



VASISHTH ACADEMY OF ADVANCED STUDIES AND RESEARCH

(Recognised by Govt. of Karnataka and Skill India , Recognised as
Scientific & Industrial research organisation by DSIR , Govt. of India)



Skill India
कौशल भारत - कुशल भारत

VOCATIONAL STUDIES

- **B. VOC**
- **M. VOC**

PROGRAMME

ML & AI IN BIOINFORMATICS

➡ B.Voc in

Machine Learning and Artificial Intelligence in Bioinformatics.

About the program

The Bachelor of Vocation (B.Voc.) is a **3 year undergraduate program**, is a skill based learning aims to improve employment by combining job roles, National Occupational Standards (NOSs), and general education.

Areas of study: The B.Voc. program is available in Machine Learning & Artificial Intelligence in Bioinformatics. The program is based on **60% practical experience and 40% theory**.

Higher studies: Students who complete the B.Voc. program can apply for the M.Voc. course.



● **Course Duration** : 3 years.

● **Eligibility** : The minimum qualification to apply is 10+2 pass or equivalent examination (Any stream).

SEMESTER - 1

Course outline

- Basics Physics, Chemistry & Biology.
- C Programming & Computer organization
- Functional Kannada/ Hindi.
- Molecular Biology of Cell
- Basic Bioinformatics Lab (Practical)
- C Programming Lab (Practical).

SEMESTER - 2

Course outline

- Introduction to R and Python Programming.
- Data structures and Algorithms
- Communicative English
- Fundamentals of Bioinformatics
- Advanced Bioinformatics Lab (Practical).

SEMESTER - 3

Course outline

- Computational Molecular Biology.
- Agriculture & Medical Informatics
- Fundamentals of Bioinformatics
- Communicational skills
- Applied BI Lab with R and Python (Practical).

SEMESTER - 4

Course outline

- Research Methodology
- Algorithms in Bioinformatics
- Structural Bioinformatics
- Python & Structural Bioinformatics Lab (Practical)
- Research Project Introduction

SEMESTER - 5

Course outline

- Database Management System
- Foundations of Machine Learning & AI
- Entrepreneurship in ML & AI with IPR
- DBMS Labs & Machine learning Lab (Practical
- Major Project -1

SEMESTER - 6

Course outline

- Biological Data Analysis
- Statistical methods in Bioinformatics & Statistical Inference
- BDA & Deep Learning Lab with R & Python (Practical)
- Major Project II (Practical)

➔ M.Voc in

Machine Learning and Artificial Intelligence in Bioinformatics.

About the program

The Masters of Vocation (M.Voc.) is a **2 year postgraduate program**, is a skill based learning aims to improve employment by combining job roles, National Occupational Standards (NOSs), and general education.

Areas of study: The M.Voc. program is available in Machine Learning & Artificial Intelligence in Bioinformatics. The program is based on **60% practical experience and 40% theory**.



- **Course Duration :** 3 years.

- **Eligibility**

The minimum qualification to apply is B.Voc pass or equivalent examination.

SEMESTER - 1

Course outline

- Bioinformatics and Biological Database
- Computational Molecular Cell Biology
- Programming for Bioinformatics(R, & Python)
- Research Methodology
- Biodata Mining lab

SEMESTER - 2

Course outline

- Statistical Methods in Bioinformatics.
- Sequence Analysis, Transcriptomics and Gene Expression Analysis
- Structural Biology & Bioinformatics
- Computational Bioinformatics lab (Practical)
- Algorithm design and analysis with R & python(Practical)

SEMESTER - 3

Course outline

- Machine learning, Deep learning & AI for BI
- System Biology and Network Analysis
- Data Mining and Machine learning with PyTorch & Tensorflow in BI
- Molecular Modeling Lab
- AI & ML lab

SEMESTER - 4

Course outline

- Ethics / Biosafety /IPR
- Introduction to Cloud
- Research Project

About the Institute

At Vasisht Academy of Advanced studies and Research, we have been providing IT-ITS services to medium and small businesses for over a decade. Our journey started with a passion for technology and a desire to help small businesses succeed. Today, we are proud to have helped and nurtured numerous clients optimize their technology solutions and achieve their goals. We are specialized in bioinformatics, explicitly in the area of Genomics, AI-ML, Agri-informatics, Cloud, Bioinformatics-lot and Drug designing. We aim to create next generation bioinformaticians.



OUR AFFILIATIONS



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