



RAMAIAH

College of Arts, Science &
Commerce

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M S Ramaiah College of Arts, Science and Commerce

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(National Institutional Ranking Framework, Ministry of Education, Govt of India)

Ranked 62nd in NIRF India Ranking by MHRD, New Delhi.

DBT Star College Scheme

REF: MSRCASC/MB/21-22/010

Date: 25.05.2022

CIRCULAR

DEPARTMENT OF MICROBIOLOGY

The students of B.Sc are hereby informed that, there is a Value added course offered by Dept. Of Microbiology on "**Basic Tools in Bioinformatics**", under the DBT – STAR College Scheme.

The students are hereby informed to register for the same at the earliest.


Coordinator

(DBT –STAR College Scheme)

Head of the Department:
MICRO BIOLOGY
Ramaiah College of Arts,
Science & Commerce
Bangalore - 560 054


Principal

M.S. Ramaiah College of Arts, Science & Commerce
MSRIT Post, MSR Nagar
Bangalore - 560 054



At the completion of the course, students will be able to understand the basic concepts of bioinformatics and its applications. They will be able to use biological databases for the analysis of biological data. Further, this course will enable the students to understand and apply the basic tools of bioinformatics. These skills can be used in the pharmaceutical industries and academic research institutions.

Coordinators of the programme

- Dr. Snehalatha V. Associate Prof.
 - Dr. Vemula Vani, Associate Prof.
 - Dr. Manikandan A, Asst. Prof.
- Dept. of Microbiology,
MSRCASC, Bengaluru

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Value added course - Basic Tools in Bioinformatics

About the Course:

The current 'omics' era, emphasizes the understanding and applications of biological databases and computational tools for genomics and proteomics research. The value added programme aims to train the students with hands on experience on the basic and advanced concepts of bioinformatics which involves-biological databases, sequence analysis methods, phylogenetic analysis of sequences and structure prediction methods of proteins.

Objectives:

- To facilitate the students to understand basics of bioinformatics.
- To impart skills in bioinformatic tools that are essential in all biological perspectives
- To train in both theoretical and hands-on bioinformatics aspects
- To ready the students for relevant higher studies, industry and entrepreneurship opportunities

Eligibility:

- An interest in learning Bioinformatics and maintaining the same interest constantly throughout the period of study.
- A knowledge in molecular biology, basic genetics and other life science related courses would be an advantage but not necessary.

Course duration: 30 hours (Detailed schedule will be provided before the commencement of classes)

Registration Link: <https://forms.gle/iZJEISWY5XY7W7Fz6>

Modules of the course:

- Module 1 : Understanding and analysis of biological databases
- Module 2: Sequence analysis Tools
- Module 3: Phylogenetic analysis and Protein structure prediction methods

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M.S. Ramaiah College of Arts, Science and Commerce

Department of Microbiology

Value added program

Basic Tools in Bioinformatics

18th July to 1st August 2022

Assessment

Name of the Student	Registration Number	Score
Nishant kumar	S2014550	20 / 30
Lishika Jain	S2014528	20 / 30
Anjali kumari	S2014464	20 / 30
Ayushma paul	S2014472	20 / 30
DHARANI v	S1914492	14 / 30
Bhoomika. M	S1914487	14 / 30
Sampriti Machhan	S 2014581	20 / 30
Koustav Mondal	S1914429	20 / 30
Ritika	S1914442	28 / 30
Kavya.M.M	S1914514	28 / 30
Harshitha GN	S1914502	26 / 30
Chandana A	s1914488	28 / 30
Harshitha P	S1914503	30 / 30
Joe Jacob Kunju	S1914424	28 / 30
Nischith B S	S2014431	30 / 30
Pooja c	S2014434	30 / 30
Yashoda O	S2014457	30 / 30
Hima R	S2014423	30 / 30
Debanjana Roy	S1914416	22 / 30
Anuska Banerjee	S1914409	20 / 30
Ashritha G	S1914480	14 / 30
Prithvika.r	S2014563	26 / 30
Pavithra.S	S2014555	24 / 30
Devangi Satpathy	S2014490	22 / 30
Darshini L	S1914491	18 / 30
Abhijna R Chandra	S1914462	22 / 30
Samreen Taj	S2014582	22 / 30
Shabnam Priyadarshini Pradhan	S2014589	22 / 30

[Signature]
HOD

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[Signature]
[Signature]

Course Coordinators

[Signature]
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Report on Value added Program on BASIC TOOLS IN BIOINFORMATICS

From 18th to 1st August 2022

The department of Microbiology had organized a value-added program on Basic tools in Bioinformatics from 18th July to 1st August 2022.

The **objectives** of the program were to improve the Bioinformatics skills of the student and to enable the students to apply computational based solutions for biological perspectives. The value-added program aims to train the students with hands on experience on the basic and advanced concepts of bioinformatics which involve- biological databases, sequence analysis methods, phylogenetic analysis of sequences and structure prediction methods of proteins.

Twenty-nine students of II- and III-year B.Sc. registered for the value-added program. The program was conducted in hybrid mode. From 18th July, 2022 to 23rd July, 2022, per day 2hrs of online lecture sessions were conducted covering various concepts of bioinformatics as per the proposed syllabus for the value-added program. The hands-on practical sessions for the same concepts were conducted from 25th to 26th July 2022 and on 1st Aug, 2022.

On 28th July, 2022, the hands-on sessions of the program was inaugurated by Dr. Pushpa H, Vice Principal and HOD, department of Microbiology. She welcomed the students and gave an overview of the Value-Added Program conducted by department of Microbiology and introduced the resource persons, Dr. Vemula Vani, associate professor, Dr Snehalatha V, associate professor, and Dr. Manikandan A, Assistant Professor, department of Microbiology to the students. Later, Dr Vemula Vani, addressed the students about the value added program and gave an overview of the program and the schedule.

On 28th July, 2022, Dr. Vemula Vani conducted practical sessions for biological sequences, biological databases and protein analysis using Rasmol software along with Dr. Snehalatha V. This was followed by hands on session for Sequence analysis tools on 29th July, 2022 that include Emboss, Clustal w, FASTA,



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BLAST, Restriction mapper, NEB cutter and ORF finder by Dr. Snehalatha V along with Dr. Vemula Vani.

On 1st August, 2022, Dr. Manikandan A covered both the theory and practical concepts of phylogenetic analysis (types oof phylogenetic trees) and protein structure prediction methods which include homology modeling, *ab initio* approaches, protein-protein interaction assessments and therapeutic approaches.

At the end, a test was given to the students for the assessment of their understanding and knowledge of the concepts of the value-added program and also the feedback on program was taken from the students in order to improve ourselves for the upcoming events of this type.

Outcome of the Value added Program

Upon completion of this course, students were able to

- Interpret relationships among living things, analyze and solve biological problems, at the molecular level using basic biological concepts.
- Pursue higher education in this field.
- Combine theory and practice to solve research problems in bioinformatics, genomics and proteomics.


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Glimpse of the Value-Added Program on Basic tools in Bioinformatics





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Valentina Y
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Department of Microbiology
Organizes
Value Added Programme
On
BASIC TOOLS IN BIOINFORMATICS
From 18th July to 1st Aug, 2022
COURSE CONTENT

UNIT: I

[10 Hours]

Introduction to Bioinformatics and Computational Biology, Biological sequences, Biological databases, Retrieval of Nucleotide and protein Sequences from databases, Retrieval of Protein Structure from PROTEIN DATA BANK, Molecular Visualization and analysis of Protein using RasMol

UNIT: II

[10 Hours]

Sequence Analysis, Sequence alignment methods, pairwise alignment, Algorithms for Multiple sequence alignment, Sequence similarity search methods- FASTA and BLAST, Identification Of ORFs, Restriction Mapping.

UNIT: III

[10 Hours]

Introduction to phylogenetics, Distance based trees UPGMA trees, Molecular clock theory, Ultrametric trees, Parsimonious trees, Neighbour joining trees, trees based on morphological traits, Bootstrapping.

Protein Secondary structure and tertiary structure prediction methods, Homology modeling, *ab initio* approaches, Threading.

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Department of Microbiology
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Value Added Programme
On
BASIC TOOLS IN BIOINFORMATICS
From 18th July to 1st Aug, 2022
PROGRAMME SCHEDULE

Date	Topic	No. of hours
18.7.2022 (online)	Introduction to Bioinformatics Sequence databases	2
19.07.2022 (online)	Biological databases II MGDB, Pathway database, Pubgene, ATCC, ICTVDb, Pubmed	2
20.07.2022 (online)	Sequence alignment Amino acid substitution matrices	2
21.07.2022 (online)	Methods of sequence alignment Dynamic programming	2
22.07.2022 (online)	Global and local alignment of sequences FASTA and BLAST algorithms	2
23.07.2022 (online)	Restriction mapping, Multiple sequence alignment and motif identification	2
28.07.22 (9.30 am to 2.30 pm)	Hands on session for biological sequences, biological databases and protein analysis using Rasmol	5

Signature

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Valentia

Principal,
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29.07.2022 (9.30 am to 2.30 pm)	Hands on session for Sequence analysis tools	5
01.08.2022 (8.30 am to 4.30 pm)	Phylogenetics and type of phylogenetic trees Protein Structure Prediction, Structural genomics Homology modeling, <i>ab initio</i> approaches Protein-Protein interaction assessments – Therapeutic approaches Hands on session for phylogenetic analysis Assignment	8
	Total	30 hours

Dulne.H
 Head of the Department
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Valinda Y
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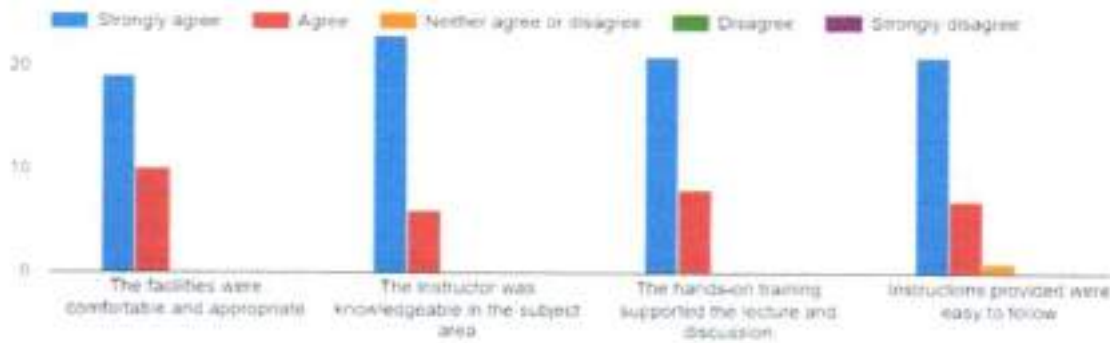
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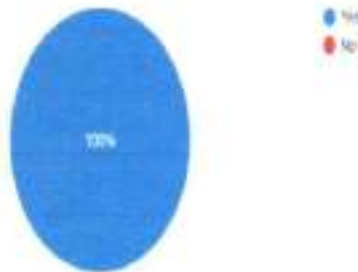
Feedback Responses

Please agree/disagree with the following statements relevant to value added program



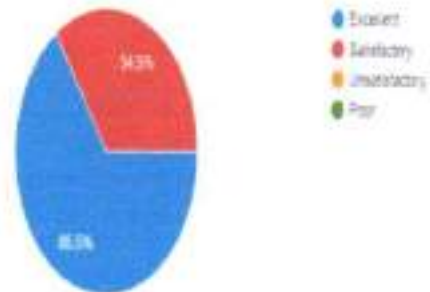
Have your skills/Knowledge increased as a result of participating in the event?

25 responses



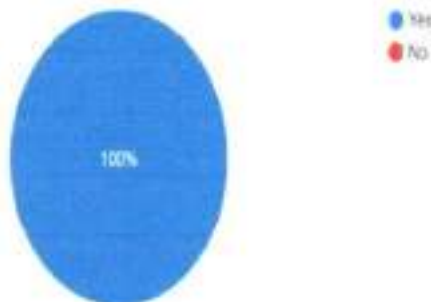
Overall how would you recommend the quality of this event?

25 responses



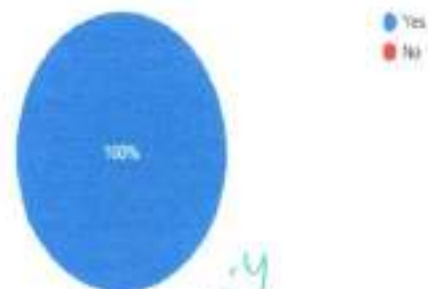
Would you recommend this event to someone else?

29 responses



Would you consider attending another event like this with us?

29 responses



Indira H
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Valmiki
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Bangalore - 560 054



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DEPARTMENT OF BIOTECHNOLOGY
MINISTRY OF SCIENCE & TECHNOLOGY,
GOVERNMENT OF INDIA

Certificate

This is to Certify that Anuska Banerjee
of B.Sc - VI Semester has participated in Value Added Program on
"Basic Tools in Bioinformatics" held from 18th July, 2022 to 1st August 2022
Organized by The Department of Microbiology, M.S. Ramaiah College of Arts,
Science and Commerce, Bangalore

Dr. Pushpa H
Vice Principal & Head, Department of Microbiology
MSRCASC, Bangalore

Dr. Vatsala G
Principal
MSRCASC, Bangalore

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DEPARTMENT OF MICROBIOLOGY
Value added program on - BASIC TOOLS IN BIOINFORMATICS, July-August 2022
ATTENDANCE

S.No	Name of the Student	Reg. Number	Mobile Number	Course	Sem	18.07.22	19.07.22	20.07.22	21.07.22	22.07.22	23.07.22	24.07.22	25.07.22	01.08.22
1.	Ayushma Paul	S2014472	9064510293	BSc MB, BT, Chem	IV	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology
2.	Yashaswini R	S1914460	9740562046	BSc MB, Gen, Bioc hem	VI	—	—	Absent	—	—	—	—	—	—
3.	Sampetti Muehhan	S2014581	9805776025	BSc MB, BT, Chem	IV	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology
4.	Sunreen Taj	S2014586	8660214239	BSc MB, BT, Chem	IV	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology
5.	Shahnam Priyadarshini Pradhhan	S2014589	7483469340	BSc MB, BT, Chem	IV	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology
6.	Yashoda O	S2014457	9110445675	BSc MB, Gen, Bioc hem	IV	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology	Microbiology

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 Date
 Signature

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Copy of
date

7.	Anjali kumari	S2014464	9931709258	BSc MB, BT, Chem	IV	Anjali Kumari	Anjali Kumari	Anjali Kumari	Anjali Kumari	Anjali Kumari	Anjali Kumari	Anjali Kumari	Anjali Kumari
8.	Harshith Reddy C K	S2014503	9988300366	BSc MB, BT, Chem	IV	—	—	—	—	—	—	—	—
9.	D S Shreyas	S2014485	6362087609	BSc MB, BT, Chem	IV	—	—	—	—	—	—	—	—
10.	Kavya MM	S1914514	8088396140	BSc MB, BT, Chem	VI	X	X	X	X	X	X	X	X
11.	Madhuri r	S2014531	9449952689	BSc MB, BT, Chem	IV	—	—	—	—	—	—	—	—
12.	Prithvika r	S2014563	8050098866	BSc MB, BT, Chem	IV	Prithvika r	Prithvika r	Prithvika r	Prithvika r	Prithvika r	Prithvika r	Prithvika r	Prithvika r
13.	Chandana A	S1914488	6361422192	BSc MB, BT, Chem	VI	Chandana A	Chandana A	Chandana A	Chandana A	Chandana A	Chandana A	Chandana A	Chandana A
14.	Pavithra.S	S2014555	9535764794	BSc MB, BT, Chem	IV	Pavithra S	Pavithra S	Pavithra S	Pavithra S	Pavithra S	Pavithra S	Pavithra S	Pavithra S
15.	Sai Nand	S2014579	9980836631	BSc MB, BT, Chem	IV	—	—	—	—	—	—	—	—
16.	Harini A Kbemkar	S2014500	8660428345	BSc MB, BT, Chem	IV	—	—	—	—	—	—	—	—
17.	Harshitha P	S1914503	7975249468	BSc MB, BT, Chem	VI	Harshitha P	Harshitha P	Harshitha P	Harshitha P	Harshitha P	Harshitha P	Harshitha P	Harshitha P
18.	Hima R	S2014423	8217226266	BSc MB, Gen, Bioc hem	IV	Hima R	Hima R	Hima R	Hima R	Hima R	Hima R	Hima R	Hima R

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19.	Abhijna R Chandra	S1914462	8904163319	BSc MB, BT, Chem	VI	Abhij	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	Abhijna R Chandra	
20.	Manthan Singh	S1914524	9113287127	BSc MB, BT, Chem	VI	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21.	Debanjana Roy	S1914416	8473020994	BSc MB, Gen,Bioe hem	VI	Deban	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy	Debanjana Roy
22.	Koustav Mondal	S1914429	8777590838	BSc MB, Gen,Bioe hem	VI	Koustav	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal	Koustav Mondal
23.	Joe Jacob Kunju	S1914424	8547845011	BSc MB, Gen,Bioe hem	VI	Joe	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju	Joe Jacob Kunju
24.	Muddu v	S1914434	7975038136	BSc MB, Gen,Bioe hem	VI	Muddu	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v	Muddu v
25.	Nishant Singh	S2014550	8101381359	BSc MB, BT, Chem	IV	Nishant	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh	Nishant Singh
26.	Ritika Rassaaly	S1914442	9064913580	BSc MB, Gen,Bioe hem	VI	Ritika	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly	Ritika Rassaaly
27.	Astritha G	S1914480	8431562516	BSc MB, BT, Chem	VI	Astritha	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G	Astritha G
28.	Ramya Shankar	S1914553	9886810352	BSc MB, BT, Chem	VI	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
29.	Rithika.B	S2014574	8310104867	BSc MB, BT, Chem	IV	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30.	Nischith Skanda	S2014431	9611872020	BSc MB, Gen,Bioe hem	IV	Nischith	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda	Nischith Skanda

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31.	Lishika Jain	S2014528	9353589801	BSc MB, BT, Chem	IV	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna
32.	Devangi Satpathy	S2014490	7984620828	BSc MB, BT, Chem	IV	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna
33.	Darshini L.	S1914491	9353194206	BSc MB, BT, Chem	VI	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna
34.	Neha S	S2014546	8904329978	BSc MB, BT, Chem	IV	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna
35.	Bhoomika. M	S1914487	9535960957	BSc MB, BT, Chem	VI	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna
36.	Pooja c	S2014434	6363893193	BSc MB, Gen,Biochem	IV	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna
37.	Dharni v	S1914492	9353611697	BSc MB, BT, Chem	VI	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna
38.	Harshitha GN	S1914502	7892688066	BSc MB, BT, Chem	VI	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna
39.	Anuska Banerjee	S1914409	9641336877	BSc MB, Gen,Biochem	VI	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna	Krishna

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