

ANNUAL QUALITY ASSESSMENT REPORT

Name of Institute: SCHOOL OF BIOCHEMISTRY, DAVV, INDORE

Year of Report: 2011-12

Part A The plan of action chalked out by the IQAC in the beginning of the year towards quality enhancement and the outcome achieved by the end of the year

1. Curriculum Aspects	<ul style="list-style-type: none">• 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.• Curriculum is updated from time to time. Last update was in 2011.• Grade-Credit system is followed.• Feedback is obtained from the students for all the courses.• Intake of student of 30 per year.• Recent advances in the field of Biochemistry are included in the course from time to time.• The meetings of Board of Studies are regularly held for the upgradation of the Course as per the UGC Guidelines.• 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.• 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.• For 2012-13 session, the admission process has taking place online through Common Entrance Test. CET 2012 was held on 26-27 June 2012.
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	<ul style="list-style-type: none"> • Reservation for SC/ST/OBC are as per MP Government Policy. Generally 300-400 applications are received for 30 seats. • Employability of students is generally in the research field, pharmaceuticals, food and health sectors.
2. Teaching Learning and Evaluation	<ul style="list-style-type: none"> • The School has 4 Faculty members (Prof 2, Sr. Lect 2) with specialization in the fields of Plant Biochemistry, Clinical Biochemistry, Toxicology, Membrane Biology etc. • All faculty members are Ph.D. in the subject. • Teacher Student ratio is about 1:15. • Teachers are motivated to attend seminars, workshop. • Teachers have undertaken refresher courses as per UGC guidelines. • Each semester there are 4 to 5 papers (3 credit hrs theory classes per day) and 10 credits laboratory work (20 hours per week). • In addition, students give seminars, which are of 2 Credit per week. • 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 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. During about last one year, books worth Rs. 2.0 Lakhs were purchased

	<p>from UGC Xith Plan Grant.</p> <ul style="list-style-type: none"> • The facility of INFLIBNET and electronic journals are available in the University and are widely used by the students, research scholars and faculty members. • There are 2 Professors (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 interdisciplinary subjects of biostatistics and bioinformatics. All the teachers have Ph.D. qualification with wide experience. 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 has also participated in workshop/seminars/conference during the last five years. Two women teachers are there among the faculty members out of four. • All the faculty members use computer, Internet and audio visual aids etc.
<p>3. Evaluation Process and Reforms</p>	<ul style="list-style-type: none"> • Continuous and comprehensive evaluation process is followed which include 2 Class tests and Final examination in each semester. • 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.
<p>4. Research, Consultancy and Extension</p>	<ul style="list-style-type: none"> • 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.

	<ul style="list-style-type: none"> • The research projects are funded by the grant available with the Faculty members obtained through funding agencies. • Research and Publication: The department is running 4 external funded projects: <ol style="list-style-type: none"> 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). 4. Project on “Forest for sustainable livelihood” for National Environment Awareness Campaign (2011-12) sanctioned by Environment Planning and Coordination Organisation (EPCO) Bhopal (Grant Rs 10,000/-).
5. Research and Publication output	<ul style="list-style-type: none"> • List of Publications (2011-12) <ol style="list-style-type: none"> 1. 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 (<i>Glycine max L.</i>). <i>Radiation Physics & Chemistry</i>, 80, 597-603. 2. Kumar A, Kumar J, Khan ZA, Yadav N, Sinha V, Bhatnagar D and Khan JA (2011). Study of betasatellite from leaf curl disease of sunn hemp (<i>Crotalaria juncea</i>) in India. <i>Virus genes</i> (In press) 3. Ritu Tyagi, Poonam Rana, Ahmed Raza Khan, D Bhatnagar, M. Memita Devi, Shubhra Chaturvedi, Rajendra P Tripathi and Subash Khushu (2011). Study of acute biochemical effects of thallium toxicity in mouse urine by NMR spectroscopy. <i>J. App. Toxicol.</i>

	<p>31, 663-670.</p> <ol style="list-style-type: none"> 4. Tyagi R, Rana P, Gupta N, Khan AR, Bhatnagar D , Bhalla PJS, Chaturvedi S, Tripathi RP and Khushu S (2012). Differential biochemical response of rat kidney towards low and high doses of nickel chloride as revealed by NMR spectroscopy. <i>J. Applied Toxicology</i> (DOI 10.1002/jat.1730). 5. Dixit Amit Kumar, Deepti Bhatnagar, Vineet Kumar, D. Chawla, K. Fakhruddin, D Bhatnagar (2012). Antioxidant potential and radioprotective effect of soy isoflavone against gamma irradiation induced oxidative stress. <i>J. Functional Foods</i> 4, 197-206. 6. Dixit AK, Bhatnagar D, Kumar V, Rani A, Manjaya JG, and Bhatnagar D. Influence of gamma irradiation on in vitro lipid peroxidation and antioxidant properties of soybean with different seed coat color. <i>International Journal of Food Properties</i> (In press). (2012) ISSN 1094-2912, (Impact factor 1.565). 7. Jain M, Swati Tiwary and Gadre R (2010). Sorbitol induced changes in various growth and biochemical parameters in maize. <i>Plant, Soil and Environ</i>, 56 (6) 263-267. 8. Sharma Savita and Gokhale S. M. (2011) Solubility behaviour of integral proteins and glycoporphins of mammalian erythrocyte membrane. <i>Asian J. Exp. Biol. Sci.</i> 2, 449-454. 9. Sharma Savita and Gokhale S. M. (2011). Sialoglycoproteins of mammalian erythrocyte membranes: A comparative study. <i>Asian-Aust. J. Anim. Sci.</i> 24, 1666-1673. 10. Sharma Savita and Gokhale S.M. (2012) Differential actions of proteinases and neuraminidases on mammalian erythrocyte surface and its impact on erythrocyte agglutination by concanavalin A. <i>General Physiology and Biophysics</i> (in press).
<p>6. Infrastructure and Learning Resources</p>	<ul style="list-style-type: none"> • At present, the department building is approx. 1200 sq meters on the ground floor. Construction of about 500 sq. meters, which includes 2 Research Laboratories, 1 Seminar hall and one Faculty room has been built on the first floor of the building by the support of UGC XIth Plan Grant. • Laboratories are equipped with analytical instruments such as HPLC, Ultracentrifuge, spectrophotometer etc.

	<ul style="list-style-type: none"> • 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 are available with the university and are 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 University Teaching Department.
7. Student Support and Progression	<ul style="list-style-type: none"> • There are 26 and 28 students in M.Sc. Previous and Final year Biochemistry Course respectively. Govt. reservation policy is implemented as per rules. • More than 50 % the students go for higher studies as Ph.D. and research fellow. Eight students qualified GATE and 1 student qualified NET (LS) in the year 2011-12. • Job opportunities in academics and industry • The syllabus of the course and other details are 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 26.03.2012.
8. Governance and Leadership	<ul style="list-style-type: none"> • Full academic autonomy. • Faculty involved in Selection, Inspection of various colleges, Examination and Professional Development activities of the Universities. • Examination results of the department are declared on time.
9. Innovative and best practices	<ul style="list-style-type: none"> • 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. • The students are shown the answer books and the questions are discussed in the class. The students have the opportunity to discuss the answers and clear doubts if any, with the Faculty members. Grades are awarded after the answer books are shown to the students.

	<ul style="list-style-type: none"> • Internet facility is available is available to the students. • Plantation has taken place around the Dept.
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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	60	Ph.D.
Dr. Rekha Gadre	Professor	53	Ph.D.
Dr. S.M. Gokhale	Sr. Lecturer	50	Ph.D.
Dr. Meeta Jain	Sr. Lecturer	41	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 have been constructed. The UGC 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 IQAC**

**(Deepak Bhatnagar)
Name & Signature of the
Head, School of Biochemistry**

ASSESSMENT STATUS REPORT OF UTD

Name of the School: School of Biochemistry

Year of Report: **2011-2012**

Part B:

1.	Activities reflecting the goals and objectives of the institution	<ul style="list-style-type: none"> • Regular teaching with teaching aids Syllabus coverage in details Promotion of research activities Seminar presentation by students Project work of 5-6 months undertaken by M.Sc. students
2.	New academic program initiated (UG and PG)	<ul style="list-style-type: none"> • None
3.	Innovations in curricular design and transaction	<ul style="list-style-type: none"> • Grade-Credit semester system. Updated curriculum. • Class room teaching by OHP and LCD. • Syllabus of Computer application paper has been revised and upgraded in May 2011.
4.	Inter-disciplinary programmes started	<ul style="list-style-type: none"> • Biostatistics and Computer Applications papers already existed.
5.	Examination reforms implemented	<ul style="list-style-type: none"> • Semester system is followed and the answer sheets are shown to the students after evaluation. Discussion on the answers is held to make more understanding on the subjects.
6.	Candidates qualified NET/SLET/GATE etc.	<ul style="list-style-type: none"> • Eight students qualified GATE and 1 qualified NET.
7.	Initiative towards faculty development programme	<ul style="list-style-type: none"> • All the Faculty members have collaboration work with other Universities/ Central Lab. • Faculty is encouraged to participate in various national and International seminars/conferences. • Students deliver seminar on every Saturday. Two hr slot is

		<p>allocated for it.</p> <ul style="list-style-type: none"> All faculty members are provided Computers and Internet facility.
8.	Total number of seminars/workshops conducted	<ul style="list-style-type: none"> Seminars <ol style="list-style-type: none"> 1.Seminar on “Recent Trends in Biochemistry”was held on 28.1.2012 at the School of Biochemistry by the support of UGC, New Delhi. 2.Seminar on “Clean Energy Options and Nuclear Safety”was held on 15.4.2012 at the School of Biochemistry by the support of MPCST, Bhopal. Popular Lectures <p>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 lecturers. These were organized by Dr. D. Bhatnagar, Professor and Head, School of Biochemistry, Coordinator MPCST. Speakers were as follows:</p> <ol style="list-style-type: none"> 1. Prof R.S. Maheshwari, Professor, Dept of Biochemistry, Holkar Science College, Indore delivered a talk on the topic “Enzymes and their application” on 24.2.2012 2. Dr. Sourabh Muktibodha, Professor, Mata Jija Bai Govt. Degree College, Indore delivered a talk on the topic: “Basic Principal of NMR and Interpretation of some Organic Spectra” on 27.02.2012. 3. Dr. Ketan Topiwala, Professor, PMB Gujarati Science College, Indore delivered a talk on the topic: “Introduction to Computer and Its application in Chemistry” on 13.3.2012. 4. Dr. Deepak Bhatnagar Professor and Head, School of Biochemistry delivered a talk on the topic: “General aspects of Immunology” on 21.3.2012 5. Dr. Pratibha Sharma Professor, Dept. of Chemistry, DAVV, Indore delivered a talk on the topic “Basic Principal of UV Spectroscopy and its application” on 26.3.2012.

		<p>6. Dr. Ashok Sharma, Professor, Dept. of Chemistry, DAVV, Indore delivered a talk on the topic: "Introduction of Infra red Spectroscopy and its application" on 28.3.2012.</p> <p>7. Dr. M. L. Gangwal, Professor (Retd) PMB Gujarati Science College, Indore delivered a talk on the topic: "Reaction Mechanism in Organic Chemistry" on 30.3.2012.</p> <ul style="list-style-type: none"> • Essay competition was held for the students by the support of MPCST, Bhopal on 26.03.2012. 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 26.3.2012. • National Science Day was celebrated in the Department.
9	<p>Research projects</p> <p>a) Newly implemented</p> <p>b) Completed</p>	<p>1) Newly implemented: 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).</p> <p>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).</p> <p>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).</p>
10.	Patents generated if any	None
11.	New collaborative research program	<ul style="list-style-type: none"> • The Faculty members have one-to-one research collaboration with Scientists of other Institutes. <p>Dr. D. Bhatnagar is working in collaboration with</p> <ol style="list-style-type: none"> 1. Dr. Jawaid Khan, Professor, Jamia Milia Islamia University, New Delhi. 2. Dr. Poonam Rana, Scientist D, INMAS, DRDO, New Delhi. <p>Dr. R. Gadre is working in collaboration with</p>

		<p>1. Dr. Vineet Kumar, Senior Scientist , NRCS, Indore 2. Dr. (Mrs.) Sane, Scientist D, NBRI, Lucknow</p> <p>Dr. S.M. Gokhale is working in collaboration with 1. Dr. Surekha Zingade, Dy Director, ACTREC, Mumbai. 2. Dr. Vineet Kumar, Senior Scientist, NRCS, Indore 3. Dr. Sribash Roy, Senior Scientist, NBRI, Lucknow.</p> <p>Dr. Meeta Jain is worked in collaboration with 1. Dr. A.S. Raghavendra, Dept. of Plant Sciences, University of Hyderabad, Hyderabad 2. Dr. Sai Prasad, Senior Scientist, IARI Regional Station Indore. 3. Dr. Anita Rani, Principal Scientist, NRCS, Indore. 4. Dr. P.K. Singh, Senior Scientist, NBRI, Lucknow</p>
12.	Research grants received from various agencies	Rs 8.71 + Rs. 6.20 + Rs. 3.90 = 18.81 Lakhs
13.	Details of Research scholars	<p>Dr. Deepak Bhatnagar, Professor and Head</p> <p>1. Ms. Harsha Lad 2. Ms. Deepti Bhatnagar 3. Sh. Abhinav Kumar 4. Ms. Ritu Tyagi 5. Ms. Vartika Sinha 6. Ms. Priyanka Mishra</p> <p>Dr. R. Gadre, Professor</p> <p>1. Ms. Sonal Dhamgaye 2. Ms. Samatha Gunapati 3. Ms. Juliana Sarangthem</p> <p>Dr. SM Gokhale, Sr. Lecturer</p> <p>1. Ms. Savita Sharma 2. Sh. Ankit Kelotra 3. Ms. Antariksha Tyagi 4. Ms. Reena Rawal</p> <p>Dr. Meeta Jain, Sr. Lecturer</p> <p>1. Ms. Swati Tiwari 2. Sh. Jayesh Vaishnav 3. Ms. Seema Kelotra</p>

		<p>4. Ms. Vaishali Mourya</p> <p>5. Sh. Sharad Saurabh</p> <p>6. Sh. Prakash Malviya</p>
14.	Citation index of Faculty members and impact factor	<ul style="list-style-type: none"> Average Impact Factor was 2.5 for Dr. D. Bhatnagar. For other faculty members Impact Factor was about 1.0
15.	Honors/Awards to the faculty	<ol style="list-style-type: none"> Dr. D. Bhatnagar was awarded Travel grant to present a research paper at the 14th International Congress of Radiation Research held at Warsaw, Poland from 28 Aug 1- Sept 2011. Travel grant was sanctioned by CSIR, New Delhi, MAPCOST, Bhopal and UGC, New Delhi to Dr. Meeta Jain for paper presentation at the 5th International Congress of Chemistry and Environment, held at Port Dickson, Malaysia from 27th to 29th May, 2011. Dr. Meeta Jain was awarded Fellow Member of International Congress of Chemistry and Environment (FICCE).
16.	Internal resources generated	Departmental Fees
17.	Details of departments getting SAP, FIST, etc assistance/recognition	None
18.	Community services	<ul style="list-style-type: none"> MPCST Coordinator Cell in the Department emphasizes on the promotion of Science in the community. EPCO sponsored National Environment Awareness Campaign was regularly undertaken.
19.	Teachers and officers newly recruited	Nil
20.	Teaching-Non-teaching staff ratio	1:1.5
21.	Improvements in the library services	New Books with latest titles have been added in the Departmental Library by the support of UGC XI Plan grant.
22.	New books/journals subscribed and their	Books 2,00,000/-

	Value	
23.	Courses in which Student Assessment of Teachers is introduced and the action taken on student feedback.	M.Sc. Biochemistry Course Student's Feedback was analyzed. Overall rating about the department and teachers was very good.
24.	Unit Cost of Education. Unit cost = total annual expenditure budget (Actual) divided by the number of students enrolled.	65000/- including salary component 22000/- excluding salary component
25.	Computerization and Administration and the process of Admissions and examination, result issue of certificates.	To some extent
26.	Increase in the infrastructural facilities.	<ul style="list-style-type: none"> • 2 New Labs, 1 Seminar hall and 1 Faculty room has been added in the present infrastructure. • Upgradation of laboratories with cooling system, equipments, new instruments such as Sorvall Ultracentrifuge and Spectrophotometer were purchased.
27.	Technology up gradation.	<ul style="list-style-type: none"> • Networking facility through IT center with one switch and eleven functional nodes, Computers and LCD projectors are available.
28.	Computer and internet excess and training to teacher and students.	Yes
29.	Financial aid to	Govt. aid is provided to SC/ST candidates

	students.	
30.	Activities and support from the Alumni Association.	None
31.	Activities and support from the parent Teacher Association.	None
32.	Health Services.	Students are provided Health Centre facility by the University
33.	Performance in sports activities.	Students participated in Inter Departmental Sports activities.
34.	Incentives to outstanding sports persons.	None
35.	Students achievements and awards.	6 students qualified NET and 15 qualified GATE Awards for Essay and Quiz competition sponsored by MPCST were presented to the students.
36.	Activities of the Guidance and Counseling Units.	Meeting with students and research scholars was held on 14.5.2011. The information was provided about the Dept action on Feed back, new curriculum, course plan and research achievements. The meetings aim was to encourage them in various scientific activities and better teaching facilities.
37.	Placements services provided to student.	None
38.	Development programmes for Non- teaching staff.	None
39.	Healthy practices of the institution.	Regular and quality teaching Active participation in research activities Departmental harmony in working For quality assurance, self analysis and feedback from students is practiced.
40.	Linkages developed with National/	One-to-one research collaborations exist.

	International, Academic/Research bodies.	
41.	Any other relevant information the institution wishes to add	Department works for the overall development of the students through regular teaching and discussion with the students.

**Part C: Detail the plans of the institution for the next year:
Yearly Plan for 2012-2013**

Curriculum

The curriculum designing of the course is balanced and broad based for its applicability to other disciplines, which require biochemistry background.

The syllabus is revised generally in the beginning of the session to include recent advancement.

Strategies of teaching learning

Mainly through lecturing aided by OHP and LCD.

Student feedback system design

Student's feedback about department, faculty and course will be practiced as per IQAC design.

Collection of feedback and its analysis; Format of analysis

Feedback will be collected every year by 15th December for all the three Semesters from the students and will then be analyzed by the Faculty members by 1st week of January. The overall report considering various points will be prepared and necessary improvements will be done for the coming year.

Improvement plan

Infrastructure

Construction of Seminar hall, two Research Labs and 1 Faculty rooms has taken place in the year 2011-2012. These rooms are to be furnished. There is no proposal for further construction in the year 2012-2013.

Research activities & promotion

1. To strengthen research activities, new research projects will be submitted to various funding agencies.

2. Faculty participation in Seminars, Conferences and visits will be encouraged
3. Collaborative research activities will be promoted.

**Name & Signature of the
Coordinator QAC**

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