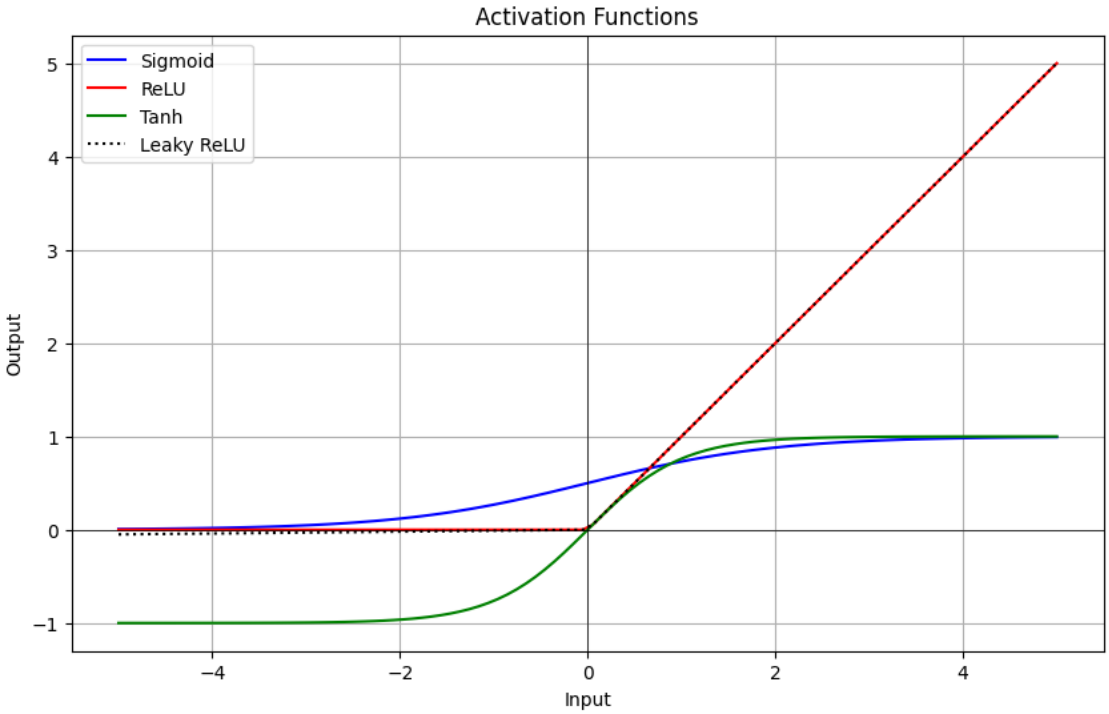
w7nvryjs8

March 31, 2025

0.1 Practical 1

[11]:
```
import numpy as np
import matplotlib.pyplot as plt

def sigmoid(x):
    return 1 / (1 + np.exp(-x))

def relu(x):
    return np.maximum(0, x)

def tanh(x):
    return np.tanh(x)

def leaky_relu(x, alpha=0.01):
    return np.where(x > 0, x, alpha * x)

x = np.linspace(-5, 5, 100)

plt.figure(figsize=(10, 6))

plt.plot(x, sigmoid(x), label='Sigmoid', linestyle='-', color='blue')
plt.plot(x, relu(x), label='ReLU', linestyle='-', color='red')
plt.plot(x, tanh(x), label='Tanh', linestyle='-', color='green')
plt.plot(x, leaky_relu(x), label='Leaky ReLU', linestyle=':', color='black')

plt.title('Activation Functions')
plt.xlabel('Input')
plt.ylabel('Output')
plt.axhline(0, color='black', linewidth=0.5)
plt.axvline(0, color='black', linewidth=0.5)
plt.legend()
plt.grid()
plt.show()
```


Activation Functions
Sigmoid
ReLU
Tanh
Leaky ReLU
Output
Input
5
4
3
2
1
0
−1
−4
−2
0
2
4