



COMMISSION ON HIGHER EDUCATION  
**REGIONAL OFFICE III**



**RELEASED**

APR 29 2024

**CHEDRO III**

CHEDRO-III MEMORANDUM

No. 83, s. 2024

For : **ALL PRESIDENTS/HEADS OF STATE UNIVERSITIES AND COLLEGES (SUCs), LOCAL COLLEGES (LC) AND PRIVATE HIGHER EDUCATION INSTITUTIONS IN REGION III**

Subject : **Mechatronics and Robotics Society of the Philippines (MRSP) Regional Conference and Skills Competition**

Date : **April 29, 2024**

This Office endorses the conduct of the upcoming **Regional Conference and Skills Competition in the field of Robotics and Research Projects** set on on **May 24, 2024** at the **Don Honorio Ventura State University Main Campus, Bacolor, Pampanga**, organized by the **MRSP Pampanga Chapter**.

This MRSP Regional Conference and Skills Competition aims to provide an excellent opportunity for students to showcase their talents and skills while fostering collaboration and friendly competition among other participants. On the same occasion, a parallel conference will also be conducted for the discussion of trends and technologies in the field of automation mechatronics and robotics by invited speakers.

The winners of the regional competitions will then be endorsed for participation in the MRSP National Competition, creating a more competitive and engaging platform for students across the country. The national competition will be held during the Metal and Industrial Celebration (M & E Week) of MIRDC on the third week of June 2024.

The **corresponding guidelines and call for participants**, for the said event, are hereto **attached**, for the guidance of interested participants.

For the voluntary participation of all concerned.

Wide dissemination of this memorandum is desired.

**DR. LORA L. YUSI**  
Director IV



**MRSP**  
MECHATRONICS AND ROBOTICS  
SOCIETY OF THE PHILIPPINES  
PAMPANGA CHAPTER

# Mechatronics and Robotics Society of the Philippines PAMPANGA CHAPTER



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## CALL FOR PARTICIPANTS

The MRSP Pampanga Chapter will hold the Regional Conference and Skills Competition in the field of Robotics and Research Projects on May 24, 2024 at the Don Honorio Ventura State University Main Campus, Bacolor, Pampanga.

The MRSP Regional Conference and Skills Competition provides an excellent opportunity for students to showcase their talents and skills while fostering collaboration and friendly competition among participants. We believe that your institution's active participation in participating in the regional competition will be instrumental in ensuring the success of the event.

The winners of the regional competitions will then be endorsed for participation in the MRSP National Competition, creating a more competitive and engaging platform for students across the country. The national competition will be held during the Metal and Industrial Celebration (M&E Week) of MIRDC on the 3rd week of June 2024.

The following are the summary of information about the event:

### Regional Conference:

- Plenary talks from invited Industry Practitioners related to Automation, Mechatronics and Robotics
- Registration fees:
  - Professional (onsite): P1,000.00 for MRSP member inclusive of AM/PM snacks, lunch and conference kit; P1,400.00 for non-MRSP member inclusive of AM/PM snacks, lunch and conference kit and 1-year free membership
  - Student (onsite): P700.00 inclusive of AM/PM snacks, lunch, conference kit and 1-year free membership
  - Professional (online): P500.00 for MRSP member inclusive of e-certificate; P900.00 for non-MRSP member inclusive of e-certificate and 1-year free membership
  - Student (online): P500.00 inclusive of e-certificate and 1-year free membership

### Robotics Skills Competition:

- Category: Open to college students
- Robotics Team size: Each team consists of two student members (competitors) and one coach (teacher)
- Registration fees: P3,500.00 /team for MRSP members; P4,300.00 /team for non-MRSP members with 1-year free membership for all the representatives.

### Research Design and Innovation Exhibit and Pitching Contest:

- Theme: Innovative Solutions for Industry 5.0: Advancing Robotics and Mechatronics for Sustainable Development



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- Team size: Bonafide college students interested in participating will register individually or as teams composed of not more than 3 representatives and an adviser.
- Registration fees: P3,000.00 /team for MRSP members; P4,000.00 /team for non-MRSP members with 1-year free membership for all the representatives.
- Documents: Team/s will provide a soft copy of their project documentation including basic information about their project, including the title, description, video evidences of the development process, and results, team members' details and non-disclosure agreements with the organizers, evidence of IPO certification (if any exists).

## Registration and contact details:

- Kindly register through this link and upload your proof of payment: [https://bit.ly/MRSP\\_R3\\_Conference\\_Skills\\_Competition](https://bit.ly/MRSP_R3_Conference_Skills_Competition)
- For further inquiries and confirmation, please contact us at e-mail: [mrsp.pampanga@gmail.com](mailto:mrsp.pampanga@gmail.com)  
Facebook Page: MRSP Pampanga Chapter  
Mobile Nos.: +639055253231 / +639175958817 / +639979110275

**RANIE B. CANLAS, PCpE, DIT**  
President, MRSP Pampanga  
Overall Chairperson  
Conference and Skills Competition

**MARVIN O. MALLARI, PCpE, PhD-EnM**  
Chairperson, MRSP Pampanga  
Overall Co-Chairperson  
Conference and Skills Competition

**MARIBEL T. BRAVO, PCpE, MIT**  
Vice President for Mechatronics, MRSP Pampanga  
Co-Chairperson  
Robotics Skills Competition

**ASIL KASTLE S. DELA CRUZ, PCpE, MIT**  
Vice President for Technical MRSP Pampanga  
Co-Chairperson  
Research Design and Innovation Exhibit and Pitching Contest



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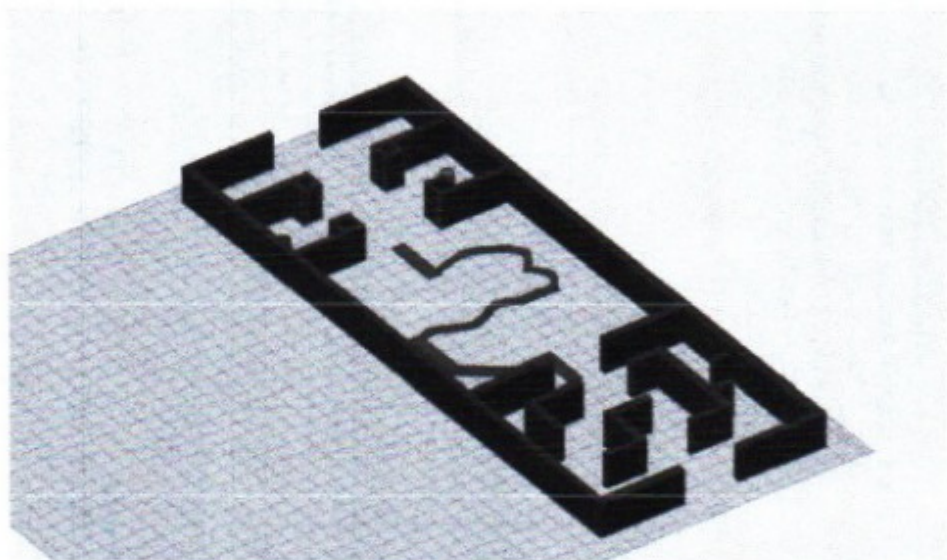
## MRSP REGIONAL SKILLS COMPETITION 2024 GUIDELINES

### A. Robotics Skills Competition

#### I. Competition Map:

There are three passes in the competition. The first is remote control competition, in which students can use the remote controls to manipulate the robots (they may use Bluetooth, mobile app or IR Controller). The second is line-following competition, in which the robots will need to walk on the area along the trajectory on their own. The third is obstacle avoiding competition, in which the robots will need to avoid the obstacles and walk out of the site on their own depending on the ultrasonic sensor.

Note\* the actual field might be slightly different.



#### II. Competition Rules:

1. Before the competition starts, the referee will take all the robots back and place them in the designated position to check the size and specifications.
2. At the beginning of the competition, each team will take back their robots and begin to program, modify and debug programs on the spot for 1 hour and 30 minutes. When programming, teams are not allowed to communicate and discuss with each other. Members of the team can communicate with each other. They should ask permission from the technical team to test on the competition field. After 1 hour and 30 minutes, the robot will be taken back and put in the designated position.
3. Judges determine the order of the competition. The team will get their robots in order and begin the competition. They need to state their team name and the name of members and finish the game in the specified 5 minutes. The referee will record the scores.



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## III. Robotics Skill Competition Scoring

**Task Division:** The competition is divided into three passes.

- **First Pass (40 points/3 minutes):** The Robot shall push or pick the blue and red cylinder and place them in the marked area, one at the time, using a controller. The team can score up to 20 points for each cylinder if the cylinder is right on the inner circle, 15 points if it is on the middle circle and 10 points if it is on the outer circle. Robot deducts 5 points each if it displaces the neutral cylinders from their square. Negative scores result in the failure of the first pass task.
- **Second Pass (30 points/1 minute):** Robot must track the line continuously using line following line. If the robot body leaves the black line for more than 2 seconds, the second pass task fails.
- **Third Pass (30 points/1 minute):** Robot deducts 5 points for each wall touch. Failure to reach the destination deducts 10 points. Negative scores result in the failure of the third pass task.



1. **Giving Up:** Participants can choose to give up a pass if their robot cannot complete the corresponding task. They will receive no points for that pass.
2. **Time Limit:** The three tasks must be completed within 5 minutes. If not completed within this timeframe, it will be considered a task failure. Time and scores will be recorded if completed within 5 minutes.
3. **Scoring and Ranking:** Results will be ranked based on scores, with higher scores receiving a higher ranking. In case of ties, the team with the shorter time will be ranked higher.
4. **No Interference:** Teams are not allowed to interfere with other teams' robots during the competition. Any interference discovered will result in the cancellation of the team's scores.
5. **No Human Help:** Once the competition starts, the robot must complete the tasks by itself. No human assistance is allowed. Scores will not be included if human help is provided. Except the first part that robot is navigated using remote control.
6. **Borrowing Robots:** Teams are not allowed to borrow robots from each other. If teams are found to have borrowed robots, their team scores will be cancelled.

## IV. Referee Responsibilities:

1. **Referee Composition:** Each game will have four referees:
  - Two technology referees: Responsible for recording robot challenge scores.
  - One timing referees: Responsible for recording robot challenge time.



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2. Chief Referee: Teachers will act as the chief referees and have the following responsibilities:
  - Ensure that each team and their robot correspond.
  - Supervise all fouls and record them.
  - Maintain discipline at the competition site to ensure the smooth conduct of the competition.

### V. Robot Specifications:

1. Size and Weight Limit:
  - The size of the robot should not exceed 25 cm in width, 25 cm in length, and a reasonable height based on the design.
  - Ensure that the weight of the robot is manageable for efficient movement and adherence to the competition rules.
2. Open Category and Brand Selection:
  - The competition is open category, meaning participants can choose any brand or type of components to build their robots.
  - Competitors have the freedom to select suitable microcontrollers, sensors, actuators, and other necessary components based on their design preferences and requirements.
3. Line Following Sensors:
  - Each robot must be equipped with a double-line following sensors for accurate line tracking.
  - Participants can choose from various types of line following sensors, such as infrared sensors, reflectance sensors, or any other appropriate sensors available in the market.
  - Mount the line following sensors at appropriate positions on the robot chassis to ensure effective detection of the black line during the competition.
4. Microcontroller and Programming:
  - Select a suitable microcontroller platform as the control system for the robot.
  - Ensure that the microcontroller has sufficient processing power and I/O capabilities to accommodate the line following sensors, motor control, and other components.
  - Program the microcontroller using a programming language compatible with the chosen platform (e.g., C/C++, Python) to implement the necessary algorithms for line following and obstacle avoiding.
5. Actuators:
  - Choose appropriate motors to drive the wheels or any other locomotion mechanism of the robot not higher than 9 Volts.
  - Open Category and Brand Selection:
    - The competition is open category, meaning participants can choose any brand or type of components to build their robots.
    - Competitors have the freedom to select suitable microcontrollers, sensors, actuators, and other necessary components based on their design preferences and requirements.



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## 6. Power Supply:

- Decide on a reliable power source for the robot, such as batteries or external power supplies not more than 18 V.
- Consider the power requirements of the microcontroller, motors, sensors, and other components to ensure the power supply is capable of meeting the robot's needs throughout the competition.

## 7. Design Considerations:

- Design the robot chassis to accommodate the selected components within the size limitations.
- Ensure the robot's structure provides stability and robustness to withstand the challenges faced during obstacle avoiding and line following tasks.

## 8. Testing and Refinement:

- The programming and testing will be done prior to the competition. Conduct thorough testing of the robot's functionality, line following accuracy, and obstacle avoidance capability.
- Make necessary refinements and adjustments to improve the robot's performance based on the testing results.
- Consider conducting multiple trial runs to ensure the robot's reliability and consistency in completing the tasks.

**MARIBEL T. BRAVO, PCpE, MIT**  
Co-Chairperson, Robotics Skills Competition  
Vice President for Mechatronics, MRSP Pampanga



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## B. Research Design and Innovation Exhibit and Pitching Contest

### Scope:

- The Project Research Design and Innovation Exhibit and Pitching Contest serves as a platform for students to not only demonstrate their academic prowess in the field of Robotics and Mechatronics but also unleash their potential as innovators and change-makers.
- It will be set to unfold from grassroots beginnings at local chapters to a grand showcase on the national stage. Starting with participation from college campuses at the local level, this multi-tier contest will evolve into a nationwide competition.

### 1. Pre-screening:

- Organizers will review all submissions to ensure they meet the eligibility criteria and are aligned with the theme of research design and innovation.

### 2. Exhibit Setup:

- Accepted projects will be given a designated space to set up their exhibits.
- A specific template and dimension will be given for their posters, prototypes, demonstrations, or any other visual aids to showcase their research and innovation.

### 3. Pitching Sessions:

- Each team will have a specified time slot to pitch their project to a panel of judges. This could include a presentation followed by a Q&A session.
- The team shall prepare a 3 min elevator pitch presentation
- The use of audio or video tools are part of the contestant's discretion.
- Advisers are not allowed to be with the team during the pitching
- Pitching points will be added to the final scoring.

### 4. Judging Process:

- Judges will evaluate projects based on predefined criteria (outlined below). They will score each project independently, and winners will be determined based on the highest cumulative scores.
- Awards will be given for Best Exhibit, Best presentation and Best Overall Idea.

### 5. Criteria for Evaluation:

- Innovation:** The uniqueness and originality of the idea or solution presented.
- Research Design:** The thoroughness and effectiveness of the research methodology employed.
- Impact:** The potential societal, economic, or environmental impact of the project with respect to the theme.
- Feasibility:** The feasibility and practicality of implementing the project in real-world scenarios.
- Presentation:** The clarity, coherence, and professionalism of the pitch presentation.





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- f. Execution: The quality of execution demonstrated in the exhibit and pitch, including attention to detail, organization, and effectiveness of communication.
- g. Scalability: The potential for the project to be scaled up or applied in various contexts.
- h. Team Collaboration: The extent to which team members collaborated effectively and contributed to the project's success.

**Asil Kastle S. Dela Cruz, PCpE, MIT**

Co-Chairperson, Research Design and Innovation Exhibit and Pitching Contest  
Vice President for Technical, MRSP Pampanga