and ideals of RoboCup Junior as set out in our mission statement. In turn, the volunteers, referees and officials will act within the spirit of the event to ensure the competition is competitive, fair and most importantly fun. “It is not whether you win or lose, but how much you learn that counts.”

### Sharing

It is the overall desire of RoboCup Junior competitions, that any technological and curricular developments will be shared with other participants after the competition. Any developments including new technology and software examples may be published on the RoboCup Junior website after the event, furthering the mission of RoboCup Junior as an educational initiative. Participants are strongly encouraged to ask questions of their fellow competitors to foster a culture of curiosity and exploration in the fields of science and technology.

### Local Variations

These rules will be in use for the 2015 Australian National Championships. State and Regional competitions may implement minor variations with respect to age groups, divisions and judging. These variations will be communicated to the participants through email and/or on their relevant website prior to the state or regional competition.

### Advice vs. Rules

This document includes advice to the competitors and mentors, plus rules that are firm. We have done this to remove ambiguity. *Advice is italicized* and **rules are in bold text**. There is also a notation as to whether it is advice or a rule.

### Changes for 2015

Changes for 2015 are written in red. Please familiarise all participants with the complete rules.

The main differences from 2014's competition are:

- The Dance Floor area has been reduced to 2.4m x 2.4m.
- Dance and Theatre are no longer separated. All performance types will be judged together.
- The limit of 2 Processors and 8 outputs for Dance has been removed.
- Divisions have been modified.

## The Challenge

### ROBOCUP JUNIOR DANCE

*Advice: RoboCup Junior Dance challenges teams of students to design, build and program a robot or robots to perform to music. This performance can be in the form of a dance in time with the beat of the music or a theatrical presentation that complements the music. Teams are scored on their Performance and their Technical interview/ Log book.*

#### 1 Divisions

*Advice: Novice teams should enter the primary or secondary division which are aimed at new Robocup entrants. Open division is aimed at experienced teams of either primary or secondary students or a mixture of both. If a Team has members from both Primary and Secondary they must enter Secondary or Open division. Teams that include any member who has entered Robocup Dance twice before must enter the Open division.*

- 1.1 Rule: The PRIMARY DANCE division is restricted to Teams made up of students who are all currently enrolled and studying at an approved Primary education provider and have less than 2 years experience in Robocup. This includes the primary sector of a P-12 educational institution.**
- 1.2 Rule: The SECONDARY DANCE division is restricted to Teams made up of students enrolled and studying at a recognised Primary or Secondary education provider and have less than 2 years experience in Robocup.**
- 1.3 Rule: The OPEN DANCE division is open to all students enrolled and studying at a recognised Primary or Secondary education provider.**

#### 2 The Robots

*Advice: The competition is open to any platform. Some common examples include Hardware: LEGO Mindstorms (EV3, NXT, RCX), Arduino, Matrix, VEX, ...  
Programming Languages: NXT-G, EV3, Robolab, Robot C....*

*The Performance and Interview score sheets will give you a guide to how the Judges will reward robot build. Extra points will be awarded for non-standard robot designs, ie not built from basic kit instructions.*

- 2.1 Rule: Construction and programming of the Robots must be performed exclusively by the students.**
- 2.2 Rule: The Robot/s should be newly constructed and programmed for the current year's challenge.**

*Advice: Students are advised not to re-use robots from the prior year, as judges will be looking for and rewarding new ideas and innovations especially in the OPEN*

division.

### 3 The Stage – the area where Robots and Team Members Perform

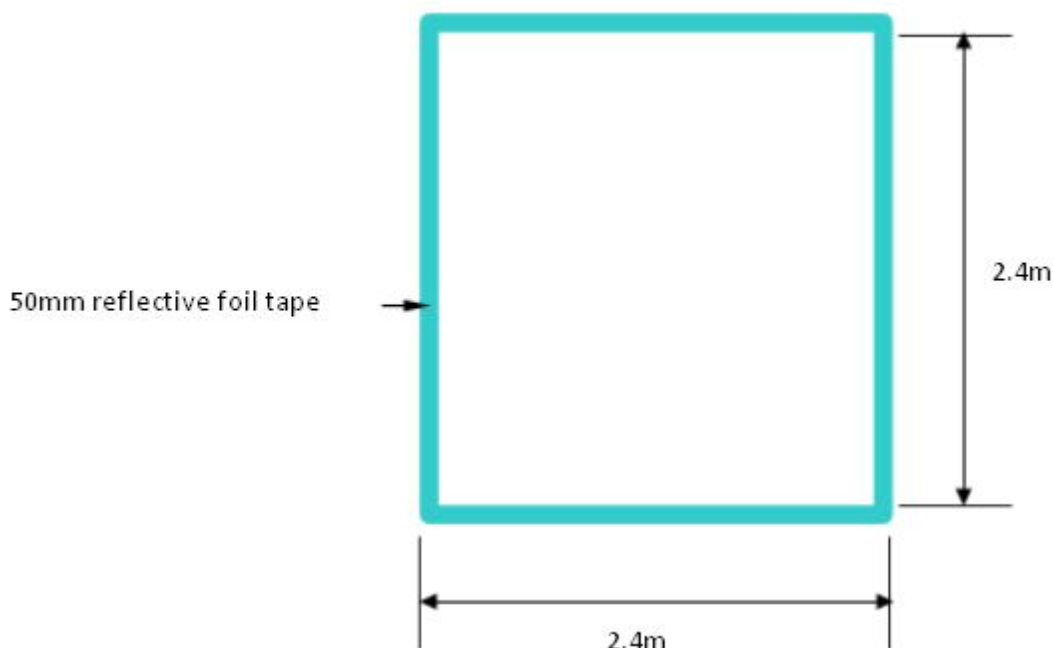
*Advice: Robots will perform on a **FIRM, FLAT SURFACE**. This may include mdf, vinyl, gym flooring etc. The surface might vary from venue to venue.*

*Teams are encouraged to contact the events dance chair and inquire about the specific surface, and prepare their performance on such a surface.*

*Teams may provide their own mat to roll out on top of the Dance Floor. This mat may be marked or decorated. 2m wide Vinyl is ideal.*

*Depending on the venue, the total area allocated for the Stage might vary. Space around the dance floor may be limited. Check with the event coordinator for details.*

- 3.1 Rule: The Stage will include a marked square of **2.4m x 2.4m** which is the Dance Floor for robots. The outside boundary of the Dance Floor will be marked with 50mm reflective aluminium foil tape.
- 3.2 Rule: Whilst every effort will be made to provide a flat, smooth surface, teams and their robots should be prepared to cope with edge joints and variations up to 3mm in height.
- 3.3 Rule: Teams may not modify the official Dance Floor or Stage. No marks or tape can be applied.
- 3.4 Rule: Any Dance Floor Surface brought to the competition must fit **WITHIN** the Dance Floor boundary, as marked by the 50mm reflective aluminium foil tape. The dimensions of any team's Dance Floor Surface , must not exceed 2 metres 35 centimetres (2.35 m) and the aluminium tape must be visible on all sides during the performance.



## 4 Performance

- 4.1 Rule: The performance must be longer than ONE MINUTE and shorter than TWO MINUTES. The music will be stopped for any performance when the time reaches TWO MINUTES.
- 4.2 Rule: The total performance time allowed per team is SIX (6) MINUTES. This includes set-up time, the performance, any re-starts (see Rule 10.) and pack up time.
- 4.3 Rule: Judges will stop watching the performance at SIX MINUTES. The score given will be based upon the performance up until that time. Marks will also be deducted for going over the time limit. (see Performance score sheet)
- 4.4 Rule: **Robots must perform within the dance floor.** A robot will be considered to be OUT of the Dance Floor if ALL contact points of the robot (wheels, etc) of the robot have crossed the OUTSIDE EDGE of the reflective foil tape line. Marks will be deducted for each time a robot leaves the Performance Area.

*Advice: Teams are encouraged to use sensors or other methods to prevent their robot from leaving the performance area. (See performance and technical score sheet)*

*Advice: Team members may dance/interact either inside or outside the Dance Floor. This interaction will be scored as props for the performance. Dancing should enhance Robot performance not distract from it.*

- 4.5 Rule: Points will be deducted for any contact made by team members with their robots once the performance has started. Any intentional contact during the performance must be discussed with the judges - in advance of the first round of the competition.

*Advice: Mentors can contact the organisers of the event in advance, while developing, to ensure there are no surprises.*

## 5 Set Up, Props, Lighting, and Special effects

- 5.1 Rule: **All of the Robots, props and equipment must be set up by team members.**
- 5.2 Rule: Scenery and props are permitted **on the Dance Floor or in the closely surrounding area.**

*Advice: Equipment that has been assembled/developed by team members will be rewarded more highly than 'off-the-shelf' items. Props should enhance Robot performance not distract from it.  
If costumes or Team-designed clothing are worn, they will be*

*considered as props and rewarded as such.*

## **6 Robot Costumes**

### **6.1 Rule: Costumes should be the students' own work.**

*Advice: The costuming and/or decoration of robots is encouraged and will be rewarded in scoring. (see the performance and technical score sheets)*

*Advice: Commercial elements such as dolls, soft toys, and off-the shelf costuming are permitted. Higher marks will be allocated to teams whose robots feature student made/assembled elements.*

*Advice: Commercial assembled elements may be considered as a custom-made costume if colours and structure clearly enhance the robot's appearance.(eg Lego elements added to give robot features/personality)*

## **7 Music, sound effects and theme**

### **7.1 Rule: Any performance that includes violent, military, threatening or criminal elements will be excluded. Any team using inappropriate music, name or logo will also be excluded. Inappropriate music include explicit or implied violent or sexual lyrics or sounds.**

*Advice: Participants are asked to carefully consider the wording and messages communicated in any aspect of their performance. What seems acceptable to one group may be offensive to friends from a different age group, culture or country.*

*Advice: Mentors can contact the organisers of the event in advance, while developing, to ensure there are no surprises.*

### **7.2 Rule: Music is to be supplied as indicated by the organisers of the event.**

*Advice: This may include mp3 digital files on a USB, CD files playable on computer and CD player OR digital files uploaded prior to the event,*

### **7.3 Rule: Audio sources should be high quality and contain only the music for the team's performance on it.**

*Advice: Where the organisers have advised that CD is the preferred format it is the responsibility of the team to ensure that the audio is playable on a standard CD player. If the audio does not work the team will be required to play the audio into a microphone, where sound quality may make it difficult for judges to fully assess some aspects of the performance criteria.*

**7.4 Rule: Audio sources must be labeled with the team name, school and title.**

*Advice: In the case of a malfunction, the team mentor/manager should have a copy of the audio source that can be made available to the organisers on request. In the case of a malfunction see Rule 10.*

*Advice: Teams are advised to start the music first, and then synchronise the robot(s) start(s).*

## **8 Mechanical Malfunction**

**8.1 Rule: Robots which lose parts, become stuck, fall over or mechanically malfunction may be righted and quickly repaired by a team member. Marks will be deducted for each malfunction. (See Performance Scoresheet)**

*Advice: Competitors may ask for a restart to give time to repair but points will be deducted. Mentors, it is advised that your team members know this rule and use it wisely. Restarts are the loss of only one point per restart. The clock does not stop, but there is generally a buffer of time where small repairs can be made. Should the performance go over time, the judges will generally allow the performance to be completed, but points will be deducted. This is up to the discretion of the judges, but is usually in the best interest of the students.*

## **9 Programming and computers**

**9.1 Rule: No remote controls, computers, mobile phones, Bluetooth or IR-emitting devices apart from the robots themselves are permitted within 5 metres of the Performance Area.**

*Advice: A team may use robot to robot communication both to synchronise their robots start and within their performance. Users of robot to robot communication may be required to convince the judges that the system will not interfere with other teams' robots.*

**9.2 Rule: In the case of a complete malfunction in their program, the Team Leader can indicate to the performance judges that the program has malfunctioned and can request a restart (see Rule 11) that can occur after the next team scheduled has performed. Points will be deducted for the team with the malfunction.**

**9.3 Rule: The Team Leader may take the robot to the team's computer and download the program again. It is the team's responsibility to have their computer on and showing the correct program should this eventuate. The computer is not permitted on or near the Dance Floor(see Rule 11.1).**



- 9.4 Rule:** Teams are permitted to change their programs, performance routines and/or robot(s) from the preliminary round to the finals round.

*Advice: The final score for each team is the sum of the Team's best performance score and interview score.*

- 9.5 Rule:** Competitors are reminded that the LEGO RCX infra-red tower has a range of about 3m. It is the responsibility of the team to ensure that the IR power is set to LOW and the tower shielded to reduce stray emissions.

*Advice: Competitors using the LEGO RCX microprocessor are advised to mask or shield their infra-red window to prevent their program being corrupted.*

## **10 Re-starts**

- 10.1 Rule:** If a robot experiences a mechanical or programming malfunction, the team leader must request a re-start immediately by signalling CLEARLY to the judges and wait for the judges response. Points will be deducted for each re-start.

*Advice: Teams should not stop their robot until a restart is approved by the judges, as they may be asked to continue.*

*At the judges discretion, the following scheduled team might be required to perform while a team cures their malfunction.*

- 10.2 Rule:** If the performance has been in progress for more than one minute then no restart is permitted.

- 10.3 Rule:** No more than TWO (2) restarts are allowed

- 10.4 Rule:** If the restart is caused by circumstances beyond the control of the team then this will not be counted as one of the TWO permitted re-starts nor will it incur a points deduction.

## **11 Sportsmanship and behaviour**

*Advice: It is expected that all participants, students, mentors and supporters will respect the aims and ideals of RoboCup Junior. In turn, the volunteers, referees and officials will act within the spirit of the event to ensure the competition is competitive, fair and most importantly fun.*

*Advice: Competitors not adhering to these rules may incur loss of points from their interview score. This is at the sole discretion of the Judges and the event Dance Co-ordinator.*

*Advice: It is not whether you win or lose, but how much you learn that counts.*

## **12 Protests**

- 12.1 Only the Team Mentor may lodge a protest with the organisers. A protest can only be heard if there is an alleged breach of the rules.**
- 12.2 The protest must be made in writing not more than 30 minutes after the performance.**
- 12.3 Protests must be lodged with the event Dance Co-ordinator and will be referred to the judges for consideration.**
- 12.4 Rule: Any protest must include:**
- **All relevant facts**
  - **Any corroborative evidence**
  - **The rules that are believed to have been breached**

*Advice: Whilst every effort will be made to resolve the protest on the day, it must be understood that some protests may take longer and will not necessarily result in a changed outcome.*

## **13 Scheduling**

*Advice: Every effort will be made to adhere to the pre-advertised running schedule, however due to late entries and unforeseen circumstances there may be some variation. Teams must be available for their interview and/or their performance up to 30 minutes either side of the scheduled time.*

*Advice: It is expected that all teams will be in attendance throughout the competition day to support all performances.*

## **14 Performance and Work Areas**

*Advice: Various areas are provided for different activities: teams should take care to be in the correct area at the appropriate time.*

*Each team will be provided with at least a table and chairs, and access to a power outlet. This area will be referred to as "The Pits".*

*An Assembly Area will be designated. This is where teams should gather while waiting for their performance. An additional Assembly Area may be designated near the Interview Area for team members to wait to be invited to their interview.*

- 14.1 Rule: Parents, Mentors and supporters are not permitted in any Assembly Area, Performance Area, Interview Area or The Pits.**

**14.2 Rule: The first breach of rule 15.1 will result in a Yellow Card being issued to the team.**

**14.3 Rule: Any further breach may result in the team receiving a Red Card and excluded from the competition.**

*Advice: Teams who are not ready in the assembly area for either their interview or performance may be excluded from the competition by the event Dance Co-ordinator. All team members in attendance at the event must be present.*

## **15 Team Interviews**

**15.1 Rule: Teams will be judged using the RCJA Interview Scoresheet.**

**15.2 Rule: All team members in attendance at the event must present for the interview. The Team Mentor is not included in the interview.**

*Advice: The interview will take about 10 minutes.*

**15.3 Rule: The robot(s) must be present at the interview.**

**15.4 Rule: The robot(s) must be functioning and in performance condition.**

**15.5 Rule: The team should bring a clear print-out of the program(s) they will use in their performance. Alternatively, the team may have their computer on and displaying their program(s) in readiness for their interview.**

*Advice: All team members are invited to answer in the interview, not just the Team Leader, though the Team Leader may like to co-ordinate the interview responses.*

*Advice: Points will be given for those teams able to provide some form of Learning Journal or Log book, that shows the evolution of their entry and confirms it as being their own work. Refer to the judging criteria.*

## **16 Mentor and Outside Assistance**

*Advice: RoboCup Junior is a competition for students to demonstrate their achievements and to enjoy showing and sharing their knowledge and abilities. Mentors, teachers, parents and supporters are reminded that only the team members are permitted in the designated areas (See Rule 14.4).*



## 17 Awards

*Advice: In the interest of economics, certificates have been allocated on the basis of 4 members in a team. Additional certificates may be sent at the discretion of the organisers after the event.*

*Advice: Any other awards or prizes are at the organisers' discretion. This may include an award for the highest place novice team. A Novice team is a team competing at RoboCup Junior for the first time.*

## 18 Security and Safety

**18.1 Rule:** In order to protect participants, RoboCup Junior officials and bystanders, routines may not include explosions, poppers, projectiles, breaking boards, smoke or flame, use of liquids, or any hazardous substances.

**18.2 Rule:** Each team whose routine includes any situation that could be hazardous, including the possibility of damaging the stage, must submit a report outlining the content of their dance routine to the event organisers **BEFORE** arriving at the competition. The organisers may also request a demonstration of the activity before the stage performance. Teams not conforming to this rule may not be allowed to present their routine.

**18.3 Rule:** In **NO** circumstances is mains electricity allowed to be used on stage. This includes the use of mains electricity for robots, scenery and props (including projectors).

## 19 Scoring and Exhibition of Excellence

*Advice: Scoring of teams will be made according to the criteria on the judges' score sheets. see files on [www.robocupjunior.org.au/dance](http://www.robocupjunior.org.au/dance)*

*Advice: Where possible and depending largely on the time available, each team will be allowed TWO performances. These two rounds will be followed by finals (time permitting).*

**19.1 Rule:** Performance will contribute 60% of the team's total score.

**19.2 Rule:** Interview will contribute 40% of the team's total score.

**19.3 Rule:** If a second performance is offered, the **BEST SCORE** from the **TWO** performances will be used to determine placement for the finals

round, along with the interview score.

**19.4 Rule:** When a finals round is held the interview score will be carried forward. The finals round Performance score only will be used for the determination of the final placement of teams.

**19.5 Rule:** Final placings of teams will be on the basis of their scores in both the Final Performance and the Interview.

*Advice: To maintain the balance indicated in Rule 20.3 the following process will be followed:*

*The Interview Scores given by each of the judges are totalled and averaged.*

*The score produced is the AVERAGE INTERVIEW score. This will be a score out of 40.*

*The Performance Scores given by each of the judges are totalled and averaged.*

*The score produced is the AVERAGE PERFORMANCE score. This will be a score out of 60*

*The AVERAGE INTERVIEW score will be added to the AVERAGE PERFORMANCE score to produce a score out of 100.*

*Advice: Score results from the competition will only be available after finals have been conducted.*

*Advice: Selected teams may be invited to present a 'Demonstration of Excellence' as part of other division finals. These will be selected on the basis of quality of performance, the number of entries and other factors, at the discretion of the organisers.*

*Any demonstration will not contribute towards any scoring.*