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(Accredited by NAAC with Grade A+)

GU/Acad –PG/BoS - CDT /2025-26/738 Date: 30/01/2026

CIRCULAR

The approved syllabus of the Change of Discipline Test (CDT) for **Master of Science in Atmospheric Sciences** Programme is attached.

The Dean/Vice-Dean (Academic) of the School of Earth, Ocean and Atmospheric Sciences and the Principals of all the affiliated Colleges are requested to take note of the above and bring the contents of this Circular to the notice of all concerned, including students aspiring to pursue the Master's Programmes.

ASHWIN V LAWANDE
Digitally signed by ASHWIN V LAWANDE
Date: 2026.01.30 10:46:29 +05'30'

(Ashwin V. Lawande)
Deputy Registrar – Academic

To,
1. The Dean, School of Earth, Ocean and Atmospheric Sciences, Goa University.
2. The Vice-Dean (Academic), School of Earth, Ocean and Atmospheric Sciences, Goa University.
3. Principals of all the affiliated Colleges.

Copy to:
1. Controller of Examinations, Goa University.
2. Assistant Registrar (Admissions), Goa University.
3. Assistant Registrar Examinations (UG/PG), Goa University.
4. Director, Directorate of Internal Quality Assurance, Goa University for uploading the Syllabus on the University website.

GOA UNIVERSITY

SYLLABUS FOR CHANGE OF DISCIPLINE TEST (CDT)
FOR MASTER OF SCIENCE IN ATMOSPHERIC SCIENCES PROGRAMME

Effective from AY: 2026-2027

Modules	Content
Module 1:	**Fundamentals of Physics and Atmospheric Processes**
	Basic concepts of measurement, units, dimensions, and motion; Newton's laws, force, work, energy and power; laws of thermodynamics, heat transfer and conservation of energy; properties of matter and fluids; pressure, density, buoyancy and Bernoulli's principle; reflection, refraction and scattering of light; sound, waves and resonance; introduction to electricity, magnetism and electromagnetic spectrum; radiation and energy balance of the Earth; fundamentals of weather, pressure systems, and temperature variation with height.
Module 2:	**Basic Mathematics and Quantitative Aptitude**
	Arithmetic operations, ratio and proportion, percentages, averages, simple and compound interest, profit and loss; algebraic expressions, linear and quadratic equations; coordinate geometry, basic trigonometric ratios and identities; concept of functions and graphs; logarithms and exponents; sequences and series; vectors and elementary calculus (limits, differentiation, integration, and their simple applications in physical systems); understanding of area under curve and basic geometry of space.
Module 3:	**Statistics, Data Interpretation, and Logical Reasoning**
	Types of data, population and sample, frequency distribution, mean, median, mode, range, variance and standard deviation; correlation and regression; basic probability concepts; graphical presentation of data using bar chart, pie chart and histogram; interpretation of tables and graphs; logical reasoning and analytical aptitude including series, analogy, coding-decoding, syllogism, direction sense, number puzzles, and pattern recognition; scientific reasoning and critical thinking in everyday contexts.
Module 4:	**Basics of Computer Applications and Information Technology**
	Introduction to computers: hardware, software, input–output devices; operating systems and file management; basics of word processing, spreadsheets and presentation tools; fundamentals of programming logic and algorithms; overview of numerical computation, flowcharts and pseudo-code; introduction to data types and variables; use of internet,

	databases and cloud storage; awareness of online mapping, GIS interfaces and satellite data portals; basics of scientific computing and visualization.
Module 5:	**Environmental and Earth System Awareness**
	Structure of the Earth and atmosphere; weather and climate, hydrological and carbon cycles; natural resources, i.e., air, water, soil and energy; ecosystems and biodiversity; human impact on environment: pollution, deforestation and climate change; sustainable development and environmental management; renewable and non-renewable energy; global environmental issues and conventions (UNFCCC, IPCC, SDGs); Indian environmental concerns, monsoon variability, coastal processes, and disaster awareness (floods, cyclones, heat waves).
References/ Readings:	1. Hewitt, P. G. (2015). Conceptual Physics (12th ed.). Pearson Education. ISBN 9780134089021 2. Stroud, K. A., & Booth, D. J. (2013). Engineering Mathematics (7th ed.). Palgrave Macmillan. ISBN 9781137031204 3. Spiegel, M. R., Schiller, J., & Srinivasan, R. A. (2018). Schaum's Outline of Probability and Statistics (4th ed.). McGraw-Hill Education. ISBN 9781260011477 4. Balagurusamy, E. (2019). Programming in ANSI C (8th ed.). McGraw-Hill Education (India). ISBN 9789353165131 5. Cunningham, W. P., & Cunningham, M. A. (2021). Environmental Science: A Global Concern (15th ed.). McGraw-Hill Education. ISBN 9781260720805 6. Miller, G. T., & Spoolman, S. E. (2022). Living in the Environment (20th ed.). Cengage Learning. ISBN 9780357142209 7. National Council of Educational Research and Training (NCERT). (2019). Physics: Textbook for Class XI and XII. NCERT Publications, Government of India. ISBN 9789350073712 8. National Institute of Open Schooling (NIOS). (2016). Introduction to Computer Science (Senior Secondary Course). NIOS. ISBN 9788189926068 9. Gibilisco, S. (2002). Physics Demystified. McGraw-Hill Education. ISBN 9780071382010 10. Intergovernmental Panel on Climate Change (IPCC). (2021). Climate Change 2021: The Physical Science Basis. Cambridge University Press. DOI: 10.1017/9781009157896