

Python Syntax Quick Reference for On-Ramp to Robotics Unit 1: Motion with Mars Rover Challenge

TI-NSPIRE™ CXII PYTHON

Python Statement	Example	Behavior
<code>import module_name as name_space</code>	<code>import ti_rover as rv</code>	Required for all TI Rover Python programs. Imports the ti_rover module into the Python program. The module provides the methods for controlling the Rover.
<code>from module_name import *</code>	<code>from time import *</code>	Imports all the functions in the time module for use in the program. The time module includes the sleep() method. The import time statement is available from the More Modules Time menu.
<code>rv.motor_right (+/- power, time)</code> <code>rv.motor_left (+/- power, time)</code>	<code>rv.motor.left(75,5)</code>	Left motor spins slowly clockwise for 5 seconds Motor functions are found on the Rover Outputs menu. Motor power values range from 0 (off) to 255 (maximum). The sign of the power value determines the direction of the motor. Positive values spin clockwise and negative values spin counter-clockwise.
<code>rv.motors("left wheel direction", left wheel power, "right wheel direction", right wheel power, time)</code>	<code>rv.motors("CCW" ,200," CW" ,200, 10)</code>	Both motors spin and Rover moves forward for 10 seconds Motor functions are found on the Rover Outputs menu. Motor power values range from 0 (off) to 255 (maximum). Wheel directions are "CCW" (counter-clockwise) and "CW" (clockwise). The rv.motors() function send signals to control both left and right motors at the same time.
<code>rv.forward(distance, "unit")</code>	<code>rv.forward(1.2, "m")</code>	Rover drives forward 1.2 M at default speed of .20 M/S ** The rv.forward(distance,"unit") function is found on the Rover Drive with Options menu. Unit options are "grid units" (10 centimeters is the default), "m" (meters) and "revs" (wheel revolutions).
<code>rv.forward_time(time duration in seconds)</code>	<code>rv.forward_time(4.5)</code>	Rover drives forward for 4.5 seconds at default speed of .20 M/S ** The rv.forward_time(time duration) function is found on the Rover Drive with Options menu.
<code>rv.backward(distance, "unit")</code>	<code>rv.backward(1.2, "m")</code>	Rover drives backward 1.2 M at default speed of .20 M/S ** The rv.backward(distance,"unit") function is found on the Rover Drive with Options menu. Unit options are "grid units" (10 centimeters is the default), "m" (meters) and "revs" (wheel revolutions).
<code>rv.right (angle_degrees)</code> <code>rv.left (angle_degrees)</code>	<code>rv.right()</code> <code>rv.right(45)</code>	Rover spins to the right 90 degrees (If no value is entered for angle_degrees, rv.right() and rv.left() use the default value of 90), followed by a spin of another 45 degrees to the right. To input rv.right without and angle value: choose rv.right(angle) from the Rover Drive menu, then press delete, then right arrow, then enter to move to the next line. For angle units other than degrees, use rv.right(angle,"unit") from the Drive with Options menu. The choices for angle units are degrees, radians and gradians.
<code>print(value or "text string")</code>	<code>n=3</code> <code>print(n)</code> <code>print("number= ")</code> <code>print("number= ",n)</code>	Prints value of variable n, which is 3; then on the next line prints the text string "number="; finally prints "number=" followed by the value of variable n all on the next line. print() is available from the Built-ins I/O menu.
<code>sleep(seconds)</code>	<code>sleep(1.5)</code>	Pauses program for 1.5 second. The sleep() function can be found on the Rover Commands menu. sleep() is part of the time module. Import the time module in your program before using.

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<pre>for index in range(stop value): block</pre>	<pre>for n in range(10): print(n)</pre>	<p>Repeats the statements in the block ten times, printing the value of the index variable, n, as 0,1,2,...9. The index variable, n, starts at 0 and increases by 1 with each loop. If n is less than the stop value, 10, the loop continues to repeat. The block starts with a colon and includes the indented lines that follow.</p> <p>The for loop statement is found on the Built-ins Control menu.</p>
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* For more on programming Rover with TI-Nspire CXII follow the links to the TI Rover Menu Map: [TI-Nspire™ Python Programming](#) > [Python Menu Map](#) > TI Rover Menu