



## **Course Objective and Outcome Form**

Department of Electrical and Computer Engineering

School of Engineering and Physical Sciences

North South University, Bashundhara, Dhaka-1229, Bangladesh

---

- 1. Course Number and Title:** CSE 465 Pattern Recognition and Neural Network
- 2. Number of Credits:** 03
- 3. Type:** Core
- 4. Prerequisites:** CSE 373
- 5. Faculty Name:** Dr. Sifat Momen (SfM1)
- 6. Room:** SAC 918
- 7. Office Hours:** TBA ( Check my door)
- 8. Email:** [sifat.momen@northsouth.edu](mailto:sifat.momen@northsouth.edu)
- 9. Contact Hours:** Lectures – 3 Hours/week

### **10. Course Summary:**

The course will cover topics such as supervised learning, unsupervised learning mainly in the context of neural networks. We will cover techniques, mainly popularised in the last few years, for neural network training and aim to give students an appreciation for the machine learning process involving this class of models.

### **11. Resources**

Text books:

- <https://www.deeplearningbook.org/>
- <http://neuralnetworksanddeeplearning.com/>

(You will be expected to read a lot of academic papers)

### **12. Topics:**

- a. Supervised/Unsupervised Learning, Data, Dataset partitions, metrics
- b. Regression, loss function, gradient descent
- c. Classification, entropy, KL divergence, cross entropy
- d. Neural Networks
- e. Convolutional Neural Networks
- f. Recurrent Neural Networks

- g. Autoencoders
- h. Generative Adversarial Networks
- i. Siamese networks
- j. Many other possible topics if time permits

### **13. Weightage Distribution among Assessment Tools**

Assessment Tools	Weightage (%)
Quizzes	10
Project	30
Final Exam	30
Midterm Exam	30
	100

**14. Grading policy:** As per NSU grading policy available in  
<http://www.northsouth.edu/academic/grading-policy.html>