**iCREAT I: Module 6 - Arduino Programming using DC Motors, Servos, and Motor Controller Shield**

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# Objectives

* Learn how to control a [DC motor](http://www.electrical4u.com/dc-motor-or-direct-current-motor/) using an Arduino microcontroller.
* Learn how to control the position of a [servo motor](http://en.wikipedia.org/wiki/Servo_motor#RC_servos) with an Arduino and a potentiometer.
* Learn how to change direction (sweep) back and forth using a servo motor.
* Learn how to generate random numbers.
* Learn how to install and use an Arduino motor shield.

# Activities

* Practice how to combine DC motors with other electronic equipment.
* Get familiar with [**Adafruit Motor Shield**](https://www.adafruit.com/product/81) V1.0.
* Get familiar with the full documentation for the “[***Adafruit Motor Shield***](https://cdn-learn.adafruit.com/downloads/pdf/adafruit-motor-shield.pdf)”.
* Practice with the Adafruit motor shield to control a servo, and 2 DC motors.

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|  | **Topic** | **Activities** | **Faculty** |
| **Module 6** | | | |
| 1 | **How to control a Servo Motor using an Arduino** | Present: **iCREAT I - Module 6 - Coding with Arduino IV** |  |
| 2 | **LAB** | **LAB 1**: **iCREAT I - Module 6 - LAB 1-Arduino Servo Motors** |  |
| 3 | **How to control a Motor Controller Shield using an Arduino** | Present: **iCREAT I - Module 6 - Arduino V** |  |
| 4 | **LAB** | **LAB 2**: **iCREAT I - Module 6 - LAB 2-Arduino Motor Shield** |  |
| 5 | **To prepare for the next Module, watch videos and take notes** | **Videos for Module 7: Study Arduino Motors Shield and Collision Avoidance Algorithms** |  |