SMR 407: MICROMTEROLOGY AND AIR POLLUTION
STUDY GUIDE

1. Course Unit Summary

This unit is designed to be an advanced course for learners taking undergraduate program in Education, Science, Agriculture, Meteorology, Atmospheric Science, Environmental science and others. The unit covers two branches of meteorology, namely: Micrometeorology and Air Pollution. It covers the definitions and explanations of the fundamental and advanced concepts of these two branches of meteorology

2. General Course Unit Objectives

This unit has been prepared with the following general objectives in mind to;

- Develop in you the needed knowledge and skills in fundamentals of the two branches of Meteorology
- Introduce you to the various concepts and techniques used in the two branches of meteorology
- Enable you acquire knowledge in the constraints, issues and factors that affect the development of the two fields of meteorology
- To develop in you an understanding of the relationship between micrometeorology and air pollution
- Equip you with the knowledge in the methods, techniques and problems associated with air pollution monitoring, forecasting, assessment, control and management

3. Course Unit Outcomes

By the end of this unit, the student should be able to:

- Evaluate various aspects of turbulence
- Synthesize vertical wind profile in the surface layer
- Quantify atmospheric mixing
- Characterize turbulence and atmospheric vertical temperature profile interactions
- Perform micrometeorological modeling
- Discuss air pollution fundamentals
- Examine air pollution transport, dispersion and transformation
- Audit air pollution sinks
- Characterize global pollution
- Perform air pollution modeling
- Evaluate National and International air quality policies

4. Selected Resources & references

- Holton, J. R: An Introduction to Dynamic Meteorology, 2nd ed., Academic Press, New York, 1979.
- Seinfeld, J. H., and S. N. Pandis, Atmospheric Chemistry and Physics, Wiley, New York, 1998
- Jacobson, M. Z., Fundamentals of Atmospheric Modeling, Cambridge University Press, Cambridge, 1998
- Warker, K. and C. F. Warner, 1976: Air Pollution-Its origin and control. Harper and Row Publishers Inc., New York
- Bruel and Kjaer: Environmental noise booklet, 2000> Sound and Vibration measurements A/S
- Intergovernmental Panel on Climate Change, 1994, Cambridge University Press, 1995. Increase in greenhouse gases, radiative forcing

5. Lecturers

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