
MEP 655 Thermal Experimental Techniques (3 Cr. Hrs)

1-Catalogue description

Basic concepts. Review of conventional measuring techniques. Uncertainty analysis. Analysis of experimental data. Modern data acquisition systems. New trends in thermal measurements, Experiments on thermal engineering applications

2. Textbook

Theory and design of Measurement systems, by R. Figliola and D. Beasley, John Wiley & sons, 6th edition, 2015.

3-Topics and timetable

No.	Topic	Duration	Chapters & Remarks
1	Review of basic measurement system	1	Ch.1
2	Static and Dynamic characteristic of signals	1	Ch. 2
3	Measurement system behavior	1.5	Ch. 3
4	Probability and statistics	1	Ch. 4
5	Uncertainty Analysis	1.5	Ch. 5
6	Temperature measurements	2	Ch. 8
7	Pressure and velocity measurement	2	Ch. 9
8	Flow measurements	2	Ch. 10
9	Data Acquisition system	1	Ch. 6 & Ch. 7
10	Strain measurements	1.5	Ch. 11
11	Mechatronics: Sensors, Actuators, and Control. (Force, torque and RPM measurements)	1	Ch.12
5	New trends in Thermal measurements, Experimental design, Application for thermal measurements	1	Handouts and internet search

4-Grading

No	Assessment method	Grade	Remarks
1	Quizzes	20	
2	Mid term	20	
3	Final	30	
4	Term project	10	
5	Experiments lab. reports	10	
6	HW & term papers	10	

5-Meeting times

Students are encouraged to attend MEP365 course lectures and lab sessions. (MEP365 meeting times are Sun. & Tue. from 11:00 to 12:20 and Thu. from 11:00-12:50). Official class time for MEP655 is Mon. and Wed. (8:00-9:20 PM)

6.Additinal references

1. Holman J.P., **Experimental Methods for Engineers**, Seventh Edition, McGraw-Hill, 7th Edition, 2001.
2. Beckwith, T. G., R. D., Marangoni, J. H. Lienhard V, **Mechanical Measurements**, 6th edition, Pearson Publication, 2011.
3. Doebelin, E. O., **Measurement systems: Application and Design**, McGraw-Hill, 4th edition, 1990.
4. Venkateshan, V. S., Mechanical Measurements, 2nd edition, Wiley & Sons, 2015.

7-Instructor

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