

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
PHY-417	METEOROLOGY AND CLIMATOLOGY-I (THEORY)	3	VII
Year	Discipline		
4	Physics		

Course Outlines:

Synoptic Meteorology: Composition & structure of atmosphere, ICAO standard atmosphere, Weather elements, Air mass classification, Thermodynamic characteristics, General Circulation.

Atmospheric thermodynamics, First law of thermodynamics and enthalpy, adiabatic processes and potential temperature, The second law of thermodynamics, entropy, thermodynamics of water vapour and moist air, thermodynamic properties of the water substance, phase transition of water, water vapour and moist air, Clausius-Clapeyron's equation, Aerological diagrams, selection of coordinates, choice of diagram, analysis of tephigram.

Methods of Surface Observations & Codes: Reading of routine observations, barometric corrections & reduction, reading, setting & maintenance of thermometers, surface codes, Aeronautical codes (Speci&Metar)

Books Recommended:

1. *Hand Book Of Applied Meteorology* by Houghton (Publisher: Wiley), 1st Edition, 1985.
2. *Atmospheric Chemistry & Global Change* by Guy. P. Brasseur (Publisher: Oxford), 1st Edition, 1999.
3. *Statistical Analysis In Climate Research* by Hans Vonstorch (Publisher: Cambridge), 1st Edition, 2001.
4. *Meteorology* by Moran Morgan (Publisher: MacMillan), 3rd Edition, 1991.
5. *Climatology* by OlixerHidore (Publisher: Merrill), 1st Edition, 1984.
6. *Dynamical & Physical Meteorology* by Haltiner& Martin (Publisher: McGraw Hill), 1st Edition, 1957.
7. *Tropical Meteorology* by Carlson (Publisher: The Pennsylvania State University), 1st Edition, 1981.
8. *The Atmosphere* by Frederick K. Lutgens (Publisher: Prentice Hall), International Edition, 1998.
9. *The Status of Climate Variation In Pakistan & Its Impact* by SMRC.No.10 SAARC Met. Research Centre, 1st Edition, 2004.
10. *Atmospheric Physics* by J.V.Irinarne (Publisher: D.Reidel Pub. Co.), 1st Edition, 1980.
11. *Applied Climatology* by Russell D. Thompson (Publisher: Routledge), 1st Edition, 1997.
12. *Essentials of Meteorology* by C. Donald Ahrens (Publisher: Brooks/Cole), 3rd Edition, 2001.
13. *Atmospheric Science* by John M. Wallace (Publisher: Academic Press), 1st Edition, 1997.