



Republic of the Philippines  
**Department of Education**  
Region V  
**SCHOOLS DIVISION OF SORSOGON**

August 22, 2024

DIVISION MEMORANDUM  
NO. 175, s. 2024

**STEMING-UP: A DIVISION ROBOTICS CAMP AND TRAINING-  
WORKSHOP FOR STE/ STEM TEACHERS AND YOUNG INNOVATORS**

**A Pioneering Project for the IRISE (*Initiatives on Robotics Integration in  
STEM Education*) Program in SDO-Sorsogon**

To: **Assistant Schools Division Superintendent**  
**CID and SGOD Chiefs**  
**Education Program Supervisors**  
**Public Schools District Supervisors/ OIC-PSDs**  
**School Heads of STE and STEM-Implementing Schools**  
**Concerned Teachers**

1. In its effort to support the **DepEd MATATAG Agenda: Make** the curriculum relevant to produce competent and job-ready, active, and responsible citizens, and the SDO-Sorsogon Superintendent's Division Change Plan/ Leadership Agenda, **The VILLAGE, INC** that is aligned with the Provincial Government of Sorsogon **Kadunungan Program**, a proactive mechanism engaging active partners to provide support to improve quality and relevant education for Sorsoganon learners, and in compliance with the **UNILAB Foundation-CISTEM Nexus Program Cohort 1 Learning Engagement Action Plan (LEAP)**, this Office is spearheading a program dubbed as "**IRISE (*Initiatives on Robotics Integration in STEM Education*) Program**" that promotes STEM Education in the Division of Sorsogon through the integration of Robotics in Science/ STE and STEM curriculum.

2. As a pioneering project of the IRISE Program, this Office is conducting a **STEMing-Up: A Division Robotics Camp and Training-Workshop for STE/ STEM Teachers and Young Innovators** on **September 11-13, 2024** at the **Ann's Garden, and Juban Gymnasium, Juban, Sorsogon.**



Balogo Sports Complex, Balogo, Sorsogon City, Sorsogon 4700  
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3. This Program/ Project, aims to achieve the following objectives:
  - a. Strengthen scientific and technological literacy of Science/ STEM teachers and students vis-a-vis Robotics Science education.
  - b. Enhance STE/STEM teachers' and learners' knowledge and skills or competencies to effectively understand and apply robotics concepts and principles in their teaching-learning experiences.
  - c. Promote innovation and develop creativity and critical thinking skills, 21<sup>st</sup> century skills, teamwork and collaboration among the participants in designing and building a functional robot during the workshops and classroom teaching.
  - d. Provide avenue for integrating robotics in quality science research and innovation projects, and manifest learners' competitive skills in competitions/ research fairs.
4. The expected participants in this activity are the STE/ STEM learners, STE/ STEM teachers (who will be teaching Robotics in their respective schools), Science department heads/ coordinators, STEM subject group heads, resource persons from Jassen Harris Industries Corp. (Makerlab Electronics), facilitators, working committees and the Division Science and Math supervisors. The identified number of participants is found in enclosure 1.
5. Participants are requested to accomplish and submit the Registration Form on or before September 11, 2024 to the Committee on Registration.
6. Science HTS/ Coordinators and STEM subject group heads have a separate track for planning/ implementation of IRISE Program and other Science/ STE/ STEM PPAs for SY 2024-2025 in the schools/ Division. Enclosure 2 presents the schedule of activities.
7. Each participant from the schools shall pay a registration fee of Php2,000.00 to defray meals and other training expenses. Registration, transportation, and other incidental expenses of the participants are chargeable against local funds/school MOOE, while the robotics kit/ materials needed for the activity shall be charged against the Division MOOE/ NLC funds subject to the usual accounting and auditing rules and regulations.
8. For information, guidance and compliance of all concerned.

**WILLIAM E. GANDO, CESO VI**  
*Schools Division Superintendent*



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Enclosure No. 1 to Division Memorandum No. 175, s. 2024

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**LIST OF SCHOOL PARTICIPANTS**

No.	School/ Office	JHS- Science/ STE			SHS-STEM			Total
		Learners	Teachers	Sci HT/ Coord	Learners	Teachers	STEM SGH	
1	Barcelona NCHS	3	2	1				6
2	Bulan NHS	3	2	1	3	2	1	12
3	Bulusan NHS	3	2	1	3	2	1	12
4	Casiguran NHS	3	2	1	3	2	1	12
5	Castilla NHS				3	2	1	6
6	Cumadcad NHS	3	2	1	3	2	1	12
7	Dinapa NHS				3	2	1	6
8	Donsol NCHS	3	2	1	3	2	1	12
9	Gallanosa NHS	3	2	1	3	2	1	12
10	Gubat NHS	3	2	1	3	2	1	12
11	Juban NHS	3	2	1	3	2	1	12
12	Magallanes NHS	3	2	1	3	2	1	12
13	Matnog NHS	3	2	1	3	2	1	12
14	Pilar NCHS	3	2	1	3	2	1	12
15	Prieto Diaz NHS	3	2	1	3	2	1	12
16	Salvacion NHS	3	2	1	3	2	1	12
17	Sta. Magdalena NHS	3	2	1	3	2	1	12
	<b>Total</b>	<b>45</b>	<b>30</b>	<b>15</b>	<b>48</b>	<b>32</b>	<b>16</b>	<b>186</b>



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Enclosure No. 2 to Division Memorandum No. 175, s. 2024

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TRAINING MATRIX		
DAY 1 (September 11, 2024)		
Time	Session Title	Description
07:30-9:00	Registration & Opening Program	Registration and Opening Program
09:00-10:00	Introduction to Arduino and Company Overview	Introduction to Arduino and Company Overview
10:00-11:00	Setting Up Arduino IDE	Installing and setting up Arduino IDE
11:00-12:00	Discussion about Arduino IDE	Detailed discussion about Arduino IDE functionalities and libraries
12:00-13:00	Lunch Break	
13:00-13:30	Basic LED Blinking Project	Hands-on session with basic LED project, including quick testing of each setup
13:30-14:30	Exploring the Kit Components part1	Detailed look at each component in the kit, including sensors and actuators also Hands-on testing of each component in the kit
		- 3 channel line sensor: Detects lines on the surface to guide the robot.
		- 3D printed model: Custom parts designed to fit specific components.
14:30-15:00	Break	
15:00-17:00	Exploring the Kit Components part 2	- Ultrasonic sensor HC-SR04: Measures distance to obstacles.
		- DC Gear Motor (1:48): Motors for driving the robot wheels.
		- 8-cell battery holder: Holds batteries to power the robot.
		- L298N Dual H-Bridge Motor Driver Module FC-120: Controls the speed and direction of DC motors.



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		- SG90 Tower Pro Micro Servo Motor 9g China Chip: Servo motor for precise control.
		- Sensor Shield V5.0 compatible with Arduino: Expansion board to connect sensors easily.
		- 40-Pin 20cm Jumper Wires Female to Female: Wiring for connecting components.
		- Black stranded wire 20cm 22AWG: Additional wiring for connections.
		- Red stranded wire 20cm 22AWG: Additional wiring for connections.

**Presenters/ Resource Persons: Engr. Angelo Espineda and Team/ Facilitators**

DAY 2 (September 12, 2024)		
Time	Session Title	Description
08:00-09:30	Building a 2WD Robot	Assembling the car chassis, attaching motors, initial wiring, completing wiring, installing the Arduino and sensor shield, and initial testing
09:30-10:00	Morning Break	
10:00-11:00	Line Follower Robot	Programming and testing the line follower robot using the 3-channel line sensor and integrating the L298N motor control
11:00-12:00	Obstacle Avoidance with Ultrasonic Sensor	Building a robot that can avoid obstacles using the ultrasonic sensor HC-SR04, including quick testing
12:00-13:00	Lunch Break	
13:00-14:00	Integrating Line Follower with Obstacle Avoidance	Combining the line follower robot with obstacle avoidance functionality
14:00-15:00	Algorithms for Maze Robot	Overview of different algorithms for Maze Robot.
15:00-15:30	Coffee Break	
15:30-16:30	Product Presentation: 3D Printers	Overview of 3D printers and their applications and Demonstration of 3D printers and their applications
16:30-17:00	Q&A and Wrap-Up	Open floor for questions, feedback, and closing remarks

\*\* Science HTs/ Coordinators and STEM SGHs work-conference for the IRISE Program

**Presenter/ Resource Persons: Engr. Angelo Espineda and Team/ Facilitators**



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DAY 3 (September 13, 2024)		
Time	Session Title	Description
08:00-12:00	<b>ROBOTICS COMPETITION FOR JHS-STE AND SHS-STEM</b>	
	Group Project Preparation/ Finalization	Group Project Preparation/ Finalization
	Project Presentation/ Robotics Competition (Line Following Robot and Maze Solving Mission)	Project Presentation/ Robotics Competition (Line Following Robot and Maze Solving Mission)
** Science HTs/ Coordinators and STEM SGHs conference/ workshop for the IRISE Program (cont.) and other STE/ STEM PPAs for SY 2024-2025		
12:00-13:00	Lunch Break	
13:00-15:00	Cont. Robotics Olympics	Cont. Robotics Mini Olympics
15:00-16:00	Ways Forward	Ways Forward
16:00-17:00	Awarding/ Closing Program	Awarding/ Closing Program
** Science HTs/ Coordinators and STEM SGHs finalization and submission of action plan for the implementation of IRISE Program and other STE/ STEM PPAs for SY 2024-2025		
Presenter/ Resource Persons: Engr. Angelo Espineda and Team/ Facilitators		

**RESOURCE PERSONS/ FACILITATORS/ WORKING COMMITTEES**

Engr. Angelo D. Espineda- Jassen Harris Industries Corp. (Makerlab Electronics)  
 Engr. Jean Paolo C. Agapito- Jassen Harris Industries Corp. (Makerlab Electronics)  
 Engr. Blue Albert D. Tolentino- Jassen Harris Industries Corp. (Makerlab Electronics)  
 Mr. Voltaire Gaviola- Jassen Harris Industries Corp. (Makerlab Electronics)  
 Mr. RaeJohn E. Arango- Bulan NHS  
 Mr. Jeriel G. Martirez- Bulan NHS  
 Mr. Severino R. Cantuba Jr.- Juban NHS  
 Mr. Marco Virgil T. Hate – Magallanes NHS  
 EPS Jerry G. Firmanes- SDO Sorsogon CID  
 EPS Michelle H. Guadamor- SDO Sorsogon CID



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REGISTRATION FORM

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**OFFICIAL LIST OF PARTICIPANTS**

School: \_\_\_\_\_

No.	Name of Participant	Learner (Please indicate Grade level/ Strand)	Teacher (Please indicate Grade level/ Strand)	Signature
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Endorsed by:

\_\_\_\_\_  
Signature Over Printed Name of School Head

\_\_\_\_\_  
Date



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