

Course Outline

Dr. Md. Zahurul Haq

Professor
Department of Mechanical Engineering
Bangladesh University of Engineering & Technology (BUET)
Dhaka-1000, Bangladesh
<http://zahurul.buet.ac.bd/>



ME 361: Instrumentation and Measuremen

<http://zahurul.buet.ac.bd/ME361/>



ME 361: Syllabus

[3.00 Credit Hours]

Basic principles of measurements; Characterisation and behaviour of typical measuring systems; Different types of sensing elements; Measuring, transmission and recording methods; Measurement of displacement, pressure, temperature, heat flux, flow, motion and vibration, force, torque and strain; Data acquisition and processing.



Tentative Lecture Plan

SL. No.	Topic	No. Lectures
1.	Basic Principles of Measurements	2
2.	Response of Measuring Systems, System Dynamics	5
3.	Error & Uncertainty Analysis	2
4.	Measurement of Temperature & Heat Flux	4
5.	Sensors & Transducers	
6.	Basic Electronics, Signal Processing	
7.	Data Acquisition, Processing, Transmission & Recording	
8.	Measurement of Displacement, Force, Torque & Strain	
9.	Measurement of Pressure	
10.	Measurement of Fluid Flow	
11.	Measurement of Motion & Vibration	

⊗ Topics 5-11 (2 cr. hr.) will be covered by Prof. Dr. Mohammad Mamun.



References

- Haq, M. Z., *Measurement: System, Uncertainty and Response, Applied Measurement Systems*, Prof. Zahurul Haq (Ed.), InTech.
- Figliola, R.S. & Beasley, D.E., *Theory & Design for Mechanical Measurements*, J. Wiley & Sons, Inc.
- Halman, J.P., *Experimental Methods for Engineers*, McGraw-Hill, Inc.
- Beckwith, T.G., Marangoni, R.D. & Lienhard, J.H., *Mechanical Measurements*, Addison Wesley, Inc.

