



Indian Institute of Information
Technology Dharwad (IIIT Dharwad)

M.Tech Computer Science & Engineering (Cloud Computing Specialization)

Type

Pg Program

Mode

Online

Duration

2 Years

Total fees

₹ 354,000

Indian Institute of Information Technology Dharwad (IIIT Dharwad)

IIIT Dharwad is an Institute of National Importance known for technology education research and industry collaboration. Located in the Hubballi-Dharwad innovation hub it promotes interdisciplinary learning creativity and responsible innovation. The institute develops globally competent technology professionals equipped to address evolving societal and digital challenges.

M.Tech Computer Science & Engineering (Cloud Computing Specialization)

Highlights

- ◆ Earn an M.Tech in Computer Science & Engineering with a specialisation in Cloud Computing from IIIT Dharwad.
- ◆ Build advanced capabilities across cloud architecture, virtualisation, containerisation, DevOps, distributed systems and cloud security.
- ◆ Gain practical exposure through cloud deployment labs, simulations, research assignments and a comprehensive capstone project.
- ◆ Work with industry-relevant platforms and tools such as AWS, Microsoft Azure, Docker, Kubernetes, Terraform and Apache Spark.
- ◆ Participate in structured campus immersions featuring faculty interaction, peer learning, hands-on sessions and exposure to IIIT Dharwad's academic ecosystem.

Learning outcomes

- ◆ Design and deploy secure, scalable and cost-effective cloud architectures for diverse organisational requirements.
- ◆ Apply DevOps practices, CI/CD pipelines, container orchestration and automation to streamline software delivery.
- ◆ Integrate identity management, encryption, governance and compliance frameworks into cloud environments.
- ◆ Optimise cloud infrastructure for performance, reliability, availability and cost efficiency.
- ◆ Develop innovative cloud-native solutions using serverless computing, edge technologies and hybrid cloud systems.

Eligibility Criteria

Educational Qualification : Any Graduate with a background in B.Tech / B.E., M.Sc., or M.C.A.

Academic Performance:

General / OBC category

Minimum CGPA/CPI: 6.5 on a 10-point scale, or Minimum aggregate percentage: 60%.

SC / ST / PwD category

Minimum CGPA/CPI: 6.0 on a 10-point scale, or Minimum aggregate percentage: 55%.

Semester I (41 subjects)

- ◆ Applied Mathematics for Computer Science
- ◆ Unit 1: Linear Algebra
- ◆ Unit 2: Optimization
- ◆ Unit 3: Probability and Stochastic Process
- ◆ Advanced Data Structures and Algorithms
- ◆ Unit 1: Growth Functions
- ◆ Unit 2: Trees
- ◆ Unit 3: Graph Algorithms
- ◆ Unit 4: Algorithm Design Strategies
- ◆ Unit 5: Complexity Classes
- ◆ Programming Paradigms Lab
- ◆ Unit 1: Procedural Programming
- ◆ Unit 2: Object-Oriented Programming
- ◆ Unit 3: Functional Programming
- ◆ Unit 4: Concurrent and Parallel Execution
- ◆ Unit 5: Declarative and Logic Programming
- ◆ Unit 6: Scripting and Automation
- ◆ Introduction to AI/ML
- ◆ Unit 1: Introduction to AI
- ◆ Unit 2: Problem Solving Using Search
- ◆ Unit 3: Knowledge Representation
- ◆ Unit 4: Introduction to Machine Learning
- ◆ Unit 5: Supervised Learning
- ◆ Unit 6: Unsupervised Learning
- ◆ Introduction to Cybersecurity
- ◆ Unit 1: Introduction to Cybersecurity
- ◆ Unit 2: Identity and Access Management
- ◆ Unit 3: Standards and Regulations
- ◆ Introduction to Cloud Computing
- ◆ Unit 1: Introduction to Cloud Computing
- ◆ Unit 2: Cloud Service Models and Deployment Models
- ◆ Introduction to Research
- ◆ Unit 1: Introduction
- ◆ Unit 2: Literature Review
- ◆ Unit 3: Research Exploration
- ◆ Unit 4: Patenting and Publications
- ◆ Unit 5: Presentation
- ◆ Report and Thesis Writing
- ◆ Unit 6: Conclusions and Future Scope
- ◆ Unit 7: Principles and Ethics in Research
- ◆ Project 1

Semester II (10 subjects)

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| ◆ Advanced Computing Lab | ◆ Unit 5: Cloud and Container-Based Computing |
| ◆ Unit 1: Advanced Programming and Performance Engineering | ◆ Unit 6: AI/ML Pipeline Engineering |
| ◆ Unit 2: Parallel Computing Platforms | ◆ Literature Review and Seminar |
| ◆ Unit 3: Distributed Computing Frameworks | ◆ Electives (1/2/3/4 credits) |
| ◆ Unit 4: GPU and Accelerated Computing | ◆ Project-II |
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Semester III (2 subjects)

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| ◆ Project-III | ◆ Electives (1/2/3/4 credits) |
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Semester IV (2 subjects)

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| ◆ Project-IV | ◆ Electives (1/2/3 credits) |
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Curriculum Overview (continued)

Cloud Computing Specializations (44 subjects)

- ◆ Introduction to Cloud Computing
- ◆ Unit 1: Introduction to Cloud Computing
- ◆ Unit 2: Cloud Service Models and Deployment Models
- ◆ Distributed and Parallel Systems
- ◆ Unit 1: Introduction and System Models
- ◆ Unit 2: Communication and Coordination
- ◆ Unit 3: Synchronisation and Distributed Algorithms
- ◆ Unit 4: Consistency
- ◆ Replication and Fault Tolerance
- ◆ Unit 5: Parallel Programming and Performance
- ◆ Security in Cloud Computing
- ◆ Unit 1: Introduction to Cloud Security
- ◆ Unit 2: Identity
- ◆ Access and Trust Management
- ◆ Unit 3: Data Security and Privacy in Cloud
- ◆ Unit 4: Infrastructure
- ◆ Virtualisation and Container Security
- ◆ Unit 5: Compliance
- ◆ Risk and Emerging Trends
- ◆ High-Performance Computer Architecture
- ◆ Unit 1: Performance Fundamentals
- ◆ Unit 2: Pipelining and Instruction-Level Parallelism
- ◆ Unit 3: Memory Hierarchy and Cache Optimisation
- ◆ Unit 4: Multicore Architectures and Memory Consistency
- ◆ Site Reliability Engineering in Cloud Computing
- ◆ Unit 1: Introduction to SRE and Cloud Operations
- ◆ Unit 2: Reliability Metrics and Error Budgets
- ◆ Unit 3: Designing Reliable Cloud Systems
- ◆ Unit 4: Observability and Incident Management
- ◆ Unit 5: Automation
- ◆ Toil Reduction and Case Studies
- ◆ Big Data Systems
- ◆ Unit 1: Introduction to Big Data Systems
- ◆ Unit 2: Distributed Storage Systems
- ◆ Unit 3: Batch Data Processing Frameworks
- ◆ Unit 4: Stream Processing and Real-Time Analytics
- ◆ Unit 5: Advanced Topics and System Optimisation
- ◆ Edge AI
- ◆ Unit 1: Introduction to Edge AI
- ◆ Unit 2: AI Models for Edge Devices
- ◆ Unit 3: Model Optimisation and Acceleration
- ◆ Unit 4: Edge–Cloud Collaboration and Systems
- ◆ Unit 5: Applications
- ◆ Platforms and Emerging Trends

Fee Structure

Fee heads	Year 1	Year 2	Total
Program Fee	₹ 177,000	₹ 177,000	₹ 354,000
Total	₹ 177,000	₹ 177,000	₹ 354,000