

Yearly Plan for IQAC 2010-11

School of Biochemistry, DAVV, Indore

1. Curriculum Aspects :

School of Biochemistry is having a two year M.Sc. Biochemistry programme with intake strength of 30 per year. The curriculum designing has wide applicability to various disciplines, which require biochemistry background. The syllabus covers all the major areas of Biochemistry including basic, advanced as well as specialized courses. The course includes theory, practicals as well as project work. In each semester there are 4 to 5 papers (3-4 hours theory for each paper per week) and 10 credits laboratory work (20 hours per week). In addition, students have to give seminars, which are of 2 hrs per week. Class tests are held for each semester regularly in all subjects.

At present, about 20 Research scholars are working in the department. Out of these, some of them are also working at other nationally recognized laboratories. A number of research papers have been published in the national as well as international journals, several students have been awarded doctoral degree and research projects are running successfully.

The school has 4 faculty members with specialization in the fields of plant biochemistry, clinical biochemistry, toxicology, membrane biology etc.

The meetings of Board of Studies are regularly held for the upgradation of the Course as per the UGC Guidelines. Recent advances in the field of Biochemistry are included in the course from time to time.

To develop computer skills among the students, for the last 5 years subject like Bioinformatics and Computer Application to Biology were introduced in the curriculum.

Employability of students is generally in the research field, pharmaceuticals, food and health sectors.

Feedback on curriculum is regularly obtained from the students and is taken into consideration.

2. Strategies of Teaching Learning

Advertisement for the Admission to the M.Sc. Course is done by publication in National dailies and is also available on the University Website. The admission is through an All India Entrance Examination and is on merit in the entrance test plus B.Sc. % weightage, if any. Reservation for SC/ST/OBC are as per government policy. Generally 300-400 applications are received for 30 seats.

Teaching Learning process

The department strictly follows University academic calendar for the course.

Teaching Method: School uses LCD projector, OHP and blackboard teaching.

Laboratories: Laboratories are equipped with analytical instruments such as HPLC, Ultracentrifuge, spectrophotometer etc.

Library: School has a well established departmental Library with latest editions of books. Recently books worth Rs. 2.0 Lakhs were purchased from UGC XIth Plan Grant.

The facility of INFLIBNET and electronic journals is available with the university and is widely used by the students, research scholars and faculty members.

Teacher quality

There are 2 Professor (CAS) and 2 Senior Lecturers in the department. One post of Professor and 1 post of Reader (ST) are vacant. Additional 2 faculty members (Guest Lecturers) are invited to teach Biostatistics and Bioinformatics. All the teachers have Ph.D. qualification with wide experience. Two women teachers are there among the faculty members out of four.

One senior lecturer has attended staff development programme during the last 5 years and 50% of the faculty members have served as resource persons in Workshops/Academic staff programmes during the last 5 years. Fifty percent of the staff have also participated in workshop/seminars/conference during the last five years. All the faculty members use computer, internet and audio visual aids etc.

Evaluation Process and Reforms

The evaluation of teachers by the students is in the form of feedback.

The evaluation of the students takes place during the course. This includes 2 class tests followed by a final examination for each theory papers. Grades are awarded as per Ordinance 31. The students are shown the answer sheet after evaluation and the questions are discussed in the class.

The examination result is declared within 2-3 weeks of the examination. The current system of evaluation is in practice from 1991 and it has been observed to be very satisfactory.

3. Research, Consultancy and Extension:

A project for M.Sc. IV semester students is evaluated by the Board of examiners including one external examiner. For the Ph.D. programme, a Research Degree Committee evaluates the synopsis of candidates, who wishes to register for the degree.

The research projects are funded by the grant available with the faculty members obtained through funding agencies.

Research and Publication Output: The department is running 3 external funded projects:

- 1 UGC Major Research Project entitled “Radioprotective effect of dietary constituents against gamma irradiation induced oxidative stress” under Dr. Deepak Bhatnagar. Grant- Rs. 8.71 Lakhs. (2009-2012).
2. UGC Major Research Project entitled “Characterization of structural features and interactions of erythrocyte membrane proteins of some non-human mammals” under Dr. S.M. Gokhale Grant- Rs. 6.20 Lakhs. (2010-2013).
3. MPCST Research Project entitled “Osmotic stress- induced changes on chlorophyll metabolism and antioxidative system in maize leaves” under Dr. Meeta Jain. Grant- 3.90 Lakhs (2010-2013).

Research and Publication output.

List of Publications (2010-11)

1. Yadav A S and Bhatnagar D (2010) Inhibition of iron induced lipid peroxidation and antioxidant activity of Indian spices and Acacia in vitro. *Plant Food for Human Nutrition*, 65, 18–24,
2. Kumar V, Rani A, Dixit AK, Bhatnagar D and Chauhan GS (2009). Relative changes in tocopherols, isoflavones, total phenolic content and antioxidative activity in soybean seeds at different reproductive stages. *Journal of Agricultural and Food Chemistry* 57, 2705-2710.
3. Kumar V, Rani A, Dixit AK, Pratap D and Bhatnagar D (2010). A comparative assessment of total phenolic content, ferric reducing-anti-oxidative power, free radical-scavenging activity, vitamin C and isoflavones content in soybean with varying seed coat colour. *Food Research International*, 43, 323–328.
4. Dixit AK, Bhatnagar D, Kumar V, Rani A, Manjaya JG, and Bhatnagar D (2010). Gamma Irradiation induced enhancement in isoflavones, total phenol, anthocyanin and antioxidant properties of varying seed coat colored soybean. *Journal of Agricultural and Food Chemistry*, 58, 4298–4302.
5. Kumar V, Rani A, Goyal L, Dixit AK, Manjaya JG, Dev J, Swamy M. (2010). Sucrose and raffinose family oligosaccharides (RFOs) in soybean seeds as influenced by genotype and growing location. *Journal of Agricultural and Food Chemistry*, 58, 5081–5085.
6. Dixit AK, Kumar V, Rani A, Manjaya JG and Bhatnagar D. (2011). Effect of gamma irradiation on lipoxygenases, trypsin inhibitor, raffinose family oligosaccharides and nutritional factors of different seed coat colored soybean (*Glycine max L.*). *Radiation Physics & Chemistry*, 80, 597-603.
7. Dixit AK, Bhatnagar D, Kumar V, Rani A, Manjaya JG, and Bhatnagar D. (2010). Influence of gamma irradiation on in vitro lipid peroxidation and antioxidant properties of soybean with different seed coat color. *International Journal of Food Properties* (In press).
8. Azeez A, Aniruddha P. Sane, Tripathi SK, Bhatnagar D and Nath P. (2010) The gladiolus *GgEXPA1* is a GA-responsive alpha-expansin gene expressed ubiquitously during expansion of all floral tissues and leaves but repressed during organ senescence. *Postharvest Biology and Technology*. doi:10.1016/j.postharvbio.2010.05.006.
9. Kumar A, Kumar J, Khan ZA, Yadav N, Sinha V, Bhatnagar D and Khan JA (2010). Study of betasatellite from leaf curl disease of sunn hemp (*Crotalaria juncea*) in India. *Virus genes* (In press)
10. Jain S, Jain M and Sharma CS (2010). Effect of yoga and relaxation techniques on cardiovascular system. *Indian J. Physio. Pharmaco*, 54 (2) 183-185.
11. Jain M, Swati Tiwary and Gadre R (2010). Sorbitol induced changes in various growth and biochemical parameters in maize. *Plant, Soil and Environ*, 56 (6) 263-267.

12. Jain S, Jain M and Sharma CS (2010). Changes in respiratory function and lipid profile due to yoga and relaxation techniques. *Inter. J. Pharmacol. Biol. Sci.* (In press)

Collaborations

The faculty members have one-to-one research collaboration with scientist of other Institutes.

Dr. D. Bhatnagar is working in collaboration with

- Dr. Vineet Kumar, Senior Scientist, NRCS, Indore
- Dr. (Mrs) Kaiser Jamil, Head, Genetics Dept., Bhagwan Mahavir Med. Res. Centre, Hyderabad
- Dr. Jawaid Khan, Professor, Jamia Milia Islamia University, New Delhi.
- Dr. Poonam Rana, Scientist D, INMAS, DRDO, New Delhi

Dr. R. Gadre is working in collaboration with

- Dr. Vineet Kumar, Senior Scientist, NRCS, Indore
- Dr. (Mrs.) Sane, Scientist D, NBRI, Lucknow

Dr. S.M. Gokhale is working in collaboration with

- Dr. Surekha Zingade, Dy Director, ACTREC, Mumbai
- Dr. Vineet Kumar, Senior Scientist, NRCS, Indore
- Dr. Sribash Roy, Senior Scientist, NBRI, Lucknow

Dr. Meeta Jain is worked in collaboration with

- Dr. A.S. Raghavendra, Dept. of Plant Sciences, University of Hyderabad, Hyderabad
- Dr. Sai Prasad, Senior Scientist, IARI Regional Station Indore.
- Dr. Anita Rani, Principal Scientist, NRCS, Indore.
- Dr. P.K. Singh, Senior Scientist, NBRI, Lucknow

Madhya Pradesh Council of Science and Technology, (MPCST), Bhopal and Bhartiya Vigyan Prodhogiki Evam Sanchar Parishad, Department of Science and Technology, New Delhi sponsored seven guest lectures were organized by Dr. D. Bhatnagar, Professor of Biochemistry, Coordinator MPCST. Speakers were as follows:

1. Dr. Ashok Kumar Sharma, Professor, School of Chemical Sciences, DAVV Indore delivered a talk on the topic "Infrared Spectroscopy" on 10.03.2011.
2. Dr. S.M. Gokhale, Sr. Lecturer, School of Biochemistry, DAVV, Indore delivered a talk on the topic "Carbohydrate and its metabolism" on 10.03.2011.
3. Dr. Sheela Joshi, Professor, School of Chemical Sciences, DAVV, Indore delivered a talk on the topic "Drug designing with reference to malaria" on 12.03.2011.
4. Dr. H.P.S. Chouhan, Professor, School of Chemical Sciences, DAVV, Indore delivered a talk on the topic "Biological function and role of metal with special reference to iron" on 15.03.2011.

5. Dr. R.K. Mehta, Professor and Head (Retd.), Department of Chemistry, Jodhpur University, Jodhpur delivered a talk on the topic "Contributions of Indian Scientist" on 18.03.2011.
 6. Dr. Alok Mittal, Professor, Department of Chemistry, MANIT, Bhopal delivered a talk on the topic "Removal of Dyes by various adsorbents" on 19.03.2011.
 7. Dr. A.G. Fadnis, Professor (Retd.) Department of Chemistry, Holkar Science College, Indore delivered a talk on the topic "Free Radicals in Biology and Chemistry" on 19.03.2011.
- Essay competition was held for the students by the support of MPCST, Bhopal on 13.03.2011. The competition was open for science students of Devi Ahilya University and its affiliated Colleges.
 - The Science Quiz was organized at the School of Biochemistry on 13.03.2011.
 - National Science Day was celebrated in the department.

4. Infrastructure and Learning Resources

At present, the department building is approx. of 1200 sq meters on the ground floor. Construction of about 500 sq. meter which includes 2 Research Laboratories, 1 Seminar hall and one Faculty room is underway on the first floor of the building from UGC XIth Plan Grant.

Laboratories are equipped with analytical instruments such as HPLC, Ultracentrifuge, spectrophotometer etc.

School has a well established departmental Library with latest editions of books. Recently books worth Rs. 2.0 Lakhs were purchased from UGC XIth Plan Grant. The facility of INFLIBNET and electronic journals is available with the university and is widely used by the students, research scholars and faculty members.

IT centre as learning resources: The University has IT centre which provide internet facility to all the department.

5. Student Support and Progression

There are 26 students, admitted to the M.Sc. Biochemistry Course. There are 10 Male and 16 Female, out of which 3 are of SC, 2 ST, 3 OBC and 1 of Freedom fighter category. Govt. reservation policy is implemented as per rules.

More than 50 % the students go for higher studies as Ph.D. and research fellow. Fifteen students qualified GATE, 6 qualified NET, 2 qualified GRE and 1 TOFEL in the year 2010-11.

The prospectus is available on the departmental website.

Students actively participated in annual UTD sports celebration. The School provided the sport kits for participation.

Students actively participated in Essay and Quiz competition, which was held by the support of MPCST, Bhopal on 13.03.2011.

6. Governance and Leadership

Mission: To produce Biochemistry professionals with excellent academic, analytical and research aptitude to work in cross-cultural environment.

7. Innovative practices

An Internal quality assurance system has been developed for quality assurance and enhancement. To achieve this goal, there are regular meetings of the Faculty members within the department as well as at the University Level.

All efforts are made to implement suggestions from Faculty members and students for quality improvement.

Plan on improvement in Relationship with stakeholders

Students will be encouraged to follow the best practices under academic and extra-curricular activities. Regular monitoring of the students and interaction with them will definitely improve academic environment and also motivate students for the result oriented approach.

Evaluative report of the Department

Faculty Profile

Number of Faculty members in position:

| | |
|---------------------|---------|
| A) Professor | 2 (CAS) |
| B) Senior Lecturers | 2 |

| Name of the Faculty Member | Designation | Age | Highest Qualification |
|----------------------------|--------------|-----|-----------------------|
| Dr. D. Bhatnagar | Professor | 59 | Ph.D. |
| Dr. Rekha Gadre | Professor | 52 | Ph.D. |
| Dr. S.M. Gokhale | Sr. Lecturer | 49 | Ph.D. |
| Dr. Meeta Jain | Sr. Lecturer | 40 | Ph.D. |

Plan on improvement:

School has a Building with 1200 square meter covered area. 2 new Labs, 1 seminar hall and 1 Faculty room are under construction. UGC has sanctioned a total of Rs. 40 lakhs under Infrastructure, equipment, teaching staff and books grant under XI Plan.

Departmental Library with 1000 + books, 24x7 Internet, Multimedia/ LCD in classrooms and full power back up in the laboratories/class rooms.

Research projects carried out: Many research projects have been sanctioned to departmental Faculty by different funding organization as mentioned earlier.

**Name & Signature of the
Coordinator QAC**

**Name & Signature of the
HEAD, UTD**