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(Accredited by NAAC with Grade A+)

GU/Acad –PG/BoS - GU-ART /2025-26/686 Date: 09.01.2026

CIRCULAR

The syllabus of the Goa University–Admission Ranking Test (GU-ART) for **Master of Computer Applications, Master of Science in Artificial Intelligence** and **Master of Science in Data Science** Programmes, approved by the Standing Committee of the Academic Council in its meeting held on 24th & 25th November 2025 is attached.

The Dean/Vice-Dean (Academic) of the Goa Business School 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: 2026.01.09 12:30:47 +05'30'

(Ashwin V. Lawande)
Deputy Registrar – Academic

To,
1. The Dean, Goa Business School, Goa University.
2. The Vice-Dean (Academic), Goa Business School, 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 GOA UNIVERSITY-ADMISSIONS RANKING TEST (GU-ART) FOR MASTER OF COMPUTER APPLICATIONS (MCA), MASTER OF SCIENCE IN ARTIFICIAL INTELLIGENCE (M.Sc. AI) & MASTER OF SCIENCE IN DATA SCIENCE (M.Sc. DS) PROGRAMMES

Effective from AY: 2026-27

Modules	Content
Module 1:	Series, Relationships, Classification, Coding, Permutations and Combinations and Inference, Calendar and Clock Problems, Blood relations, Direction Sense Test, Fraction, Ratio, Proportion and Percentage, Profit and Loss, Interest and Discounting, Averages, Time, Speed, and Distance, Time and Work etc.
Module 2:	Set Theory, Probability and Statistics, Logarithms, Geometric and Harmonic progressions, Determinants and Matrices, Coordinate Geometry & Applications. Basic Calculus: Limit of functions, continuous function, differentiation of function, Integration and their applications. Trigonometry & applications. Vectors: Concepts of vectors & vector algebra, applications of Vectors. Fundamentals of logic, Relations and Functions, Counting Techniques: Basics of Counting, Pigeonhole Principle, Recurrence relations, Graphs: Basic concepts of Graph and its applications. Introduction to trees, Applications of trees, Boolean Algebra and Circuits.
Module 3:	**Programming and Basic Data Structures** Introduction to Algorithms, Flow charts, Assembly language and high-level language, Programming in C: Tokens, Identifiers, Data Types, Sequence Control, Subprogram Control, Arrays, Structures, Functions. Data Structures: Abstract data types, stacks, queues, Singly Linked Lists. Basic sorting algorithms: bubble sort, selection sort, insertion sort **Computer Organization & Architecture and Operating Systems** Basic functional blocks of a computer, Number Systems, Conversion & Arithmetic, Complements.

Approved by: Standing Committee of the Academic Council on 24th & 25th November 2025

	Introduction to Operating Systems, Structure and Basic functions, types of OS, Operating System Services **Application development** Internet and WWW Architecture, The Web browsers, HTML, Structural & formatting tags, Page elements, Tables, forms.
References/ Readings:	1. Aggarwal, R. S. (2021). *A modern approach to logical reasoning*. S. Chand Publishing. 2. Deo, N. (1974). *Graph theory with applications to engineering and computer science*. Prentice-Hall. 3. Mano, M. M. (2017). *Computer system architecture* (3rd ed.). Pearson Education. 4. Silberschatz, A., Galvin, P. B., & Gagne, G. (2018). *Operating system concepts* (10th ed.). Wiley. 5. Stallings, W. (2021). *Computer organization and architecture: Designing for performance* (11th ed.). Pearson. 6. Strang, G. (2016). *Calculus*. Wellesley-Cambridge Press. 7. Tanenbaum, A. S. (1997). *Data structures using C*. Prentice-Hall. 8. Sebesta, R. W. (2014). Programming the world wide web. Pearson Education. 9. NPTEL. (n.d.). Programming and Data Structures. IIT Kharagpur. Retrieved October 9, 2025, from https://nptel.ac.in/courses/106105085 10. NPTEL. (n.d.). Computer Organization. IIT Madras. Retrieved October 9, 2025, from https://nptel.ac.in/courses/106106092 11. NPTEL. (n.d.). Operating System Fundamentals. IIT Kharagpur. Retrieved October 9, 2025, from https://nptel.ac.in/courses/106105214 12. NPTEL. (n.d.). Discrete Mathematical Structures. IIT Madras. Retrieved October 9, 2025, from https://nptel.ac.in/courses/106106094 13. Amigoscode. (2020, April 26). Learn HTML5 and CSS3 From Scratch – Full Course [Video]. YouTube. Retrieved October 9, 2025, from https://www.youtube.com/watch?v=mU6anWqZJcc

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