```
import numpy as np
import matplotlib.pyplot as plt
from sklearn.linear_model import LogisticRegression
X = np.array([[1], [2], [3], [4], [5], [6], [7], [8]])
y = np.array([0, 0, 0, 0, 1, 1, 1, 1])
model = LogisticRegression()
model.fit(X, y)

test_input = np.array([[4.5]])
prediction = model.predict(test_input)

print(f"Predicted result for 4.5 hours: {'Pass' if prediction[0] == 1 else 'Fail'}")

hours = float(input("Enter hours studied: "))
pred = model.predict([[hours]])
print("Prediction:", "Pass" if pred[0] == 1 else "Fail")

plt.scatter(X, y, color='blue', label='Actual Results')
plt.xlabel('Hours Studied')
plt.ylabel('Result (0 = Fail, 1 = Pass)')
plt.title('Hours Studied vs Result')

x_range = np.linspace(0, 10, 100).reshape(-1, 1)
y_probs = model.predict_proba(x_range)[:, 1]
plt.plot(x_range, y_probs, color='red', label='Logistic Regression Curve')

plt.legend()
plt.grid(True)
plt.show()
```

```
Predicted result for 4.5 hours: Fail
Enter hours studied: 7
Prediction: Pass
```