

Kerala University of Digital Sciences, Innovation and Technology

(Digital University Kerala)



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About the University

To steer Kerala into a leadership role in the emerging knowledge economy, the Government of Kerala established “Kerala University of Digital Sciences, Innovation and Technology” in 2020 by upgrading Indian Institute of Information Technology and Management-Kerala, IIITM-K. Digital University Kerala (DUK) is recognized under Section 2(f) of the University Grants Commission (UGC) Act, 1956.

The University strives to be an international benchmark in conducting cutting-edge research and nurturing budding minds in the center for promoting and implementing modern technological interventions in disruptive technologies. The University aims to create capacity building at post-graduate and doctoral levels in the areas of Artificial Intelligence and Natural Language Processing, Internet of Things, Electronic Systems and Automation, Imaging Technologies, Data Analytics and Big Data, Cybersecurity, Blockchain, Ecological Informatics, Geospatial Analytics, Applied Materials etc. State-of-the-art labs with professional training programs, consultancy, and implementation solutions to support the government will continue for the benefit of society.

Vision

The vision of the University is to become a global destination of repute in Digital Education and Research and to become an academic leader by nurturing futuristic talents capable of developing innovative and sustainable solutions for the industry, Governments, and society at large.

Mission

The motto of the University is to ‘Curate a Responsible Digital World.’ The development and application of Digital Technologies for social good is the underlying mission of the University. Towards this, the University shall focus on four themes of action, namely Computing, Intelligence, Sustainability, and Entrepreneurship; the first two themes shall form the focus area of work, and the next two themes act as guiding light for the overall mission while designing programs, developing products and services as well as for providing training and extension activities. The University shall catalyze technical advances that promote the welfare of society.

Campuses

- Technocity Campus (Technopark Phase IV), Thiruvananthapuram, Kerala 695317
- IIITMK New Campus, Technopark Campus, Thiruvananthapuram, Kerala 695581

Academic Programmes

The University is conducting the following academic programmes in five schools, namely Schools of Computer Science & Engineering (SoCSE), School of Digital Humanities and Liberal Arts (SoDiHLA), School of Digital Sciences (SoDS), School of Electronic Systems and Automation (SoESA) and School of Informatics (SoI)

AICTE Approved M.Tech. & MBA Programmes

M.Tech. Computer Science and Engineering

The programme offered by the School of Computer Science and Engineering (SoCSE) in three specializations:

- Artificial Intelligence
- Connected Systems and Intelligence
- Cybersecurity Engineering

Candidates must hold any of the following qualifications with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms):

- A four-year Bachelor's degree in CS/IT/ECE/allied areas or
- A three-year undergraduate degree followed by a two-year postgraduate degree or five-year integrated Master's degree in Computer Applications/Computer Science/Information Technology/ Mathematics/ Statistics/ Physics

M.Tech. Electronics Engineering

The programme offered by the School of Electronic Systems and Automation (SoESA) in three specializations:

- AI Hardware
- IoT & Robotics
- VLSI Design

Candidates must hold any of the following qualifications with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms):

- A four-year Bachelor's degree in EE/ECE/AEI/EI/Robotics or equivalent electronics hardware branches or
- A 3-year undergraduate degree followed by a 2-year postgraduate degree or 5-year integrated Master's degree in Electronics/Instrumentation or equivalent.

Master of Business Administration

The School of Digital Humanities and Liberal Arts (SoDiHLA) offers a two-year MBA in the following areas of specialization: Business Analytics, Digital Governance, Digital Transformation, Finance, Human Resources, Information Security Management, Marketing, Operations, Systems, Technology Management

Candidates must possess a valid entrance examination score approved by the University (CUET(PG), CAT, CMAT, KMAT, XAT, NMAT, GRE, DUAT) and a Bachelor's degree with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms).

Additionally, for the MBA batch for Working Professionals, if offered, a minimum relevant industry experience of 2 years is required.

M.Sc. Programmes

1. M.Sc. Applied Physics

The programme is offered in the School of Electronic Systems and Automation in two specializations.

- VLSI Design
- Applied Materials

Candidates must possess either a 3-year or a 4-year Bachelor's degree in science/engineering/mathematics with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms).

2. M.Sc. Computer Science with specialization in Artificial Intelligence

The programme is offered in the School of Computer Science and Engineering.

Candidates must possess either a 3-year or a 4-year Bachelor's degree with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms).

3. M.Sc. Computer Science with specialization in Cybersecurity

The programme is offered in the School of Computer Science and Engineering.

Candidates must possess either a 3-year or a 4-year Bachelor's degree with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms).

4. M.Sc. Computer Science with specialization in Data Analytics

The programme is offered in the School of Digital Sciences.

Candidates must possess either a 3-year or a 4-year Bachelor's degree in Science/Engineering/Mathematics, with Mathematics/Statistics as one of the subjects, and a minimum aggregate of 60% marks (or equivalent). Relaxation in marks will be provided for reserved categories as per University norms.

5. M.Sc. Data Analytics and Computational Science

The programme is offered in the School of Digital Sciences.

Candidates must possess either a 3-year or a 4-year Bachelor's degree in Science/Engineering/Mathematics, with Mathematics/Statistics as one of the subjects, and a minimum aggregate of 60% marks (or equivalent). Relaxation in marks will be provided for reserved categories as per University norms.

6. M.Sc. Data Science and Bio-AI

The programme offered in the School of Digital Sciences.

Candidates must possess either a 3-year or a 4-year bachelor's degree in Science/Engineering/Mathematics with a minimum aggregate of 60% marks (or equivalent). Relaxation in marks will be provided for reserved categories as per University norms.

7. M.Sc. Data Science and Geoinformatics

The programme offered in the School of Digital Sciences.

Candidates must possess either a 3-year or a 4-year bachelor's degree in Science/Engineering/Mathematics with a minimum aggregate of 60% marks (or

equivalent). Relaxation in marks will be provided for reserved categories as per University norms.

8. M.Sc. Ecology with specialization in Ecological Informatics

The programme is offered in the School of Informatics.

Candidates must possess either a 3-year or a 4-year Bachelor's degree with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms).

9. M.Sc. Electronics

The programme is offered at the School of Electronic Systems and Automation, where it has the following specializations.

- AI Hardware
- IoT & Robotics
- VLSI Design

Candidates must possess either a 3-year or a 4-year Bachelor's degree in science/engineering/mathematics with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms).

10. M.Sc. Environmental Science

The programme is offered in the School of Informatics.

Candidates must possess either a 3-year or a 4-year Bachelor's degree with a minimum aggregate of 60% marks (or equivalent, with relaxation for reserved categories as per University norms).

Doctor of Philosophy

Full-time regular, Part-time regular and Industry regular Ph.D. is offered in all five schools viz- School of Computer Science and Engineering, School of Electronic Systems and Automation, School of Digital Sciences, School of Digital Humanities and Liberal Arts and School of Informatics.

For the General category candidates, a 2-year (or more) Master's degree with 60% marks or an M.Phil. degree with 60% coursework marks in a discipline relevant to the school the

candidate is applying is required. SC/ST/OEC/OBC (non-creamy layer)/ differently-abled/ Economically weaker section candidates have the same criteria as the General category candidates, except they need only 55% marks.

The candidates who have appeared for the final examinations are also eligible to apply if their aggregate marks until then are equal to or above the minimum required marks. If admitted to the Ph.D. program, they must meet the eligibility criteria by the date specified by the University.

Part-time and Industry Regular Ph.D. applicants must have a full-time job with at least 5 years of relevant full-time work experience after their Bachelor's degree. To apply to the Industry Regular Ph.D. program, the applicant should be a full-time employee of the industry at the time of application.

Minimum Eligibility for Postgraduate Programme- Clarifications

A minimum of 60% marks in the qualifying degree (e.g., Bachelor's degree) or a CGPA of 6.5 or higher on a 10-point scale is required for eligibility. Please note that marks will not be rounded to meet the minimum criteria.

Applicants with a CGPA below 6.5 may still be eligible if their university's conversion criteria translate the CGPA to a 60% or higher percentage equivalent. In such cases, candidates must provide an official document or certificate from their university detailing the conversion methodology at the time of admission.

Relaxation for Reserved Categories:

Candidates belonging to Scheduled Caste (SC), Scheduled Tribe (ST), and Persons with Disability (PWD) categories are eligible to apply if they have secured the minimum passing marks in their qualifying degree.

Candidates belonging to the Other Backward Classes - Non-Creamy Layer (SEBC-NCL) category of Kerala state can avail of a 5% relaxation in the minimum mark requirement, provided they have passed the qualifying exam.

Final Year/Semester Students:

Students who have appeared for (or are currently appearing for) their final year/semester exams can also apply as long as they meet these two conditions:

They appear for all final year/semester exams for the first time (no re-appearances) and have passed all previous exams before the final year/semester.

Verification of Documents:

Selected candidates must submit original documents like mark sheets, degree/provisional degree certificates, and migration certificates within a specific timeframe set by the university. Failure to submit these documents by the deadline may result in being asked to withdraw from the program.

Admission Process

M.Sc.

Applicants for Master of Science (MSc) programs must take one of the following entrance exams:

- Digital University Admission Test (DUAT-2025) conducted by Digital University Kerala.
- Common University Entrance Test (CUET(PG)-2025) conducted by NTA for admission to various postgraduate programs

M.Tech.

Admission to M.Tech. programmes involve two options:

- National Level Exams: Applicants can take the CUET(PG)-2025 or Graduate Aptitude Test in Engineering (GATE) exam.
- School-Specific Admission Procedure: M.Tech. admissions will be based on an online or offline written test, followed by interviews with shortlisted candidates.
- Candidates with a valid GATE score will be directly called for the interview.

MBA

For MBA program, applicants with a valid score in one of the following national-level entrance exams are considered for admission:

- Common University Entrance Test (CUET(PG)-2025) conducted by NTA

- CAT (Common Admission Test) conducted by IIMs
- GRE (Graduate Record Examinations)
- CMAT (Central Management Admission Test)
- KMAT (Kerala Management Aptitude Test)
- XAT (Xavier Aptitude Test)
- NMAT by GMAC (Graduate Management Admission Council) / GMAT

Applicants who qualify through these exams will be shortlisted for a group discussion and an interview.

Ph.D.:

Admission to the Ph.D. program requires appearing for the Digital University Research Aptitude Test (DRAT). However, candidates who have secured a fellowship or scholarship through recognized national-level examinations such as UGC-NET, UGC-CSIR NET, GATE, CEED, or other equivalent tests approved by the University are exempted from appearing for the DRAT.

How to Apply Online

Application portal: <https://duk.ac.in/admission/apply/>

Step 1: Registration

- Provide your Name, Email Id, Mobile number, and the Program/Group you are applying for.
- An email containing login credentials will be sent to the provided email address.
- Use the credentials to log in and proceed to complete the application.

Step 2: Application Details

- Complete the online application, saving your progress after each step.

Step 3: Document Upload

- Candidates must have scanned copies of their photograph, signature, and necessary documents. (Photo of Signature, Photo and Scanned Copy of any ID Card are mandatory)
- Upload the scanned documents as part of the application process.

Step 4: Application Fee Payment

- The final step involves the payment of the application fee, as follows:
 - For candidates applying with CUET-PG or any other approved qualifying examinations: ₹100 for General category candidates and ₹50 for SC/ST/Divyang candidates.
 - For candidates appearing for DUAT: ₹750 for General category candidates and ₹375 for SC/ST/Divyang candidates.
 - The application fee, once remitted, is not refundable.
- Upon successful payment, the application will be automatically submitted, and a confirmation email with a copy of the application will be sent to you.

Important Notes:

- A token fee of ₹10,000 must be paid upon receipt of the offer letter to confirm your seat.
- All information provided should be genuine and accurate. University decisions based on this data are provisional and subject to verification during the selection process.
- Failure to meet eligibility criteria or the detection of false information at any stage may result in the cancellation of candidature and forfeiture of any offers made.
- MSc programs sharing the same DUAT exam are grouped together. Candidates interested in applying to multiple program groups must submit separate applications for each group. This requires creating separate accounts using the same or different email addresses.

For example, the MSc Computer Science/Data Analytics group includes:

MSc in Computer Science with a specialization in Cybersecurity

MSc in Computer Science with a specialization in Artificial Intelligence

MSc in Computer Science with a specialization in Data Analytics

MSc Data Analytics and Computational Science

Candidates will have the option to indicate their preferences for programs within a group.

Important Dates

DUK application portal opens for registration: 31st January 2025

Last date to submit the application: 19th May 2025

DUAT Exam Phase 1: 31st May 2025

DRAT Exam: 7th June 2025

Test Paper Codes

| Degree | Programme | CUET Test Paper Code | DUAT Test paper code |
|---------------|---|---|-----------------------------|
| MBA | Business Administration (Specializations: Business Analytics/ Digital Governance/ Digital Transformation/ Finance/ Human Resources/ Information Security Management/ Marketing Operations Systems/ Technology Management) | COQP12 | DUAT01 |
| M.Tech. | Computer Science and Engineering (specializations: connected systems and intelligence/ artificial intelligence/ cybersecurity engineering) | MTQP04, MTQP05 | NA |
| M.Tech. | Electronics Engineering (Specializations: AI Hardware/ VLSI/ IOT and Robotics) | MTQP05, MTQP09 | NA |
| M.Sc. | Applied Physics (Specializations: Applied Materials/ VLSI) | SCQP18, SCQP24 | DUAT03 |
| M.Sc. | Computer Science with specialization in Artificial Intelligence | SCQP06, SCQP09, SCQP19, SCQP24, SCQP27 | DUAT02 |

| Degree | Programme | CUET Test Paper Code | DUAT Test paper code |
|--------|---|--|----------------------|
| M.Sc. | Computer Science with specialization in Cybersecurity | SCQP06, SCQP09, SCQP19, SCQP24, SCQP27 | DUAT02 |
| M.Sc. | Computer Science with specialization in Data Analytics | SCQP09, SCQP27, SCQP19, SCQP24 | DUAT02 |
| M.Sc. | Data Analytics and Computational Science | SCQP09, SCQP27, SCQP19, SCQP24 | DUAT02 |
| M.Sc. | Data Science and Bio-AI | SCQP09, SCQP17, SCQP03, SCQP05, SCQP06, SCQP07, SCQP08, SCQP28, SCQP25, SCQP27, SCQP24, SCQP19, SCQP01, SCQP02, SCQP22, SCQP23 | DUAT05 |
| M.Sc. | Data Science and Geoinformatics | SCQP09, SCQP14, SCQP15, SCQP11, SCQP26, SCQP27, SCQP24, SCQP19 | DUAT06 |
| M.Sc. | Ecology with specialization in Ecological Informatics | SCQP01, SCQP07, SCQP08, SCQP11, SCQP14, SCQP17, SCQP19, SCQP24, SCQP27, SCQP28, SCQP02 | DUAT04 |
| M.Sc. | Electronics(Specializations: AI Hardware/ VLSI/ IOT and Robotics) | SCQP18, SCQP24 | DUAT03 |
| M.Sc. | Environmental Science (Specializations: Environmental Data Science/ Ecological Informatics/ Ocean and Climate Informatics/ Environmental Communication/ Sustainability Studies) | SCQP01, SCQP02, SCQP07, SCQP08, SCQP09, SCQP11, SCQP14, SCQP15, SCQP16, SCQP17, SCQP19, SCQP24, SCQP27, SCQP28, SCQP29, COQP02, COQP08, COQP10, HUQP08, HUQP22 | DUAT04 |

Digital University Admission Test (DUAT)-2025 Syllabus

Test Code: DUAT01

Programme: Master of Business Administration

General Aptitude (20 Marks)

Verbal Aptitude-Basic English grammar: Tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech. Basic vocabulary: Words, idioms and phrases in context. Narrative sequencing.

Quantitative Aptitude-Data interpretation: Data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables. Numerical computation and estimation: Ratios, percentages, powers, exponents and logarithms, permutations and combinations, summations and series, Mensuration and Geometry. Analytical Aptitude-Logic: Deduction and induction, analogy, numerical relations, and reasoning. Spatial Aptitude-Transformation of shapes: Translation, rotation, scaling, mirroring, assembling, grouping, paper folding, cutting, and patterns in 2 and 3 dimensions.

Mathematics (20 Marks)

Probability, Statistics, Calculus, Discrete Mathematics, basic number theory, algebra

English Reading Comprehension (20 Marks)

Two paragraphs, each having 5-10 questions.

Test Code: DUAT02

Programme: MSc Computer Science with specialization in Data Analytics/Cybersecurity/Artificial Intelligence; MSc Data Analytics and Computational Science

General Aptitude (20 Marks)

Verbal Aptitude-Basic English grammar: Tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech. Basic vocabulary: Words, idioms and phrases in context. Narrative sequencing.

Quantitative Aptitude-Data interpretation: Data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables. Numerical computation and estimation: Ratios, percentages, powers, exponents and logarithms, permutations and combinations, summations and series, Mensuration and Geometry. Analytical Aptitude-Logic: Deduction and induction, analogy, numerical relations, and

reasoning. Spatial Aptitude-Transformation of shapes: Translation, rotation, scaling, mirroring, assembling, grouping, paper folding, cutting, and patterns in 2 and 3 dimensions.

Mathematics (20 Marks)

Set Theory- Concept of sets—Union, Intersection, Cardinality, Elementary counting; permutations and combinations.

Probability and Statistics- Basic concepts of probability theory, Averages, Dependent and independent events, frequency distributions, measures of central tendencies and dispersions.

Algebra-Fundamental operations in algebra, expansions, factorization, simultaneous linear/quadratic equations, indices, logarithms, arithmetic, geometric and harmonic progressions, determinants and matrices.

Coordinate Geometry- Rectangular Cartesian coordinates, distance formulae, equation of a line, and intersection of lines, pair of straight lines, equations of a circle, parabola, ellipse and hyperbola.

Calculus-Limit of functions, continuous function, differentiation of function, tangents and normal, simple examples of maxima and minima. Integration of functions by parts, by substitution and by partial fraction, definite integrals, and applications of definite integrals to areas.

Vectors-Position vector, addition and subtraction of vectors, scalar and vector products and their applications to simple geometrical problems and mechanics.

Trigonometry-Simple identities, trigonometric equations, properties of triangles, solution of triangles, heights and distances, general solutions of trigonometric equations.

Computer Basics (20 Marks)

Organization of a computer, Central Processing Unit (CPU), structure of instructions in CPU, input/output devices, computer memory, and backup devices.

Data Representation: Representation of characters, integers and fractions, binary and hexadecimal representations, binary arithmetic: addition, subtraction, multiplication, division, simple arithmetic and two's complement arithmetic, floating-point representation of numbers, Boolean algebra, truth tables, Venn diagrams.

Test Code: DUAT03

Programme: MSc Electronics, MSc Applied Physics

General Aptitude (20 Marks)

Verbal Aptitude-Basic English grammar: Tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech. Basic vocabulary: Words, idioms and phrases in context. Narrative sequencing.

Quantitative Aptitude-Data interpretation: Data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables. Numerical computation and estimation: Ratios, percentages, powers, exponents and logarithms, permutations and combinations, summations and series, Mensuration and Geometry. Analytical Aptitude-Logic: Deduction and induction, analogy, numerical relations, and reasoning. Spatial Aptitude-Transformation of shapes: Translation, rotation, scaling, mirroring, assembling, grouping, paper folding, cutting, and patterns in 2 and 3 dimensions.

Mathematics (10 Marks)

Linear Algebra: Matrix Algebra, Systems of linear equations, Eigen values, Eigenvectors.

Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Fourier series

Differential equations: First-order equations (linear and nonlinear), Higher-order linear differential equations with constant coefficients, method of variation of parameters, and partial differential equations.

Probability and Statistics: Sampling theorems, Conditional probability, Mean, Median, Mode, Standard Deviation, Random variables, Discrete and Continuous distributions, Poisson distribution, Normal distribution, Binomial distribution, Correlation analysis, Regression analysis

Solid State Physics, Devices, Electronics Circuits (30 Marks)

Crystal structure, Bravais lattices and basis. Miller indices. X-ray diffraction, Bragg's law, Intrinsic and extrinsic semiconductors, and variation of resistivity with temperature.

Failure of classical mechanics, origin of quantum theory, particle nature of waves, De Broglie Wave and Uncertainty Principle, Bohr's Atom model

p-n junction diode, I-V characteristics, diffusion current, drift current, mobility and resistivity, Zener diode and its applications. BJT: characteristics in CB, CE, CC modes. Single stage amplifier, two stages R-C coupled amplifiers. MOS capacitor, MOSFET, LED, photodiode and solar cell

Boolean algebra: Binary number systems; conversion from one system to another system; binary addition and subtraction. Logic Gates: AND, OR, NOT, NAND, NOR exclusive OR; Truth tables; Combination of gates; deMorgan's theorem

Simple DC and AC circuits with R, L and C components. Kirchhoff's Voltage/current Law, superposition, Thevenin's theorem, Norton's theorem, reciprocity, and maximum power transfer. Oscillators: Barkhausen condition, sinusoidal oscillators. OP-AMP Inverting and no inverting amplifier.

Test Code: DUAT04

Programmes: MSc Ecology, MSc Environmental Science

General Aptitude (20 Marks)

Verbal Aptitude-Basic English grammar: Tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech. Basic vocabulary: Words, idioms and phrases in context. Narrative sequencing.

Quantitative Aptitude-Data interpretation: Data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables. Numerical computation and estimation: Ratios, percentages, powers, exponents and logarithms, permutations and combinations, summations and series, Mensuration and Geometry. Analytical Aptitude-Logic: Deduction and induction, analogy, numerical relations, and reasoning. Spatial Aptitude-Transformation of shapes: Translation, rotation, scaling, mirroring, assembling, grouping, paper folding, cutting, and patterns in 2 and 3 dimensions.

Elementary mathematics and computer basics (10 Marks)

Number System, Sets, Functions, Algebra, Geometry, Trigonometry, Matrices and Determinants, Differentiation and Integration, Basic Statistics and Probability.

Fundamentals of computers, operating systems, algorithms, data types, operators, basics of internet, programming languages, software applications

Subject Questions (Undergraduate Level, 30 Marks)

Properties of matter, fundamentals of thermodynamics, equilibrium in physical and chemical processes, law of mass action, fundamentals of environmental physics, Earth's energy budget, atmospheric and terrestrial interaction of electromagnetic radiation, radiation laws, fundamentals of surface chemistry, atmospheric chemistry, water chemistry, geochemistry, and green chemistry; water - physical characteristics, buffering capacity, Essential and trace elements in living systems, Bio-molecules - chemical components of cells, toxicity of heavy metals.

Origin of life, Eukaryotic and prokaryotic cells- structure and function, taxonomy and systematic, anatomy and physiology of plants and animals, reproduction, developmental biology, molecular biology, microbes and their environmental significance, ethology, geological time scale, theories of evolution, speciation, inheritance of variation, mutation, natural selection, and adaptation, biogeography- global pattern of biodiversity, biodiversity of Indian sub-continent, major biomes of the world.

Components of the atmosphere, lithosphere, hydrosphere, and biosphere; organizational levels of the biosphere, Ecosystem: structure and types, population and community, interactions, food chain and energy flow, terrestrial and aquatics ecosystems; Earth processes; climate and weather systems, environmental geology: Types of rocks, minerals, hydrological and biogeochemical cycles, natural resources - forest, water, minerals, marine; Energy resources-renewable and non-renewable.

Planetary crisis: climate change and global warming; ozone depletion; acid rain; habitat fragmentation; biodiversity loss; extinction; land and aquatic system degradation; urbanization; environmental pollution and control; air, water, soil, noise, and radioactive pollution; solid waste - disposal, management. Disaster and mitigation: Earthquakes, floods, landslides, and cyclones; Environmental sustainability; sustainable development goals; biodiversity conservation; natural resource management; national and international initiatives; environmental legislations and policies; international relations and current affairs.

Test Code: DUAT05

Programme: MSc Data Science and BioAI

General Aptitude (20 Marks)

Verbal Aptitude-Basic English grammar: Tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech. Basic vocabulary: Words, idioms and phrases in context. Narrative sequencing.

Quantitative Aptitude-Data interpretation: Data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables. Numerical computation and estimation: Ratios, percentages, powers, exponents and logarithms, permutations and combinations, summations and series, Mensuration and Geometry. **Analytical Aptitude**-Logic: Deduction and induction, analogy, numerical relations, and reasoning. **Spatial Aptitude**-Transformation of shapes: Translation, rotation, scaling, mirroring, assembling, grouping, paper folding, cutting, and patterns in 2 and 3 dimensions.

Mathematics (10 Marks)

Set Theory: Concept offsets–Union, Intersection, Cardinality, Elementary counting, permutations and combinations.

Probability and Statistics: Basic concepts of probability theory, Averages, Dependent and independent events, frequency distributions, measures of central tendencies and dispersions.

Biochemistry/Biotechnology (Undergraduate level questions, 20 Marks)

Nucleic Acids: Structure and functions of DNA and RNA; DNA replication, transcription, and translation. **Proteins**: Structure, folding, stability, and interactions. **Enzymes**: Mechanisms of enzyme action, enzyme kinetics (Michaelis-Menten equation), enzyme inhibition, and regulation. **Human Genome Project**: Key achievements and significance. **Genome Sequencing**: Fundamentals and applications of sequencing technologies. **Genomic Integrity**: Mutations and DNA repair mechanisms. Production of therapeutic proteins and vaccines. **CRISPR Technology**: Principles and Applications

Atomic Structure: Overview of atomic models, concepts of atom, orbit, orbital, and electronic configuration. **Periodic Properties**: Trends in atomic size, electronegativity, and electron affinity. **Chemical Bonding and Molecular Structure**: Hybridization, VSEPR theory, valence bond theory, molecular orbital theory, and intermolecular forces. **Chemical Kinetics**: Basics of reaction rates, mechanisms, and activation energy.

Stereochemistry: Configuration and conformational isomerism, with emphasis on chirality. Organic Chemistry: Fundamentals, including reaction mechanisms. Medicinal Chemistry: Drug classification, properties, an overview of drug-receptor interactions, ADMET properties, and pharmacokinetics. Computational Chemistry: Basics of molecular mechanics and quantum mechanics.

Computer Basics (10 Marks)

Organization of a computer, Central Processing Unit (CPU), structure of instructions in CPU, input/output devices, computer memory, and backup devices.

Data Representation: Representation of characters, integers and fractions, binary and hexadecimal representations, binary arithmetic: addition, subtraction, multiplication, division, simple arithmetic and two's complement arithmetic, floating-point representation of numbers, Boolean algebra, truth tables, Venn diagrams.

Test Code: DUAT06

Programme: MSc Data Science and Geoinformatics

General Aptitude (20 Marks)

Verbal Aptitude-Basic English grammar: Tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech. Basic vocabulary: Words, idioms and phrases in context. Narrative sequencing.

Quantitative Aptitude-Data interpretation: Data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3-dimensional plots, maps, and tables. Numerical computation and estimation: Ratios, percentages, powers, exponents and logarithms, permutations and combinations, summations and series, Mensuration and Geometry. Analytical Aptitude-Logic: Deduction and induction, analogy, numerical relations, and reasoning. Spatial Aptitude-Transformation of shapes: Translation, rotation, scaling, mirroring, assembling, grouping, paper folding, cutting, and patterns in 2 and 3 dimensions.

Mathematics (10 Marks)

Statistics and Probability: Measure of central tendency, measure of dispersion, skewness and Kurtosis, and elementary analysis of data. Probability and properties, conditional

probability, multiplication rule. Total Probability. Bayes' theorem and independence of events.

Earth and Environmental Sciences (20 Marks)

Earth Sciences: Structure and composition of Environment-Atmosphere, Hydrosphere and Lithosphere, Earth Processes, Mineral and Power Resources in India, Biogeochemical Cycles, Meteorology, Climate Change, Origin and evolution of earth, Mineral and Power Resources in India.

Agriculture Land Use/Land Utilization Systems.

Ecology and Environment: Biosphere, Organizational levels of biosphere, Ecosystem: Structure and Types, Food Chain and Energy Flow, Population and Community Ecology, Biodiversity and its Conservation.

Natural resources and Management: Natural Resources, Land and Water Resources, Minerals, Marine, Energy (Renewable and Non-renewable) - Sources, Threats, Conservation, and Management.

Remote sensing and GIS: Electro Magnetic Spectrum, Components and types of remote sensing, Resolutions (Spectral, Spatial, Temporal & Radiometric), Platforms. GIS: components of GIS, Spatial data, Vector and Raster Data, GIS Data Model and Data Structure - Projection and coordinate Systems.

Computer Basics (10 Marks)

Organization of a computer, Central Processing Unit (CPU), structure of instructions in CPU, input/output devices, computer memory, and backup devices. Data Representation: Representation of characters, integers and fractions, binary and hexadecimal representations, binary arithmetic: addition, subtraction, multiplication, division, simple arithmetic and two's complement arithmetic, floating-point representation of numbers, Boolean algebra, truth tables, Venn diagram.

Mode of Conduct of DUAT

The examination will be conducted online and monitored through a combination of AI-driven proctoring and human invigilators. Candidates must log in using a laptop or desktop computer with a functional webcam and a stable internet connection. The test comprises 60 multiple-choice questions (MCQs) to be completed within 60 minutes. Each

correct answer carries one mark, while 0.25 marks will be deducted for every incorrect response.

Fee Structure

| Fee Structure: M.Tech./MSc Programs | | | | |
|--|----------------|-----------------|----------------|-----------------|
| Particulars | First Year | | Second Year | |
| | First Semester | Second Semester | Third Semester | Fourth Semester |
| Tuition fee (in Rs) | 60000 | 50000 | 50000 | 50000 |
| Caution deposit (in Rs) | 5000 | | | |
| TOTAL (in Rs) | 65000 | 50000 | 50000 | 50000 |

| Fee Structure: MBA Program | | | | |
|-----------------------------------|----------------|-----------------|----------------|-----------------|
| Particulars | First Year | | Second Year | |
| | First Semester | Second Semester | Third Semester | Fourth Semester |
| Tuition fee (in Rs) | 110000 | 100000 | 100000 | 100000 |
| Caution deposit (in Rs) | 5000 | | | |
| TOTAL (in Rs) | 115000 | 100000 | 100000 | 100000 |

| Fee Structure: PhD Programs | | |
|------------------------------------|-------------------------------|---|
| Particulars | Tuition Fee | DUK Scholarship |
| Full-time Regular PhD | No tuition fee# in Years 1-5. | Rs 20,000/month for the 1st year. Rs 25,000/month for the 2nd year. Rs 30,000/month for the 3rd year. |

| | | |
|-----------------------|------------------|----------------|
| Part-time Regular PhD | Rs. 50,000/year* | No scholarship |
| Industry Regular PhD | Rs. 50,000/year* | No scholarship |

- #An admission fee of Rs 10,000/- and a refundable caution deposit of Rs 5,000/- need to be paid initially by all the selected PhD candidates to confirm their seats for the PhD program
- *Part-time Time and Industry regular PhD candidates will also have a special fee of Rs 50,000 from year 2 onwards.
- DUK scholarship is only for those who are not project assistants and do not have external fellowships such as JRF. All the students who are receiving the DUK scholarship are expected to contribute to the academic activities of the University for around 10 hours every week.

Rules for Refund of Tuition Fees:

In the event of admission cancellation, the relevant UGC-issued Notifications regarding Admission Cancellation and Refund will be adhered to.

Original certificates and other documents of students who cancel their admission will be promptly returned to them, provided there are no outstanding liabilities to the University.

Hostel and Mess Fee

Twin occupancy hostel facilities will be provided on campus for female students only.

For students who haven't secured hostel allotment, DUK will help them find suitable accommodation alternatives.

- Six-storey hostel
- 100+ rooms providing occupancy to 200+ students (currently for female students)

- Double occupancy rooms

Safety & Security

- Female Warden available
- 24/7 round-the-clock male and female security available
- Fire protection system
- Subsystem and DG backup

Hygiene

- Bathroom block on each floor
- Abundant water supply
- Sewage treatment plant
- Washing machine for each floor

| | |
|--|----------------|
| Caution Deposit for Hostel (in Rs) | 6000 |
| Hostel fee per student, per semester, for double occupancy (in Rs) | 30000 |
| Mess Fee | As per actuals |

Currently, on-campus hostel accommodation is available only for female students.

The hostel fee for the first semester must be paid in advance at the time of admission, while the hostel fee for subsequent semesters is payable at the beginning of each semester.

Scholarships & Financial Aid

Scholarships from Central/State Governments

1. Students with a domicile of Kerala from SC/ST and Other Eligible Communities (OEC), OBH are eligible for scholarships under the E-Grantz scheme of Govt. of Kerala. <https://egrantz.kerala.gov.in/>,
2. The scholarship offered by the Fisheries Department of Kerala for the recognized children of fishermen. <http://www.egrantzfisheries.kerala.gov.in/>,

3. AICTE fellowships for GATE-qualified students in M.Tech. CSE and M.Tech. EE Programmes.
<https://www.aicte-india.org/schemes/students-development-schemes/PG-Scholarship-Scheme/General-instruction>,
4. Students can apply for various other scholarship schemes Central/State Governments provide.

<https://scholarships.gov.in/>

<http://minoritywelfare.kerala.gov.in/>

https://www.dcescholarship.kerala.gov.in/dce/he_ma/he_maindex.php

https://dcescholarship.kerala.gov.in/hescholarship/he_ma/he_maindex.php

<https://www.kswcfc.org/>

Earn While You Learn

The scheme offers paid internships for selected students in research and development projects where the university engages with government, industry, and research organizations. The number of positions is subject to the availability of funds.

University Scholarships/Internships/Stipends/Fellowships for PhD.

PhD Regular- Scholars are eligible for a monthly scholarship of Rs. 20,000/- for the first year, Rs. 25,000/-per month in the second year, and Rs. 30000/- per month for 3rd year.

Fellowships from Central/State Governments for PhD Scholars

The PhD Scholars with a valid Junior Research Fellowship (JRF) from recognized national or state bodies (UGC, CSIR, ICMR, DBT, DST-INSPIRE, KSCSTE etc.) are eligible for respective fellowships.

General Facilities

University Library

The Knowledge Centre formerly the University Library, serves as the academic and research nucleus of the university, providing a seamless blend of traditional and digital resources. It offers a diverse collection of books, e-books, scholarly journals, conference

proceedings, and discussion forums, ensuring comprehensive support for coursework and research initiatives.

With extensive digital access, the Knowledge Centre subscribes to premier databases like IEEE Xplore, Scopus, ScienceDirect, Web of Science, Springer Nature, and essential tools such as Grammarly Premium, Turnitin, and Overleaf. Open-access resources like DOAJ, NPTEL, and arXiv further enhance learning opportunities. Equipped with e-access stations, document scanning, and printing facilities, it ensures a seamless research experience. The 24/7 operational model (excluding institutional holidays) reinforces its commitment to fostering continuous learning and academic excellence.

Accessibility

- Lift access with ramp
- Wheelchair accessible

Clubs & Societies

- National Service Scheme
- Reading Club
- IEEE Students Branch
- Film Club
- Innovation Club
- Hack-X Club
- Arts and Sports Club
- Social Engagement Centre
- Student Council

Medical Facility

- Doctor available biweekly (Monday and Thursdays)
- Free medical check-up facility twice a week
- 24/7 transportation available for hospitals
- Medicine delivery

Counselling Facility

- Counseling services are available for students. Weekly sessions can be booked.
- The Student Counselor service will be available twice a week.

Fitness

Unleash your fitness potential within our state-of-the-art hostel gym, equipped with modern exercise equipment and a motivating atmosphere, providing students with a convenient and energizing space to pursue a healthy lifestyle right at their doorstep. Whether it's a quick cardio session or weight training, our hostel gym ensures fitness is always within reach.

- Available to staff and students
- Morning and evening slots
- Trainer available
- Separate sessions for men and women

Yoga & Sports

Dedicated Yoga Practice Area: Recognizing the rising popularity of yoga and its numerous benefits, DUK offers guided yoga sessions.

Annual Sports Meet: This exciting event allows students to showcase their athletic talents, compete in various disciplines, and cheer on their fellow classmates.

Table Tennis Arena: This indoor facility allows students to hone their table tennis skills, engage in friendly matches, or enjoy a fun and challenging game during breaks.

Career Services

Digital University Kerala (DUK) prides itself on a robust placement program, which attracts leading companies to its campus annually. With strong industry connections, the university ensures all interested students can participate in internships and placement activities. Many internships are the gateway to full-time employment, with companies often recruiting top-performing interns.

DUK's well-established Training and Placement Cell, led by a dedicated Placement Chair and Placement Officer, is pivotal in facilitating these opportunities. It collaborates with corporate organizations to secure internships and job placements for students, ensuring smooth transitions from academic to professional life. In addition, the Training and Placement Cell organizes seminars and workshops to equip students with the skills and knowledge needed to excel in their careers, helping them become successful and industry-ready professionals.

How to reach DUK?

Digital University Kerala, Technocity Campus,
Mangalapuram, Thonnakkal PO, Thiruvananthapuram,
Kerala – 695317, +91-471-2788000
academicoffice@duk.ac.in

Google Map Link: <https://g.page/KUDSIT?share>

The Kerala University of Digital Sciences, Innovation and Technology (DUK) boasts excellent connectivity, making it easily accessible from various locations. Here's a breakdown of your travel options:

By Air:

Trivandrum International Airport: This convenient airport lies just 18 kilometers from DUK's campus, with a travel time of approximately 30 minutes by car.

By Rail:

Thiruvananthapuram Central Railway Station (TVC): Situated 22 kilometers south of the campus. The adjoining KSRTC Bus Station provides frequent city buses towards Attingal and Kollam. These buses reach the Technocity bus stop near the CRPF camp (Pallipuram) within 40 minutes, placing you within a walkable distance from DUK. Taxis are also readily available from the railway station.

Kochuveli Railway Station (KCVL) is 15 kilometers south of the campus. Auto rickshaws are conveniently available for onward travel to DUK.

Kazhakuttam Railway Station (KZK): KZK is just 8 kilometers away; be aware that not all trains stop here. Auto rickshaws can transport you to the university from this station.

By Road:

National Highway 66: Many long-distance KSRTC and interstate buses traveling on this highway towards Thiruvananthapuram halt at the CRPF Camp Pallipuram. This stop is approximately 750 meters from the DUK campus.

City Buses: If utilizing city buses, disembark at the Technopark Phase IV stop, within walking distance of the university.

Contact information

Website: www.duk.ac.in

General Queries Related to PG Admission- admission-pg@duk.ac.in

General Queries related to Ph.D. Admission- admission-phd@duk.ac.in

Contact No. 04712788000, 04712788019, 8078193800

School/Program Specific Queries

School of Computer Science & Engineering (SoCSE)- admission-socse@duk.ac.in

School of Digital Humanities and Liberal Arts (SoDiHLA)- admission-sodihla@duk.ac.in

School of Digital Sciences (SoDS)- admission-sods@duk.ac.in

School of Electronic Systems and Automation (SoESA) -admission-soesa@duk.ac.in

School of Informatics (SoI)- admission-soi@duk.ac.in