Robofest eAcademy Standard STEM Learning Units
Certificate Exam Name: **WeDo 2.0 with Scratch 3 (Regular)**

Primary Developer Name: CJ Chung   Reviewed by: Elmer Santos

Learning Units		Regular	Advanced
		Level / Related Question #	
		Regular	**Advanced**
Coding, CS, and Technologies	Sequencing (specific correct order of commands)	13,16,18,19,21	
	Decision making; Multiple cases	25	
	Iternations, nested loops with decision structures	13,23,24	
	Logic flow control (repeat until, wait until…)	18,19,21,24	
	Operators; relational operators; operator precedence	15,18,19,20,21,24	
	Variables; lists, arrays		
	Time, Timers		
	Events; sending receiving messages	15,20	
	Multi-tasking	20	
	Structured code design: my blocks, functions, parameters		
	Data logging; Data file handling; Data Graphing & visualization		
	Using random numbers	14	
	Comments		
	Data formatting to display		
	Debugging & testing; Know-hows; Tips	12	
	Others: WeDo 2.0 kit specific; Scratch 3 specific	1,2,12,13	
Mathematics	Counting		
	Unit conversions		
	Ratios, Proportions, Scale		
	Math functions: Power, Square root, etc.		
	Data Analysis: Min/Max, Average, Median, Mode		
	Logic: Boolean logic, Propositional Logic		
	Length, Perimeter, Area, Volume		
	Circles: Radius, Diameter, Circumference		
	Angles, Radian		
	Pythagoras theorem		
	Trigonometry		
	Others:		
Science & Engineering	Basic kinematics: Motion, Displacement, Speed, Velocity, Acceleration	16,22,23	
	Momentum		
	Friction	5	
	Force; Laws of Motion		
	Gears: Reduction, Ratio, Speed, Torque (rotational force), Types	6,10,11,23	
	Simple Machines: Lever, Wheel & Axle, Pulley, etc.	6,8,9,17	
	Center of gravity		
	Sensor: types, modes (raw or %), units (rotations or degrees), calibration	3,4,25	
	Others: piston	7	
Basic robotics tasks	Sensor value monitoring; Use of various sensor data	18,19,20,21,24,25	
	Turning & spining a certain angle; Steering		
	Go straight forward exactly a certain distance or target location; Navigation		
	Line following		
	Object detection & avoidance	18,19,20,21	
	Object manipulation		
	Others:		