

# DAV University, Jalandhar

## Department of Biotechnology

### Proceedings of Meeting

The meeting of the Board of Studies in the Department of Biotechnology was held on 25 November, 2017 at 11.00 a.m. in Committee Room, Administrative Block, DAV University, Jalandhar.

Following members were present in the meeting:

1. Prof. (Dr.) Pratap Kumar Pati (External Expert)  
Professor  
Department of Biotechnology, Guru Nanak Dev University, Amrtisar
2. Dr. Lakhmir Singh  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
3. Dr. Yogesh Kumar  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
4. Dr. Vikas Sharma  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
5. Dr. Indu Barwal  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar

Following agenda was discussed and resolved:

#### **Agenda Item-1**

It was discussed and unanimously resolved to approve the proposed outline of schemes and syllabi of the courses of reading for the following programs of Batch 2017:

- a) B.Sc. (Hons.) Biotechnology
- b) M.Sc. (Hons.) Biotechnology
- c) Ph.D. Biotechnology

#### **Agenda Item-2**

It was discussed and unanimously resolved to give *post facto* approval to scheme and syllabi of the courses of reading, as such, for the first semester of Batch 2017 for the following programs:

- a) B.Sc. (Hons.) Biotechnology
- b) M.Sc. (Hons.) Biotechnology
- c) Ph.D. Biotechnology

### **Agenda Item-3**

It was discussed and unanimously resolved to approve the proposed schemes and syllabi of courses of reading for 2018 Batch admissions for the following programs:

- a) B.Sc. (Hons.) Biotechnology
- b) M.Sc. (Hons.) Biotechnology
- c) Ph.D. Biotechnology

Following are the important points discussed in the meeting:

#### **B.Sc. (Hons.) Biotechnology**

1. The course 'Animal Biotechnology' was earlier listed in discipline specific elective (DSE) but Prof. Pati suggested to shift it to core courses in the sixth semester.
2. On suggestion of Prof. Pati the course 'Immunology' (earlier a core course) was shifted to DSE.
3. The course 'Bioanalytical Tools' was shifted to III<sup>rd</sup> semester and 'Plant Biotechnology' to IV<sup>th</sup> Semester.
4. Prof. Pati suggested that there must be uniformity in the division of units and titles of the units and lecture hours should be omitted in the syllabi to make it uniform.
5. Title of the course 'Nanotechnology and Drug Designing' was changed to 'Fundamentals of Nanobiotechnology'.
6. Prof. P.K. Pati suggested to include ISSN number of the books listed in reference books.
7. Prof. P.K. Pati suggested to change the title and content of the course 'Biostatistics and Bioinformatics' (BTY345) to 'Biostatistics' and Bioinformatics was clubbed with 'Genomics and Proteomics' course and the course title was changed to 'Genomics, Proteomics and Bioinformatics'.
8. Prof. P.K. Pati suggested to add courses 'Environmental Biotechnology' and 'Herbals and Nutraceuticals' in the list of DSEs.

#### **M.Sc. (Hons.) Biotechnology:**

9. Prof. Pati suggested to list basic courses in the scheme first followed by specialized courses.
10. Prof. Pati suggested to shift the course 'Bioanalytical tools' in either 1<sup>st</sup> or 2<sup>nd</sup> semester in the scheme.
11. Prof. P.K. Pati suggested that there should not be any laboratory course in the final semester of M.Sc. because students have project work in this semester, therefore courses 'Computational Biology and Bioinformatics' may be shifted to IV<sup>th</sup> semester and 'Fermentation and Bioprocess Technology' (Theory as well as Laboratory) may be shifted to III<sup>rd</sup> semester.
12. Prof. P.K. Pati suggested that all the practicals course must contain a list of at least 10-12 experiments.

13. Prof. P.K. Pati suggested to restructure the 'Principle of Biochemistry' course to make it uniform and feasible to complete it in one semester.
14. Prof. P.K. Pati suggested that minimum five reference books with ISSN numbers should be listed in every course.
15. Prof. P.K. Pati suggested to elaborate some of the units in the syllabus which seem to have lesser content.
16. Prof. P.K. Pati suggested that there must be uniformity throughout the syllabus.
17. Prof. P.K. Pati suggested to restructure and redefine units in the course 'Plant Biotechnology'.

**Ph.D. Biotechnology:**

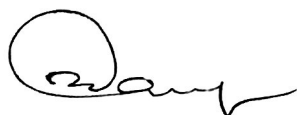
18. Prof. P.K. Pati suggested that Ph.D. course work must consist of three core courses and one inter-departmental (ID course) from a different department. He also suggested to offer at least 16 credits in the course work from 2018 session onwards.

**Signatures of members present:**

1. Prof. (Dr.) Pratap Kumar Pati



2. Dr. Lakhmir Singh



3. Dr. Yogesh Kumar

4. Dr. Vikas Sharma



5. Dr. Indu Barwal



# **DAV University, Jalandhar**

## **Department of Biotechnology**

### **Proceedings of Meeting**

A meeting of the Board of Studies in the Department of Biotechnology was held on 21<sup>st</sup> May, 2018 at 11.00 a.m. in room no. AD-10, Administrative Block, DAV University, Jalandhar.

Following members were present in the meeting:

1. Prof. (Dr.) Jyoti Vakhlu (External Expert)  
Professor & Director  
School of Biotechnology, University of Jammu, Jammu
2. Dr. Lakhmir Singh  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
3. Dr. Yogesh Kumar  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
4. Dr Praveen Guleria  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
5. Dr. Vikas Sharma  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
6. Dr. Indu Barwal  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar

Dr. Sudhir Kumar Sharma, Chief Scientific and Operative Officer Panacea Biotec Ltd. (Industrial Expert), was unable to attend the meeting.

It was discussed and unanimously resolved to approve the proposed outline of schemes and syllabi of the courses of reading for the following programs of Batch 2018:

- a) B.Sc. (Hons.) Biotechnology

- b) M.Sc. (Hons.) Biotechnology
- c) Ph.D. Biotechnology

It was discussed and unanimously agreed upon to make following changes in the syllabi:

### **B.Sc. (Hons.) Biotechnology**

1. In 1<sup>st</sup> semester, 'Membrane Biology and Bioenergetics' and 'Membrane Biology and Bioenergetics Laboratory' (BCH216 & BCH217) were added in generic elective list
2. In 2<sup>nd</sup> semester, 'Bacteriology' and 'Bacteriology Laboratory' (MIC113 & MIC114) were added in generic elective list
3. In 3<sup>rd</sup> semester, 'Microbial Physiology' and 'Microbial Physiology Laboratory' (MIC221 & MIC222) were added in generic elective list
4. In 4<sup>th</sup> semester, 'Microbial Genetics' and 'Microbial Genetics Laboratory' (MIC225 & MIC226), 'Proteins and enzymes' and 'Proteins and enzymes Laboratory' (BCH218 & BCH219) were added in generic elective
5. Latest edition of the books in suggested readings should be added wherever applicable.
6. Units of all the courses should have equal amount of content and weightage throughout.


### **M.Sc. (Hons.) Biotechnology**

1. In 1<sup>st</sup> semester 'Scientific Writing and Research Methodology' was included as open elective/interdisciplinary course.
2. 'Biostatistics and Research Methodology' was replaced with 'Biostatistics' in the core courses of 2<sup>nd</sup> Semester
3. 'Enzymology' was introduced as departmental elective in 4<sup>th</sup> semester.
4. Project work in the second year may be allotted to the students on merit basis. Selection of the students for the projects will be made by the end of their 2<sup>nd</sup> semester. Students selected for 'Project Part I' will opt for 'Project Part II' and others would have to select two departmental elective courses of equal credits.
5. Latest edition of the books in suggested readings should be added wherever applicable.
6. Units of all the courses should have equal amount of content and weightage throughout.

**Ph.D. Biotechnology**

1. BFY641: IPR should include Biodiversity laws

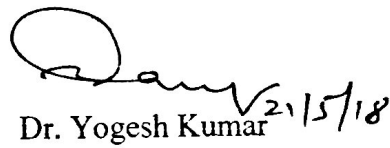
2. BFY804: Add CRISPR/Cas9 site directed nucleases

  
21/5/18

Prof. (Dr.) Jyoti Vakhlu (External Expert)

  
10/04/18

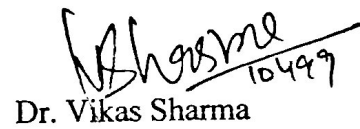
Dr. Lakhmir Singh

  
21/5/18

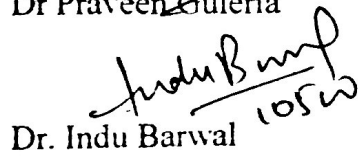
Dr. Yogesh Kumar

  
10/2/18

Dr Praveen Guleria

  
10/4/18

Dr. Vikas Sharma

  
10/5/18

Dr. Indu Barwal

# DAV University, Jalandhar

## Department of Biotechnology

### Proceedings of Board of Studies Meeting

A meeting of the Board of Studies in the Department of Biotechnology was held on 14 May, 2019 at 1.00 PM in committee room, Administrative Block, DAV University, Jalandhar.

Following members were present in the meeting:

1. Prof. (Dr.) Jyoti Vakhlu (External Expert)  
Professor & Director  
School of Biotechnology, University of Jammu, Jammu
  2. Dr. Yogesh Kumar  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
  3. Dr. Praveen Guleria  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
  4. Dr. Vikas Sharma  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
  5. Dr. Mohit Sharma  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
  6. Dr. Preeti Solanki  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
1. It was discussed and unanimously resolved to approve the proposed outline of schemes and syllabi of the courses of reading for the following programs of Batch 2019:
- a) B.Sc. (Hons.) Biotechnology
  - b) M.Sc. (Hons.) Biotechnology
  - c) Ph.D. Biotechnology

2. It was discussed and unanimously agreed upon to make following changes in the syllabi with respect to previous year:

#### *B.Sc. (Hons.) Biotechnology*

i. Course codes and course names of following courses in B.Sc. (Hons.) Biotechnology syllabus were changed as follows:

S. No.	Previous Course Code	Previous Course Name	Proposed Course Code	Proposed Course Name
1	BTY231	Genetics	BTY231A	Basic Genetics
2	BTY232	Genetics Laboratory	BTY232A	Basic Genetics Laboratory
3	BTY121	Cell Biology	BTY121A	Fundamentals of Cell Biology
4	BTY122	Cell Biology Laboratory	BTY122A	Fundamentals of Cell Biology Laboratory
5	BTY241	Molecular Biology	BTY241A	Fundamentals of Molecular



# DAV University, Jalandhar

## Department of Biotechnology

				Biology
6	BTY242	Molecular Biology Laboratory	BTY242A	Fundamentals of Molecular Biology Laboratory
7	BTY111	Plant Biotechnology	BTY111A	Fundamentals of Plant Biotechnology
8	BTY112	Plant Biotechnology Laboratory	BTY112A	Fundamentals of Plant Biotechnology Laboratory
9	BTY353	Recombinant DNA technology	BTY353A	Introduction to Genetic Engineering
10	BTY354	Recombinant DNA technology Laboratory	BTY354A	Introduction to Genetic Engineering Laboratory
11	BTY397	Food Biotechnology	BTY397A	Introduction to Food Biotechnology
12	BTY398	Food Biotechnology Laboratory	BTY398A	Introduction to Food Biotechnology Laboratory
13	BTY391	Animal Biotechnology	BTY391A	Basics of Animal Biotechnology
14	BTY392	Animal Biotechnology Laboratory	BTY392A	Basics of Animal Biotechnology Laboratory
15	BTY393	Virology	BTY393A	Basic Virology
16	BTY394	Virology Laboratory	BTY394A	Basic Virology Laboratory
17	BTY383	Enzymology	BTY383A	Introduction to Enzymology
18	BTY384	Enzymology Laboratory	BTY384A	Introduction to Enzymology Laboratory
19	BTY385	Environmental Biotechnology	BTY385A	Fundamentals of Environmental Biotechnology
20	BTY386	Environmental Biotechnology Laboratory	BTY386A	Fundamentals of Environmental Biotechnology Laboratory
21	BTY371	Immunology-	BTY371A	Basic Immunology
22	BTY372	Immunology Laboratory	BTY372A	Basic Immunology Laboratory
23	MIC111A	General Microbiology	MIC111B	Introductory Microbiology
24	MIC112A	General Microbiology Laboratory	MIC112B	Introductory Microbiology Laboratory

- ii. Editions of text books and reference books were updated wherever applicable
- iii. Scheme for assessment of the students has been included keeping in view the revised examination policy of the University.
- iv. Format of mid-semester examination and end-semester examination question papers have been included in the syllabus for ready reference of the students.
- v. Programme mission, programme learning outcomes, and course objective & learning outcomes in each course have been added.

### *M.Sc. (Hons.) Biotechnology*

- i. Course contents of BTY515A Biochemistry have been updated and restructured. Glycogen metabolism, introduction to enzymes, and protein and nucleic acid metabolism have been added.
- ii. Editions of reference books were updated wherever applicable.
- iii. Scheme for assessment of the students has been included keeping in view the revised examination policy of the University.



# DAV University, Jalandhar

## Department of Biotechnology

- iv. Format of mid-semester examination and end-semester examination question papers have been included in the syllabus for ready reference of the students.
- v. Programme mission, programme learning outcomes, and course objective & learning outcomes in each course have been added.

3. It was discussed and unanimously resolved to offer following value-added to graduate and post-graduate students to be opted by students in addition to his/her existing credits:

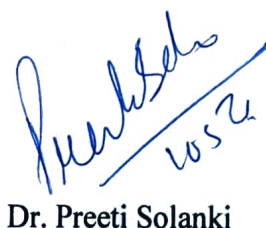
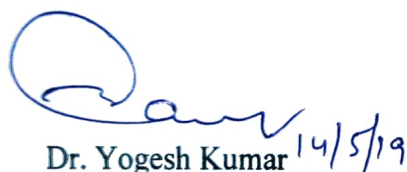
BTY401: Entrepreneurship in Plant Tissue Culture

BTY402: Protein Science and Engineering

BTY403: Quality Assurance and Quality Control in Pharmaceutical Industry



Prof. (Dr.) Jyoti Vakhlu (External Expert)



# DAV University, Jalandhar

## Department of Biotechnology

### Proceedings of Board of Studies Meeting

A meeting of the Board of Studies in the Department of Biotechnology was held on 7<sup>th</sup> March, 2020 at 11.00 AM in committee room, Administrative Block, DAV University, Jalandhar.

Following members were present in the meeting:

1. Prof. (Dr.) Pratap Kumar Pati (External Expert)  
Professor & Head  
Department of Biotechnology, Guru Nanak Dev University, Amritsar
2. Dr. Praveen Guleria  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
3. Dr. Lakhmir Singh  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
4. Dr. Yogesh Kumar  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
5. Dr. Shivika Sharma  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar

1. It was discussed and unanimously resolved to approve the proposed outline of schemes and syllabi of the courses of reading for the following programs of Batch 2020:

- a) B.Sc. (Hons.) Biotechnology
- b) M.Sc. (Hons.) Biotechnology
- c) Ph.D. Biotechnology

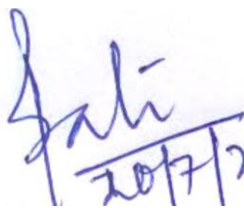
2. It was discussed and unanimously agreed upon post-facto approval of changes in the course codes and credits in syllabi of M.Sc (Hons.) Biotechnology (Session 2018-19 and 2019-20).

- a) Food Biotechnology: BTY643B, 3 credits
- b) Computational Biology & Bioinformatics: BTY635A, 3 credits

3. It was discussed and unanimously agreed upon to make following changes in the syllabi with respect to previous year:

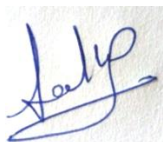
B.Sc (Hons.) Biotechnology

- i) Edition of text books and reference books were updated wherever applicable.

  
20/7/2020



  
10679





# DAV University, Jalandhar

## Department of Biotechnology

- ii) Course contents of BTY351 Bioprocess Technology was updated and restructured. Continuous stirred-tank reactor, Fluidized bed reactor have been added to make student understand the concept of both mechanically and non-mechanically agitated bioreactors. Volumetric mass transfer coefficient and oxygen transfer from gas bubble to cell have also been added.
- iii) Course contents of BTY391A Basics of Animal Biotechnology was updated and restructured. Animal Cell culture scale up techniques, gene transfer methods and cryopreservation has been included in the syllabus.
- iv) Course content of BTY382 Molecular Diagnostics was updated. Section including hybridization and sequencing techniques elaborated.
- v) Course Content of BTY111A Fundamentals of Plant Biotechnology was updated. Section including Entrepreneurship in plant tissue culture was added to Unit IV.

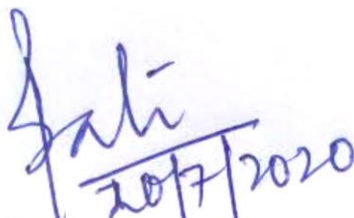
### M.Sc. (Hons.) Biotechnology

i) Course codes and course names of following courses in M.Sc. (Hons.) Biotechnology syllabus was changed as follows:

- a) Food Biotechnology: BTY643B, 3 credits
- b) Computational Biology & Bioinformatics: BTY635A, 3 credits
- c) Scientific Writing and Intellectual Property Rights: BTY641A, 3 credits
- d) Bioanalytical Techniques: BTY527B, 4 credits

ii) Edition of text books and reference books were updated wherever applicable.

iii) Course contents of BTY521 Recombinant DNA Technology was updated and restructured. Phagemid, artificial chromosome vectors and selection of clones of desired genes from gene libraries added.

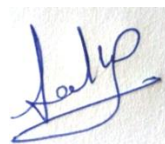


20/7/2020

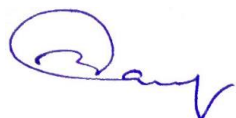
Prof. (Dr.) Pratap Kumar Pati (External Expert)



Dr. Praveen Guleria



Dr. Lakhmir Singh



Dr. Yogesh Kumar (10041)



10679

Dr. Shivika Sharma

DAV University, Jalandhar  
Department of Biotechnology

Proceedings of Board of Studies Meeting

A meeting of the Board of Studies in the Department of Biotechnology was held on 19<sup>th</sup> May, 2024 at 2:00 PM in an online mode

Following members were present in the meeting:

1. Dr. Kashmir Singh (External Expert)  
Chairperson  
Department of Biotechnology, Panjab University, Chandigarh
2. Dr. Praveen Gulera  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
3. Dr. Jakhmir Singh  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
4. Dr. Yogesh Kumar  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar
5. Dr. Shivika Sharma  
Assistant Professor  
Department of Biotechnology, DAV University, Jalandhar

1. It was discussed and unanimously resolved to approve the proposed outline of schemes and syllabi of the courses of reading for the following programs of Batch 2021:

- a) B.Sc. (Hons.) Biotechnology
- b) M.Sc. (Hons.) Biotechnology
- c) Ph.D. Biotechnology

2. It was discussed and unanimously agreed upon post-facto approval of changes in the course codes and credits in syllabi of M.Sc. (Hons.) Biotechnology (Session 2019-20 and 2020-21)

- a) Environmental Biotechnology: BTY631A
- b) Environmental Biotechnology Laboratory: BTY632A
- c) Fermentation and Bioprocess Technology: BTY525A
- d) Fermentation and Bioprocess Technology Laboratory: BTY526A
- e) Food Biotechnology: BTY643B: 4 Credits

*Kashmir Singh*

*Jalvir*  
10042

*[Signature]*  
10736

*Praveen*  
10267

*[Signature]*  
10041



# DAV University, Jalandhar

## Department of Biotechnology

3. Addition of course Research and Publication Ethics, BTY803, 4 Credits to the Ph.D programme.

4. It was discussed and unanimously agreed upon to make following changes in the syllabi with respect to previous year:

### B.Sc (Hons.) Biotechnology

- i) Edition of text books and reference books were updated wherever applicable.
- ii) The course MIC333A Basic Immunology and MIC334A Basic Immunology Laboratory was added as Generic Elective in Semester II.
- iii) Course content of BTY391A Animal Biotechnology was updated. The topic In Vitro Fertilization was added to Unit III.
- iv) Course contents of BTY383A Introduction to Enzymology was updated and revised. In Unit III, Allosteric Enzyme Models: concerted and sequential models have been revised. In Unit IV, the topic Industrial Important Enzymes have been added.
- v) Course content of BTY123 Fundamentals of Cell Biology was updated. The topics protein types and carbohydrates, transport across the membrane: simple diffusion, osmosis, facilitated transports, active transport were added to Unit I. The topics secretory and transmembrane protein synthesis, hypothesis of transport across golgi cisternae; lysosome, autophagic pathway; mitochondria, ATP synthesis; structure of ATP synthetase, binding change mechanism were added to Unit II. Protein import from cytoplasm to nucleus, cyclins-CdKs, checkpoints added to Unit III. The topics coated proteins, COPI, COPII and clathrin coated vesicular transport added to Unit IV.
- vi) Content of BTY124 Fundamentals of Cell Biology Laboratory updated. II. The practical Isolation of chloroplast was added.
- vii) Course contents of BTY361 Bioanalytical Tools was revised and updated. The topic PCR. Principle, types and applications added to Unit IV.
- viii) The practical Polymerase chain reaction added to BTY361 Bioanalytical Tools Laboratory.
- ix) The topics physical, chemical, biological synthesis, Atomic force microscopy, electron microscopy, FTIR added to Unit I.
- x) Introduction of BTY399 Medical Microbiology as Skill Enhancement Course in Semester III and IV.

### M.Sc. (Hons.) Biotechnology

i) Course codes and course names of following courses in M.Sc. (Hons.) Biotechnology syllabus was changed as follows

*Kashmir*

*Harvey*  
10205

*July*  
10002

*[Signature]*  
10736

*[Signature]*  
1041

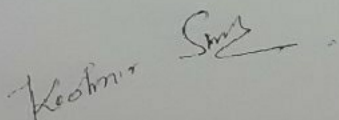


# DAV University, Jalandhar

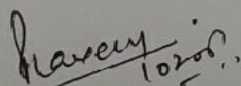
## Department of Biotechnology

- a) Food Biotechnology: BTY645, 3 credits
- b) Environmental Biotechnology: BTY631A, 4 credits
- c) Environmental Biotechnology Laboratory: BTY632A, 2 credits
- d) Fermentation and Bioprocess Technology: BTY525A, 3 credits
- e) Fermentation and Bioprocess Technology Laboratory: BTY526A, 1 credit

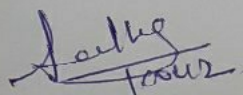
- ii) Edition of text books and reference books were updated wherever applicable.
- iii) Course contents of BTY645 Food Biotechnology was updated and restructured. History of Food Biotechnology and Microorganisms in food fermentation was added to Unit I.
- iv) Course contents of BTY527B Bioanalytical Techniques was updated and restructured. Reverse transcription polymerase chain reaction (RT-PCR) topic was added to Unit I. Fast protein liquid chromatography (FPLC) technique was added to Unit III.
- v) Course contents of BTY637 Enzymology was updated and restructured. The topics zymogens and ribozymes were added to Unit I.



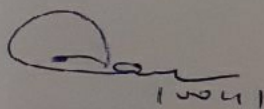
Dr. Kashmit Singh (External Expert)



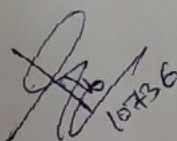
Dr. Praveen Gulera



Dr. Lakhmir Singh



Dr. Yogesh Kumar



Dr. Shivika Sharma