

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
APPLIED ELECTRONICS**

1. Faculty profile, adequacy and competency of faculty

The Department of Applied Electronics has the following faculty members:

Sl. No.	Name of the faculty	Educational Qualifications	Designation	Teaching and Research Experience	Specialization
1.	Dr. A. B. Kulkarni*	M. Sc., Ph.D.,	Professor	37 years	Fuzzy Logic.
2.	Dr. P. V. Hungund	M.Sc., Ph.D.,	Professor and Chairman	22 years	Microwave Electronics, Electronic Instrumentation.
3.	Shri D. L. Holkar	M.Sc., M.Tech.	Reader	20 years	Power Electronics
4.	Dr. R. R. Raibagkar**	M.Sc., Ph.D.,	Reader	14 years	Material Science
5.	Dr. S. N. Mulgi	M.Sc., M.Phil. Ph.D.,	Reader	14 years	Microwave Electronics, Electronic Instrumentation.
6.	Dr. P. M. Hadalgi,	M.Sc., Ph.D.,	Reader	14 years	Microwave Electronics, Electronic Instrumentation.
Professor – 02, Reader – 04, Total – 06					

*** On lien. ** On deputation to Material Science Department.**

2. Student profile according to programmes of study, gender, region etc.

The Department has an intake of 16+10 (self supporting scheme) each year. Approximately 50 to 60% students are ladies. Approximately 5% students are from other states. The student profile for the year 2007-08 is as under

Course	Men	Women	Total
M.Sc.	06	15	21
M. Phil.	02	02	04
Ph.D.	10	03	13

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

The Department has introduced new papers like Microwave Electronics and applications, digital signal processing and Microcontroller based systems during the past five years. The members of the faculty have contributed significantly in development of the curricula, the laboratories and other infrastructure in the Department.

4. **Trend in the success rate and drop out of students during the last five years.**

The success rate is continuously increasing and is presently 100%. The dropout rate has declined to 0%.
5. **Learning resources of the department like library, computers, laboratories and other such resources.**

The Department has well established laboratories like analog and digital laboratories, electronic communications laboratories, microwave electronics laboratories, micro-processor and micro-controller laboratories and fiber optic communication laboratory.
6. **Enhancement of the learning resources during the past five years.**

This Department has been sanctioned DST-FIST grant of Rs.53 lakhs (2003-08). Under this program, the Department has procured a Vector-Network Analyzer (Rhode and Schwartz, Germany, Model ZVK10, 50 MHz to 40GHz) with PC interfacing and relevant software packages. This facility is used for design, fabrication and research on microstrip antennas and their arrays.
7. **Modern Teaching methods in practice other than the lecture method.**

The Department employs modern teaching methods, using LCD projector, OHPs, computer animation packages, advanced software packages like LabVIEW (Austin, USA), MATLAB etc. for modern control engineering.
8. **Participation of teachers in academic and personal counseling of students.**

The teachers actively participate in academic and personal counseling of the students. Some disadvantaged students or slow learners are tutored and mentored periodically to overcome their deficiencies and improve their overall performance.
9. **Details of faculty development programmes and teachers who benefited during the past five years.**

All the faculty members have completed their mandatory requirement of orientation programs and UGC sponsored refresher courses. Senior members of the faculty have served as resource persons in UGC sponsored orientation programs and/or refresher courses in this University or other Universities. The Department also has organized five UGC-sponsored refresher courses for the benefit of UG and PG teachers in Karnataka and other states.
10. **Participation of teachers in academic activities other than teaching and research.**

The Department has an Electronic Society, which encourages the improvement of talent of the students through extra-curricular and co-curricular activities with the guidance of the teachers. The electronic Society organizes picnics, sports, quiz programs industrial visits for the benefit of the students.

11. Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.

The Department collaborates with Defense laboratories like LRDE, RCI, MTRDC, DRDL, and Indian Universities like Cochin University of Science and Technology, Karnataka University, Dharwad, Mysore University, and IITs and Indian Institute of Science, Bangalore.

12. If research is a significant activity, the thrust areas of the Department.

This Department has done significant research work in microwave chiral materials for radar applications and is known as **one of the four active groups at international level**. The thrust areas of research in this department are as follows: (1) Design and Development of microstrip antennas and their arrays, (2) Design and Development of fuzzy-logic controllers for process instrumentation; (3) Development of Chiral materials for RADAR applications at microwave frequencies; (4) Design and Development of modern PC-based instrumentation for control engineering; (5) Design Development and characterization of novel electronic materials like ferrites, Ferro-electrics and their composites; (6) Development of micro-controller-based embedded systems.

13. Details of the ongoing projects and projects completed during the last five years.

The details of the on-going projects and projects completed during the last five years are as follows:

Name of the faculty of the Teacher	Title of the project	Duration	Funding Agency	Amount Rs.
1.Department Project:	DST-FIST Programme	2003-08	DST	53,00,000
2.Dr.A.B.Kulkarni	Design & Development of Chiral Materials for Radar Applications	1999-03 Completed	DRDO	19,47,000
3.Dr.A.B.Kulkarni	Design & Development of Fuzzy-logic-controllers	2001-04 Completed	AICTE	5,80,000
4.Dr.P.V.Hunagund	Effect of Metallic & Dielectric Flanges on Slotted Waveguide Antenna	1999-02 Completed	DST	11,51,000

14. 'Programmes by research' offered by the university.

The Department offers M.Phil. and Ph.D. degrees through research.

15. Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.

The members of the faculty of this Department have published more than 70 research papers in reputed refereed journals. Some of the papers have impact parameter of 8. Some senior faculty members are also on the panel of reviewers and panel of editorial boards for international and national journals. Their papers are indexed in important database like INSPEC. List of publications is not reproduced here for want of space.

16. **Participation of the department in the extension activities of the university.**

The Department had organized science exhibition on the occasion of the Silver Jubilee Year of the University. This exhibition was awarded first prize in the faculty of Science and Technology. Besides, the Department had organized a "National Conference on Electronic Materials, Devices, and Systems" with 91 contributed papers. Some of the faculty members also deliver invited extension lectures on TV, AIR, and in colleges/universities.

17. **Method of continuous student assessment.**

The Department has Semester Scheme with 20% component of internal assessment. The students are continuously assessed through take-home assignments, tests, quiz, practical demonstrations etc. the students are also encouraged to make their presentations through seminars and project-seminars to improve their professional skills.

18. **Placement record of the past students and the contribution of the department to the student placements.**

Some of the Alumni have joined foreign universities after passing GRE and TOFEL and are now employed with organizations like INTEL, HP, etc. some of the students have joined defense laboratories like LRDE, Bangalore, as Scientists 'C'. A large number of students have joined R & D organizations at fairly senior level. Some motivated students joined teaching career at UG college level and University level.

19. **Significant achievements of the department or faculty or students during past five years.**

The students and the faculty members have been actively involved in teaching-learning process and have been developing small scale electronic gadgets for common use of the layman. Such gadgets are popularized through the exhibitions organized by the Department. The Department also has organized two Entrepreneurship Development Programs in the Department to help the present students and the alumni to establish their own small scale industries in electronics. Some of our past students are doing extremely well in DRDO labs and software industries.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

As mentioned above, in Section 6, the Department is already recipient of **Rs. 53 Lakhs as grant under DST-FIST programme.** The department has been **recognized as a Research and Training Centre by DRDO, Ministry of Defense, Govt. of India** and trains DRDO sponsored candidates regularly towards M.Sc. Applied Electronics Program.

21. Plan of action of the University Department for the next five years.

1. To introduce choice based credit System (CBCS) both a PG levels based on the Experience gained in one or two years of the exiting Semester Scheme.
2. To introduce new programs in embedded systems, VLSI design, advanced digital signal processing for medical, space and Industrial applications, micro-controller based industrial automation, and fuzzy logic controllers.
3. To mobilize more resources and funding from MHRD, UGC, State Govt. research projects, self-supporting educational programs, donations/DRDO contributions from the philanthropists/alumni, and consultancy.
4. To acquire more sophisticated equipments from the UGC and the DST grants to help to improve the in house research work and the consultancy work. We will also increase interactions with other national/international laboratories to tap the resources available there.
5. To strengthen the Alumni Association of the Department.

22. Any other highlights.

The Department has started consultancy work in a moderate way. The Department has provided characterization facility to Defense Laboratory, Jodhpur and has successfully characterized their **new and secret RADAR absorbing materials** at microwave frequencies. This Department has also characterized the fly ash and ash samples from the National Thermal Power Corporation (NTPC), New Delhi successfully and generated revenue of Rs.20,000/-. The Department intends to strengthen the database on expertise established in the Department under DST-FIST and UGC-SAP programmes.

- - -

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
BIOCHEMISTRY**

1. Faculty profile, adequacy and competency of faculty

The Department of Biochemistry has following faculty members:

Sl. No.	Name of the faculty	Educational Qualifications	Designation	Teaching and Research Experience	Specialization
1.	Dr. V. H. Mulimani	MSc., MS., Ph.D.	Professor	34 years	Enzyme Technology
2.	Dr. T. B. Karegoudar,	M.Sc., Ph.D.	Professor & Chairman	22 years	Bioremediation
3.	Dr. K. Sreeramulu,	M.Sc, Ph.D.	Reader	21 years	Insect Bio-chemistry
4.	Dr. J. Lalitha	M.Sc, Ph.D.	Reader	13 years	Microbial bio-chemistry
5.	Dr. Paramjyothi,	M.Sc.,Ph.D.	Reader	13 years	Medicinal plant biochemistry
6.	Mr. Anand Naik,	M.Sc.	Lecturer	4 years	Bioremediation
Professor – 02, Reader – 03, Lecturer – 01, Total – 06 (One post is vacant.)					

The faculty is adequate and competent to carry out the teaching and research activities.

2. Student profile according to programmes of study, gender, region etc.

The department has an intake of 10 + 6 (Self Supporting Scheme) each year. Approximately 60-65% students are girls. Approximately 10% students are from other states. The student profile for the year 2007-08 is as under.

Course	Men	Women	Total
M.Sc.	09	35	44
M. Phil.	01	04	05
Ph.D.	22	03	25

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

The curriculum is changed by introducing the current developments in the field and looking at the syllabi of the UGC/CSIR & NET examinations. The faculty members have contributed significantly in the development of curricula, the laboratories and other infrastructure in the department.

4. Trend in the success rate and drop out of students during the last five years.

The success rate of the students is continuously increasing and at present is about 99%. The dropout rate has been 1 - 2%.

5. **Learning resources of the department like library, computers, laboratories and other such resources.**

The department has well established laboratories in various thrust areas of research such as Enzyme technology, Bioremediation, Insect Biochemistry, Extremophiles, and Medicinal plants. All these laboratories cater to the needs of PG students and research students. The department has many sophisticated, imported equipments such as, HPLC, Lyophilizer, Centrifuges, Spectrophotometers, Incubation shakers, fraction collectors, etc. The department has five computers with internet facility. Though the department does not have formal Departmental Library, faculty members have personal books and these are made available to the students.

6. **Enhancement of the learning resources during the past five years.**

The department has received grants of Rs. 140 lakhs from various funding agencies such as DST, DBT, AICTE, UGC, & DAE, towards establishment of infrastructure for carrying out research on various thrust areas. The department has also received grants from industries to carry out research work on specific industrial problems. The department has procured scientific equipments. The facility is extended to the faculty members of other departments. The department has submitted a proposal under DST-FIST with an outlay of Rs. 150 lakhs during 2007. The grant is mainly to strengthen the laboratories on the thrust areas as well as creating networking facility.

7. **Modern Teaching methods in practice other than the lecture method.**

The department adopts the modern methods of teaching other than lecture method (like power point and CAT). The department has one LCD, and two OHPs to augment the teaching-learning process.

8. **Participation of teachers in academic and personal counseling of students.**

The faculty members actively participate in academic and personal counseling of the students. Some disadvantaged or slow learners are given special attention to overcome their deficiencies to improve their overall performance.

9. **Details of faculty development programmes and teachers who benefited during the past five years.**

All the faculty members are Ph.D degree holders (except one who has registered for Ph.D. programme) and have completed their mandatory requirement of orientation programs and UGC sponsored refresher courses. Some faculty members have even served as resource persons in UGC sponsored orientation programs and/or refresher courses either in parent university or other universities.

10. **Participation of teachers in academic activities other than teaching and research.**

The teachers have participated in 6 international / national seminars. The teachers have participated in co-curricular activities in the department as well as in the university. The department has Biochemical Society which encourages the improvement of talent of the students through curricular and co-curricular activities. The society also conducts sports and quiz programs for the benefit of the students. In addition, the faculty also participates in other academic / administrative work as when assigned.

11. **Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.**

The faculty members have been collaborating with international organizations such as Technical University, Munich, Germany, UFZ-Helmholtz Centre for Environmental Research, Leipzig-Halle, Germany, University of Guelph, Canada, and Chungbuk National University, Korea. The department has also collaboration with BARC, NCCS, Indian Institute of Science, and University of Hyderabad. The department has also established a collaborative programme with Lupin Industries, Tarapur, India. These collaborations have resulted in utilization of sophisticated equipments in their labs and joint collaborative research projects and research publications in reputed journals.

12. **If research is a significant activity, the thrust areas of the Department.**

The thrust areas of research in the department are:

(1) Enzyme technology, (2) Bioremediation, (3) Insect Biochemistry, (4) Plant Biochemistry, (5) Medicinal plants.

The research funds sanctioned by various funding agencies will enable us to do the significant research work in these thrust areas during the next 05 years. The work of some of the faculty members is recognized by the industry and the financial support has been extended to them.

13. **Details of the ongoing projects and projects completed during the last five years.**

The details of the on-going projects and projects completed during the last five years are as follows:

A. On-going Research Projects (04, Rs. 78.36 lakhs).

Sl. No.	Principal Investigator	Title of the project.	Funding agency	Amount (Rs.) Lakhs	Duration
1.	Dr K Sreeramulu	Isolation, purification and characterization of an esterase isozyme responsible for hydrosis of organophosphore from the insecticide resistant pest Helicoverpa	UGC, New Delhi, India.-	10.00	2005-2008
2.	Dr J Laitha.	Purification and characterization of agarse from an agar liqufying bacterium AG LSL-1.	UGC, New Delhi, India.-	12.70	2006-2009
3.	Dr K Sreeramulu	P-Glycoprotein ATPase: Purification, characterization and its involvement in the insecticide resistance in the agriculture crops resistant pest, Helicoverpa armigera.	DST, New Delhi, India	34.00	2007-2010
4.	Dr.J Lalitha	Purification and characterization of a novel agarse from a Gram negative bacterium AG LSL-11.	DST, New Delhi, India	21.66	2007-2010

B. Completed Research Projects: (07, Rs. 86.40 lakhs)

Sl. No.	Principal Investigator	Title of the Project	Funding Agency	Amount (Rs.) in Lakhs	Duration
1.	Dr. V.H. Mulimani	Development of biotechnological process for the modification of galactomannan polymers"	D.B.T., New Delhi, India.	14.00	1997-2002
2	Dr. V.H. Mulimani	Proteinase inhibitors.	Volkos Vegen, Weder, Germany.	07.50	1997-2002
3	Dr. V.H. Mulimani	Chemical analysis of nutrient and antinutritional factors of pulses and groundnuts.	D.A.E.	22.50	2001-2004
4.	Dr. T.B. Karegoudar	Bioremediation of Environmental pollutants	AICTE, New Delhi, India.	08.00	1997-2001
5.	Dr. T.B. Karegoudar	Microbial transformation of lignocellulose and its potential	DST, New Delhi, India.	18.00	2003-2007

6.	Dr K Sreeramulu	Isolation and characterization of extreme halophile thermostable protease from halophile bacteria	DST, New Delhi, India.	14.90	2003-2006
7.	Dr T B Karegoudar	Biodegradation of Dimethylformaide present in the aqueous stream from RMR plant of Lupine	MOU with Lupin, Tarapur	01.50	2006-2007.

14. **'Programmes by research' offered by the university.**

The department offers M Phil, and PhD degrees through research.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

The faculty members of the department have published more than 60 research papers in reputed journals. Many of the papers have impact number between 1-3. Some of the faculty members are also on the panel of reviewers of both National and International journals. These papers are indexed in important database like INSPEC.

16. **Participation of the department in the extension activities of the university.**

The department had organized science exhibition on the occasion of the Silver Jubilee Year of the University. The department has also been participating in other extension activities through NSS, NCC, etc. The department has arranged campus interviews by the United Beverages, Mumbai. Some of the faculty members also delivered invited extension lectures in colleges/universities.

17. **Method of continuous student assessment.**

The department has semester scheme with 20% component of internal assessment. The students are continuously assessed through tests, assignments, practical demonstrations. The students are encouraged to make their presentations through seminars to improve their professional skills.

18. **Placement record of the past students and the contribution of the department to the student placements.**

Some of the Alumni have joined foreign universities after passing GRE and TOFEL and are now employed with organizations like Biocon, Astrazenica, Novazyme, NIN, Forensic Sciences as Scientists. A large number of students have joined R & D organizations and industries at different levels as well as teaching positions.

19. **Significant achievements of the department or faculty or students during past five years.**
 One of the faculty members (Prof. V. H. Mulimani) has filed his research findings for patenting. **Prof. V. H. Mulimani was awarded Prof. M. Shadaksharaswamy endowment award by the Society of Biological Chemists, India,** for his contributions in the field of biological sciences. Research work of **Prof. T.B. Karegoudar is recognized by the industry and entered into MOU with the university and supported funding for one year, 2006-07. Dr. K. Sreeramulu is a receipt of DBT research associateship** and visited Canada to pursue advance research in 2006. Four students awarded best poster presentations at different conferences. Many students have qualified the NET examination conducted by the UGC/CSIR and many have been selected for CSIR-SRF fellowships. Many PhD completed students have been selected as Post Doctoral Positions at Indian Institute of Sciences, Bangalore and foreign universities.
20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**
 The department has submitted a proposal under DST-FIST with an outlay of Rs. 150 lakhs during 2007. The chairman was called by the DST to present the proposal before the committee and result is awaited.
21. **Plan of action of the University Department for the next five years.**
1. The department has plan to introduce Choice Based Credit System (CBCS) at PG level.
 2. The department has a plan to introduce new innovative academic programmes relevant to the needs of the society and students.
 3. The department has plans to mobilize more resources and funding from UGC, DST, DBT through research grants and industry consultations.
 4. Motivate the students to pass national level competitive examinations and place them in reputed institutions and industries.
 5. Plan to strengthen the in-house research and industrial consultancy work by creating sophisticated equipments facilities through submission of research proposals. The faculty intend to have increased interactions with national and international laboratories to tap the resources available there.
 6. The department intends to strengthen the database on expertise available in the department and look for consultancy in a big way.
22. **Any other highlights.**
1. The department is willing to collaborate with other departments in interdisciplinary innovative research and teaching programmes.
 2. The department with the University of Hyderabad, has submitted a collaborative major research proposal to DBT under thrust area and the coordinator was called to present before the committee and the result is awaited.
 3. UGC has sanctioned Rs. 10 lakhs for strengthening of infrastructure (for non-SAP departments) for the year 2007-08.
 4. The Department have successfully registered for a patent.

- - -

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
BIOTECHNOLOGY**

1. Faculty profile, adequacy and competency of faculty

Sl. No.	Name of the Faculty	Educational Qualifications	Designation	Teaching and Research Experience	Specialization
1.	Dr. G. R. Naik	M.Sc., Ph. D.	Professor & Chairman	26 years	Plant Biotechnology
2.	Dr. Ramesh Londonkar	M.Sc., M.Phil. Ph.D.	Reader	16 years	Animal Biotechnology
3.	Dr. Chandrakanth Kelmani	M.Sc., Ph. D.	Senior Lecturer	19 years	Microbial Biotechnology
4.	Dr. M. B. Sulochana	M.Sc., Ph. D.	Senior Lecturer	8 years	Industrial Biotechnology
Professor – 01, Reader – 01, Lecturer – 02, Total – 04					

2. Student profile according to programmes of study, gender, region etc.

The department has an intake of 10 + 6 (Self Supporting Scheme) each year. Approximately 48 % students are girls. Approximately 5% students are from other states. The student profile for the year 2007-08 is as under

Course	Men	Women	Total
M. Sc.	39	32	71
M. Phil.	11	05	16
Ph.D.	18	05	23

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

The M.Sc., course in Biotechnology is an interdisciplinary programme. Since last five years the course contents are updated to include new subjects like Bioinformatics, Biosafety, IPR, Stem cell research, Biodiversity etc. The curriculum is changed to semester pattern. Involvement of individual staff members and departmental BOS members was very much useful to carry the entire academic improvement for excellence and with updated technologies.

4. Trend in the success rate and drop out of students during the last five years.

The students getting admission to M.Sc., Biotechnology courses generally do not leave the same. There is hardly one or two dropouts every year due to better opportunities. All the candidates complete the course successfully and the success rate is almost 98%.

5. **Learning resources of the department like library, computers, laboratories and other such resources.**

The department has got sophisticated laboratories with scientific equipments for advanced research and teaching in biotechnology. Instruments like PCR, ELISA reader, high-speed centrifuge, liquid scintillation counter, and Bioreactor etc. worth of Rs. 3 crores are available for research and teaching. Two M.Sc., laboratories and three research laboratories (plant biotechnology, microbial biotechnology and animal biotechnology) are available. The department has independent student library and more than fifteen computers along with Internet network connection. The audio-visual projector and multimedia facilities are used for teaching

6. **Enhancement of the learning resources during the past five years.**

The department has purchased LCD projector and multimedia unit for teaching Bioinformatics software's like data analysis, primer designing and phylogenetic analysis and sequence alignments and these are essential and useful for M.Sc. and research students.

7. **Modern Teaching methods in practice other than the lecture method.**

The department arranges seminars, group discussions, quiz competitions essay writings, modeling and other modern practices.

8. **Participation of teachers in academic and personal counseling of students.**

All the teachers are taking active part in the departmental academic activities like arranging special lectures, workshops, Biotechnology association activities and publication of departmental annual magazine "Biohorizon". During project work, seminar and study tour teachers conduct personal coaching and advice. Apart from regular teaching they are trained for competitive examinations like GATE, CSIR-NET, DBT-JRF and DBT-PDF.

9. **Details of faculty development programmes and teachers who benefited during the past five years.**

All the teachers attend the UGC-academic staff colleges at Pondichery, Guntur, Madurai and Bangalore for refresher courses and orientation programmes. All are immensely benefited to improve the teaching proficiency.

10. **Participation of teachers in academic activities other than teaching and research.**

All the staff members of the department have written textbooks and review articles in edited books. They have delivered popular lectures, invited lectures on topic like GM technology, Cloning, Phage therapy and Human genome project etc. They are members of District Science Centre and other science organizations.

11. **Collaborations with other Departments and Institutions at the National**

and International level and their outcome during the past five years.

The plant biotechnology laboratory has the collaboration with University of Agricultural Science Dharwad and Sugarcane Breeding Institute, Coimbatore for screening tissue culture derived sugarcane somaclones against stress conditions. One clone by name of the faculty GSBT-9 is selected for large-scale field trails.

The microbial biotechnology laboratory is also associated with Department of Neuromicrobiology, NIMHANS as well as Gangagen Biotechnology Pvt. Ltd., Bangalore for developing Bacteriophages against multi-drug resistant pathogens.

The collaboration program is in progress within M/s Biocon, Bangalore, M/s Sreenven Phatma Ltd., Bidar and M/s Raghvendrm Biotechnology Ltd., Banglaore.

12. If research is a significant activity, the thrust areas of the Department.

Yes.

- a) Abiotic stress resistant Sugarcane cell line selection and its Genomic studies.
- b) Bacteriophage therapy for multi-drug resistant pathogens in Diabetic infections.
- c) Animal cell culture biotechnology
- d) Environmental biotechnology
- e) Pilot scale production and cloning of microbial enzymes.

13. Details of the ongoing projects and projects completed during the last five years.

Name of the faculty of the Research project	Funding Agency	Grant No.	Amount (in Lakhs)
a) Projects completed (10, Rs. 137.50 lakhs)			
1. "Studies in selection of salinity tolerant lines through sugarcane cell culture" (completed).	DST, (Govt. of India)	21(31)/84STP1	Rs. 5.0
2. "Selection of Fe-Efficient lines in sugarcane through cell and Tissue culture", (completed).	DBT, (Govt. of India)	02/012/88/R&D	Rs. 10.0
3. "Bioproductivity of firewood crops under saline conditions of Gulbarga area", (completed).	DNES (Govt. of India)	201/15/88-BM	Rs. 10.0
4. "Productivity of sugarcane lines obtained through tissue culture under problem soil conditions of Karnataka" (completed).	KSCST (Govt. of Karnataka)	BT/02/08/94-PID	Rs. 2.5
5. "Selection of disease resistant lines in sugarcane through cell and tissue culture" (Completed).	DBT (Govt. of India)	No. ID/3/96	Rs. 10.0
6. "Taptech programme for improving	AICTE (Govt. of India)	BT/02/12/88-R&D	Rs. 11.5

infrastructure facility in Biotechnology Teaching and Research", (Completed).			
7. "Combating salinity problem in the Upper Krishna Project (UKP) area" (completed).	MoWR (Govt.of India)	8017/RDII/BIO/206 /98	Rs. 6.5
8. "Biotechnology Training and Demonstration Centre for SC/ST population", (completed).	DBT (Govt. of India)	No. 37 (1129)/03/ EMR-II	Rs. 30.0
9. "Field and Sugarmill Trials of GSBT lines", in coordination with SBI, Coimbatore and University of Agricultural Sciences, Dharwad (completed)	DBT (Govt. of India)	No. 37/(1297)/07/ EMR-II	Rs. 45.0
10. "Development of Immunodiagnostic kits for sugarcane diseases", (Completed).	AICTE (Govt. of India)		Rs. 7.0
B. Projects Ongoing (03, Rs. 110.00 lakhs)			
1. Co-ordinator, M.Sc., Teaching programme in Biotechnology, Department of Biotechnology project, (in progress).	DBT (Govt. of India) CSIR		Rs. 67.0
2. "Pilot scale production of alkaline protease and cellulase free xylanase from Bacillus sp. JB-99" (in progress)	DBT (Govt. of India) CSIR		Rs. 18.0
3. "Molecular cloning, Sequencing & over expression of alkaline protease and cellulase free Xylanase from alkalophilic Bacillus JB 99"	DBT (Govt. of India) CSIR		Rs 25.0

14. **'Programmes by research' offered by the University.**

M. Phil. and Ph.D., programmes are based on research problem. M.Sc., students also have a small research projects as a part of curriculum.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

The staff members in the department have published more than 60 research papers in national and international reputed journals, some of these journals have impact factor ranging from 0.9 to 1.97. The research papers are cited in many publications in the areas of plant and microbial biotechnology.

16. **Participation of the department in the extension activities of the University.**

The staff members are actively involved in extension activities of the University, conducted by prasaranga and committees of cultural and sports events. They are also advisors to District Science Centre, Gulbarga.

17. **Method of continuous student assessment.**

Semester system is adapted where the students are continuously evaluated through internal assessment tests.

18. **Placement record of the past students and the contribution of the**

department to the student placements.

The department has a very good record with regard to student placement, since last five years. Almost 90% of the students are placed in Biotech industries and research institutes. They include CCMB, CDFD, NCL, CFTRI, Biocon, Avesthagen, Reddy's labs, NCBS, TIFR, IISc, etc. The department provides continuous guidance for placement through notifications, counseling, and campus placements through BCIL training.

19. **Significant achievements of the department or faculty or students during past five years.**

- Prof G.R. Naik was selected for Commonwealth Titular **Canada** fellowship by **ASCU-London**.
- Dr. Chandrakanth Kelmani nominated to visit Croatia under **Indo-Croatian** cultural Exchange programme during the year 2002.
- CSIR-senior research fellowship was awarded to **Mr. Girish Babu K.** for higher studies.
- The plant biotechnology lab has identified genes responsible for salt tolerance in sugarcane, sequenced and deposited in the gene bank. The stress resistant variety the GSBT-9 is released for field trails.
- The microbial laboratory has established collaborative research with **NIMHANS Bangalore**, for the "Bacteriophage therapy for multi drug resistant bacterial infection in Diabetic Mice Model" also has collaborative work with **Gangagen Biotechnologies Ltd., Bangalore**, for Phage isolation.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

The department is the first in the state to receive financial assistance from DBT-Government of India, grants for strengthening the M.Sc. teaching programme. The department is also selected for the allotment of Biotechnology students through all India entrance test conducted by JNU, New Delhi.

21. **Plan of action of the University Department for the next five years.**

- The department plans to start new courses on choices and credit based system in following areas, 1) Bioinformatics 2) Nano-biotechnology 3) Regenerative medicine 4) Functional genomics 5) Probiotics 6) Food Biotechnology.
- The department has plan to start short term courses in Plant Tissue Culture, Medicinal Plant Cultivation and Processing, Biofertilizer and Biopesticide management, Dairy development, out reach development programmes for the common people and to develop entrepreneurship.
- Establishment of collaborative R & D with Industries for teaching, research and consultancy.
- Certificate courses in Genetic engineering, Molecular Biology, Diagnostics

and Clinical Research.

- International collaboration for advanced research in emerging areas of biotechnology.

22. **Any other highlights.**

- Department has healthy tradition of celebrating the National Science Day on 28th February.
- Publication of annual magazine "**Biohorizon**"
- Department also conducts Scientific 'Exhibitions'.
- The department has "Biotechnology Association and its own "Alumni Association".
- Conducted One Day Awareness cum Training Programme on Biodiversity and People's Biodiversity Register on 21st September 2007.
- Life Science Lecture series on "New trends in life sciences" by the environment scientists from all over India, conducted in association with Karnataka Vigyan Parishath Bangalore, January 2007 for 3 days.
- 2nd National Conference on Biotechnology for Rural and Industrial Development-NCBIRD-2008. More than 500 delegates presented the papers.
- Student represented for discussion at Knowledge Commission Meet at Bangalore.

1. Faculty profile, adequacy and competency of faculty

S N	Name of the faculty	Educational Qualifications	Designation	Teaching and Research Experience	Specialization
1	Dr. A. H. Rajasab	M.Sc., Ph.D.	Professor	26 years	Mycology Plant Pathology Microbial Biodiversity.
2	Dr. Srinath Rao	M.Sc., Ph.D.	Professor and Chairman	26 years	Plant tissue Culture and Genetic Engineering
3	Dr. Y. N. Seetharam	M.Sc., Ph.D.	Professor	23 years	Plant taxonomy and Medicinal plants
4	Dr. G. M. Vidyasagar	M.Sc., M. Phil., Ph.D.	Reader	11 years	Microbial Biotechnology and Medicinal plants
5	Dr. Prathima. M	M.Sc., M. Phil., Ph.D.	Reader	11 years	Applied Phycology and Physiology
Professor – 03, Reader – 02, Total – 05 (One post of lecturer is vacant.)					

The faculty is adequate and competent to carry out teaching and research activities.

2. Student profile according to programmes of study, gender, region etc.

Department has an intake of 24 + 10 (self supporting scheme) seats each year. Approximately 40–50 % students are ladies. Approximately 5% students are from other States.

Course	Men	Women	Total
M.Sc.	15	28	43
M. Phil.	05	--	05
Ph.D.	19	08	27

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

The Department has introduced semester system as per UGC guidelines. During the year 2006-07 the syllabus has been revised as per the guidelines of UGC and taking in to consideration NET syllabus. A new course in computer application is introduced.

4. Trend in the success rate and drop out of students during the last five years.

The Success rate is continuously increasing and is presently at 100%. The dropout rate has declined to zero since last two years.

5. Learning resources of the department like library, computers, laboratories and other such resources.

The Department has a separate Departmental library with over 300 Books and some journals contributed by Ex- Vice Chancellor Dr. M. Nagaraj and other staff members. Each staff member has a computer with INTERNET connections. The laboratories are equipped with basic facilities. All these laboratories cater to the needs of P. G. and Research students.

6. **Enhancement of the learning resources during the past five years.**
Frequent field trips are conducted to collect and study the plants and lower organisms in their natural habitat. Study tours are conducted every year to visit forests, modern laboratories and Botanical gardens. Specialists in the respective fields are invited to deliver special lectures, which enhances over all quality of students.
7. **Modern Teaching methods in practice other than the lecture method.**
The department employs modern teaching methods other than the lecture method. The department has one slide projector, two OHPs, Computer animation packages, software packages like SPSS. The department has also 16mm projector through which films covering topics of interest in Botany are shown to students. Computers have DVD packages, which augment the teaching learning process.
8. **Participation of teachers in academic and personal counseling of students.**
Teachers actively participate in academic and personal counseling of the students. Special classes are conducted after working hours and Sundays for slow learners. Needy students are given counseling.
9. **Details of faculty development programmes and teachers who benefited during the past five years.**
All the faculty members have completed their mandatory requirement of orientation Programmes and UGC sponsored refresher courses. Senior members of the faculty have served as resource persons in UGC sponsored refresher courses in this and in other Universities. Department has also organized three UGC sponsored refresher courses for the benefit of teachers in the Department and teachers of affiliated colleges of the University, Colleges in Karnataka and other neighboring states.
10. **Participation of teachers in academic activities other than teaching and research.**
The teachers participate in co-curricular and extra curricular activities in the Department and in the University. Dr. A. H. Rajasab worked as Registrar evaluation and currently he is member of academic council. Director of Distance Education. All the professors were earlier members of academic council. The Department has a Botanical society under its aegis picnics, sports and quiz programmes are conducted for the benefit of the students. This year a Botanical magazine "VISION" has been started. Extension programmes are undertaken.
11. **Collaborations with other Departments and Institutions at the National**

and International level and their outcome during the past five years.

The staff members have collaborative research work with other Departments of this University viz. Applied Electrics, Botany, Microbiology, Biochemistry and Biotechnology. The staff members have also collaboration with CSIR Institutes such as NCL, CFTRI, IISC, IARI, NFMC, and NSC, NGOs such as FRLHT and other Universities including Agricultural Universities. The staff members have also collaboration with foreign Universities and Institutes like Promec, South Africa. Institute of Microbiology Czeq Academy of science. University of California USA., USDA-A.R.S, USA. Rotham Stead Expl. Station, U.K.

12. If research is a significant activity, the thrust areas of the Department.

1. Plant pathology and plant protection. Mycology, Fungal Biodiversity.
2. Tissue culture, Genetic Engineering and stress Physiology.
3. Microbial Biotechnology.
4. Medicinal plants and Photochemistry.
5. Algal Biotechnology.
6. Biofertilizers.
7. Ethno-medicine, wild edible plants.

13. Details of the ongoing projects and projects completed during the last five years.

Name of the Principal Investigator	Title of the project	Duration	Funding Agency	Amount (Rs.)
Dr. Srinath Rao	<i>In vitro</i> Production of Withanoloides from hairy root culture of <i>Withania somnifera</i> . Dunal	2004-2007	UGC	114960.00

14. 'Programmes by research' offered by the university.

M. Phil and Ph. D.

15. Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.

The members of the faculty of this Department have published 60 papers in reputed National and International Journals.

16. Participation of the department in the extension activities of the university.

The Department has organized science exhibition on the occasion of the silver jubilee year of the University. Members of the staff have been invited as judges at the District science center. The department has also been assisting and participating in extension activities like NSS, Karnataka Science Academy. Some of

the faculty members have delivered invited extension lectures in local colleges and in other Universities.

17. **Method of continuous student assessment.**

Conducting seminars, internal assessment tests, educational quiz competitions, practical demonstrations etc continuously assesses students.

18. **Placement record of the past students and the contribution of the department to the student placements.**

Some of the Alumni are placed in various national and international organizations such as Avesthagen, Pharma company, Dupont Pharma, Indian Institute of Science and in many city colleges in Bangalore such as Oxford college, Garden city college, Basaveshwar engineering, college, Bagalkot., Govt. college Pondichery, Several students are working for their Post-Doctoral degree in National Universities like GKV and Foreign Universities.

The students have been trained by faculty members in various research fields such as Biotechnology, Microbial Biotechnology, Mycology conservation and maintenance of medicinal Plants, Phytochemistry, Plant pathology and plant protection which have helped them in their placement and passing NET and SLET exams.

19. **Significant achievements of the department or faculty or students during past five years.**

The Department has organized conference on Plant Pathology in collaboration with Indian Phytopathological society, **Dr. A. H. Rajasab and Dr. G. M. Vidyasagar have been elected as president and conveners of South zone IPS (2003-04)** and also received scroll of honour from IPS. Dr. Srinath Rao and Dr. Y. N. Seetharam have been awarded certification for their contribution towards science by local NGOs. **Dr. Y. N. Seetharam was awarded as Fellow of Indian Association of Angiosperm taxonomists Dr. Srinath Rao is the recipient of Fellow of IPTC- 2006.**

Prof. A.H. Rajasab is a fellow of Indian Society of Mycology and Plant Pathology. And also conferred with K.C. Mehta and Manoranjan Mitra Award of Indian Phytopathological Society, New Delhi.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

Applied for SAP and FIST.

21. **Plan of action of the University Department for the next five years.**

1. To introduce choice base credit system.
2. To increase the content of value based education.
3. To out-reach the farmers to reduce disease loss by way of consultations. To continue research and consultation in the field of Mycology, Plant pathology and bio-prospecting using microbes.
4. Introduction of new interdisciplinary courses in Bioinformatics, Nano-biotechnology, Microbial, Biodiversity, Fungal Biotechnology, Genetic Engineering and Environmental science.
5. Development of new plant based Drugs for Medical use.

6. Development of Plant based Anti-Microbial agents for use in Medicine and Industry.
 7. To start consultancy service based on the knowledge gained by staff members during the last 10-25 years.
 8. To create departmental website with all requisite information, which would increase visibility and transparency of the Department to the stake holders, it will also attract foreign University students and faculty under exchange programme; it will also strengthen University linkage and consultancy activities, thus generating more funds.
 9. The Department intends to have senior members of the R&D personals from Industries, Agriculture Universities and National Research Laboratories on the Board of Studies in this Department. This will strengthen University/Industry /Research laboratory interaction and update syllabi and curricula as per their needs.
 10. Opening of P. G. Diploma/Certificate course in Mass cultivation of Algae, Floriculture, Biofertilizers and Cultivation and utilization of Medicinal plants.
 11. Identification and cultivation of non-conventional food and fruit crops.
 12. Documentation of Traditional knowledge on Medicinal Plants.
 13. Interaction with farmers, lab to land programme, establishment of plant clinics.
22. **Any other highlights.**
Senior members of the faculty are on editorial board of reputed Indian Journals.

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
CHEMISTRY**

1. Faculty profile, adequacy and competency of faculty

S. N.	Name of the Faculty	Educational Qualification	Designation	Teaching & Research Experience	Specialization
01	Dr. S.D. Angadi	M.Sc., Ph.D.	Professor	35 years	Inorganic Chem. Coordination Chem.
02	Dr. V.R. Kulkarni	M.Sc., Ph.D.	Prof. & Chairman	26 years	Physical Chemistry reaction Dynamics polymers, modeling and simulation
03	Dr. B.H.M. Murthyunjayaswamy	M.Sc., Ph.D.	Professor	Teaching 25 years Research 33 years	Organic Analytical Pharmaceutical
04	Dr. N. M. Goudgaon	M.Sc., Ph.D.	Professor	Teaching 15 years Research 20 years	Organic Chemistry
05	Dr. M.B. Halli	M.Sc., Ph.D.	Professor	22 years	Solution Chemistry, Co-ordination Chemistry
06	Dr. J.S. Biradar	M.Sc., Ph.D.	Professor	30 years	Organic Chemistry
07	Dr. K. Siddappa	M.Sc., Ph.D.	Reader	15 years 18 years	Analytical Chemistry Co-ordination Chemistry Environmental Chemistry, Drugs Analysis
08	Dr. A.R. Saundane	M.Sc., Ph.D.	Sr. Grd. Lecturer	Teaching 12 years Research 12 years	Organic Chemistry
Professor – 06, Reader – 01, Sr. Lecturer – 01, Total – 08 (Sanctioned faculty 18, the decrease is due to continuous retirement of senior staff)					

All the exiting faculty are competent with adequate teaching and research experience. In addition, 6 Guest Lecturers are appointed.

2. Student profile according to programmes of study, gender, region etc.

The enrolment is 100%, out of which about 50% are women. Students come from all the five districts of the University region. The student profile for the year 2007-08 is as under.

Course	Men	Women	Total
M.Sc.	48	54	102
M. Phil.	05	02	07
Ph.D.	20	03	23

3. **Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.**

Semester course was implemented in the academic year 2003-04. From time to time the syllabus has been revised as per the guidelines of UGC and taking into consideration the NET syllabus. All the faculty members being members of the BOS are involved in making the new curriculum for the courses.

4. **Trend in the success rate and drop out of students during the last five years.**

The success rate is 90-95%; Dropout rate is about 5-10%.

5. **Learning resources of the department like library, computers, laboratories and other such resources.**

The Department has many learning resources. The department has five P.G. laboratories, Physical, Inorganic, Organic, Analytical, Pharmaceutical and also few research laboratories. There are about ten computers with internet connection. The Department has audio-visual facility of DVD player with 29" TV and a LCD for large scale display. Few DVD's and CD's are also available. All these facilities cater to the needs of P.G. and Research Students.

6. **Enhancement of the learning resources during the past five years.**

There has been a steady enhancement of learning resources during the last seven years. Internet (DST-FIST) and audio visual facility is the addition during this period. Study tours are conducted every year to visit national research laboratories and industries to make the students aware of the developments occurring in the present day environment. Specialist Scientists in various fields are invited to deliver special lectures under the auspicious of Chemical Society.

7. **Modern Teaching methods in practice other than the lecture method.**

The department has OHPs, Slide Projector and LCD, Computer assisted teaching packages, softwares like MATHLAB and other scientific packages and few DVD packages to augment teaching-learning processes.

8. **Participation of teachers in academic and personal counseling of students.**

Teachers actively participate in academic and personal counseling of the Students. Special classes are conducted after working hours and Sunday for slow learners. Needy students are given counseling.

9. **Details of faculty development programmes and teachers who benefited during the past five years.**

All the faculty members have completed their mandatory requirement of orientation programmes and UGC sponsored refresher courses. Senior members of the faculty have served as resource persons in UGC sponsored refresher courses in this and in other Universities. The department has also organized few Chemistry workshops for the

benefit of teachers of affiliated colleges of the University, to discuss syllabus at the undergraduate courses.

10. **Participation of teachers in academic activities other than teaching and research.**

The teacher participate in co-curricular and extra curricular activities in the Department and in the University. Dr. B.R. Patil worked as Registrar (Evaluation) and Director of Distance Education, Gulbarga University, Gulbarga; Dr. B.K. Prabhakar worked as Director, P.G. Centre, Sandur. All the Professors were earlier members of the Academic Council. The Department has a Chemical Society, under the aegis of which special lecturers, picnics, sports and cultural programmes are conducted.

11. **Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.**

The staff members have collaborative research programmes with other departments of the University as well as other National and International Universities and laboratories. Our department had a British Council funded collaborative project with Sunderland University (UK) and presently has project funded by Stifle Laboratory (UK). On regular basis we have research collaboration with Departments of Microbiology, Bio-technology, Physics, Materials Science, etc. Some of our faculty members have collaborative projects with CECRI, Karaikudi, IICT Hyderabad, JNCASR, Bangalore. The resulting work is published both in National and International Journals and also resulted in **collaborative patents (No. 0347 NF 2005)**.

12. **If research is a significant activity, the thrust areas of the Department.**

The thrust areas are:

Natural products, Non-linear dynamics, Polymers, Drug design and development, Materials Chemistry, Environmental Chemistry, Solution Chemistry and Analysis of Foods and Medicines.

13. **Details of the ongoing projects and projects completed during the last five years.**

Name of the Principal Investigator	Title of the Project	Duration	Funding Agency	Amount Rs.
Dr. M.B. Halli	Synthesis and Characterization of Biologically activity coordination compounds with Benzofuran Derivatives	2001-05 Completed	UGC	2.18 lakhs.
Dr. A. Venkataraman	Synthesis of some novel ceramic materials employing chimc douce approach	2003-06 Completed	UGC	6.10 lakhs.

Dr. M.G. Purohit	Antifertility Activity of Medicinal Plants	2004-05 Completed	ACWU	10.800.00
Dr. V.R. Kulkarni	Study of Chemical Chaos	2005-07 Completed	UGC	4.59 lakhs.
Dr. M.G. Purohit	Evolution of plants indigenous to the Shimoga, Gulbarga and Sandur of Karnataka in India for activity against skin diseases.	2001-08 Ongoing	Stifle Laboratories, UK	4.50 lakhs.

14. **'Programmes by research' offered by the university.**

M. Phil and Ph.D.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

The members of the faculty of this Department have published more than 100 papers in reputed National and International Journals.

16. **Participation of the department in the extension activities of the university.**

Members of the faculty have been invited to deliver lectures at various extension activities conducted by Prasaraanga. The Department has conducted Science Exhibitions on the occasion of Silver Jubilee year of the University for the benefit of general public.

17. **Method of continuous student assessment.**

Seminars, Internal assessment tests for theory as well as practicals, educational quiz are conducted for continuous assessment of students.

18. **Placement record of the past students and the contribution of the department to the student placements.**

Majority of students are placed in various national and international organization such as GE, Bangalore, I.I.Sc., Bangalore, IIT Kanpur and in many colleges and institutes in Karnataka and other States of India. Further, many students are working in various National laboratories as well as many foreign Universities. For examples Dr. Shrishail Kumar is group leader at Aldrich lab, USA; Dr. Faiz Ahmad Khan is a Faculty at IIT Kanpur. Every year campus interviews are being arranged for the benefit of the students by reputed industries.

19. **Significant achievements of the department or faculty or students during past five years.**

- a) Lecture series by faculty from JNCASR, Bangalore – January 2002.
- b) Industry-academia-future prospectus-Bridging the gap – February 2006.
- c) Some of our faculty members have been elected to various National Science bodies:
Prof. M.B. Halli – Executive member, ICC, India.
Dr. K. Siddappa – Executive member, Indian Chemistry teachers association.
- d) Some of our faculty members were also awarded by few national bodies.
Prof. M.G. Purohit – “Vijayshree” award by IIFS, New Delhi.
Prof. V.R. Kulkarni – “Vijayshree” award by IIFS, New Delhi.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

The Department has been awarded “DST-FIST-I” by Department of Science and Technology, New Delhi and was sanctioned Rs. 22 Lakhs towards up-gradation of infrastructure.

21. **Plan of action of the University Department for the next five years.**

1. Filling of vacant posts– Teaching (Faculty positions) and Non-Teaching (Laboratory Assistants).
2. Updating Teaching and Research facilities in the Department.
3. To conduct Seminars, conferences, Workshops, etc. for the benefit of faculty and students.
4. Laboratory infrastructure up-gradation.
5. To introduce choice based credit system.
6. Introduction of new inter-disciplinary courses in Nano Science and Technology, Environmental Chemistry, Computer assisted drug design.
7. To start consultancy service for the benefit of the North Karnataka Region.
8. To create departmental website with all requisite information.
9. To introduce M.Sc. (Chemistry) course at PG centres.

22. **Any other highlights.**

Our Department was instrumental in establishing the independent department of “Materials Science” at Gulbarga University.

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
COMPUTER SCIENCE**

1. Faculty profile, adequacy and competency of faculty

Name of the Faculty	Educational Qualification	Designation	Years of Experience	No. of Publications	Research Specialization
Dr. P.S. Hiremath	M.Sc., Ph.D.	Professor	30	72	Image Processing and Pattern Recognition
Dr. B.V. Dhandra	M.A., M. Phil., Ph.D.	Professor & Chairman	28	38	Image Processing and Pattern Recognition
Dr. G.G. Rajput	M.Sc., M. Phil., Ph.D.	Sr. Lecturer	14	16	Image Processing and Pattern Recognition
Professor – 02, Sr. Lecturer – 01, Total – 03					

One Reader and Two Lecturer posts are vacant. The faculty has competency in teaching and research evidenced by research publications. In addition to the above, there are 05 Guest Lecturers and 02 visiting faculty from Dept. of Statistics.

2. Student profile according to programmes of study, gender, region etc.

The intake for MCA course is 45, for M.Sc. (Comp. Sc.) 25 and for PGDCA 25. The enrollment is 100%. Approximately 50% students are women. About 5% of students are from other Universities. There are 16 Ph.D. students and 6 M.Phil. students, out of whom 7 are women and 8 are from other Universities. The student profile for the year 2007-08 is as under.

Course	Men	Women	Total
MCA	66	52	118
M. Sc.	08	09	017
M. Phil.	03	03	006
Ph.D.	12	04	016

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

The syllabi of MCA, M.Sc. (Comp. Sc.), M. Phil. and PGDCA courses have been revised thoroughly keeping in view the latest developments in the field of Computer Science and Information Technology. All the staff members have contributed significantly in the curriculum development, setting up laboratories and other infrastructure necessary for teaching and research.

4. **Trend in the success rate and drop out of students during the last five years.**

The success rate is 100% for MCA, 70% for M.Sc. (Comp. Sc.) and PGDCA. The drop out rate is 0%.
5. **Learning resources of the department like library, computers, laboratories and other such resources.**

The Department has well equipped computer laboratory with 60 Pentium IV systems and latest software's necessary for MCA and M.Sc. (Comp. Sc.). There is also a separate research lab. for Ph.D. and M. Phil. students. The Department has got VSAT internet facility for online research journals and learning resources. In the absence of Departmental library, the faculty members have a good collection of personal books which are made available to the students.
6. **Enhancement of the learning resources during the past five years.**

The Department has got VSAT internet facility for online research journals and learning resources.
7. **Modern Teaching methods in practice other than the lecture method.**

The faculty members make use of modern teaching methods using audio visual aids, LCD, OHP and software packages.
8. **Participation of teachers in academic and personal counseling of students.**

Teachers participate in academic and personal counseling of students periodically and monitor their progress. The good learners are encouraged to achieve excellence, while the slow learners are given special attention to overcome their deficiencies.
9. **Details of faculty development programmes and teachers who benefited during the past five years.**

All the faculty members have fulfilled their academic requirements of participation in UGC sponsored Orientation/Refresher courses. Faculty has delivered invited lectures as resource persons in UGC sponsored courses in this University and other Universities.

One day workshop on "Mathematical Science", has been conducted by the department.
10. **Participation of teachers in academic activities other than teaching and research.**

The Department has Computer Science Association which serves as a platform for co-curricular and extra curricular activities for the benefit of staff and students. Experts from industry/ Institutions of repute are invited to deliver special lectures. Seminars and group discussions for the students are also organized.

11. **Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.**

Faculty have collaborative research works with University of Mysore, Mysore, Karnataka University, Dharwad, Kuvempu University, Shimoga, Agricultural University, Bangalore, and Bangalore University, Bangalore, Indian Statistical Institute, Kolkatta.

Industry – linkage has been established with many software firms, e.g., Wipro, HCL, Infosys, Aztec Tech, Oracle Solutions, TCS, HP, Mindtree, etc., for providing in-plant training / project work to MCA VI semester students.

12. **If research is a significant activity, the thrust areas of the Department.**

Faculty are actively engaged in research work in the areas of Image Processing, Pattern Recognition, Computational Fluid Dynamics, Software Engineering and Operations Research.

13. **Details of the ongoing projects and projects completed during the last five years.**

Sl. No.	Name of the Principal Investigator	Title of the Project	Funding Agency	Amount (RS) Lakhs.	Duration
1.	Dr. B.V. Dhandra	A study on Handwritten bilingual optical character recognition system.	UGC Ongoing	Rs. 7,76,800/-	2008 to 2011

14. **'Programmes by research' offered by the university.**

The Department offers M. Phil. and Ph.D. programmes through research.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

The faculty members have published more than 100 research papers in reputed journals and referred proceedings of National and International Conferences. Senior faculty members are also on the panel of reviewers of both national and international conferences.

16. **Participation of the department in the extension activities of the university.**

The faculty members delivered popular lectures on Computer Science in affiliated colleges and other institutions. Some members have been invited by District Science Center, Gulbarga, for participation in its activities for popularization of science for school students. The department had organized science exhibition on the occasion of the Silver Jubilee Year of the University, which fascinated the minds of students of schools and colleges. Further, faculty members invited by the District Administrator for helping in Computerization of Government Hospital and appointment of Computer Staff for this center.

17. **Method of continuous student assessment.**

The continuous student assessment is based on class tests, seminars, project works and demonstrations.

18. **Placement record of the past students and the contribution of the department to the student placements.**

Placement Record is 100% and Department is helping the students' placement by contacting the industries through senior students who are working in reputed software industries like Infosys, Microsoft, TCS, Wipro, Honey Well, Oracle Solutions, etc. In India and abroad. The alumni visit the department regularly and deliver lectures and inter-act with the students in order to prepare them for industry career. Further, students are encouraged to undergo the training provided by the civil service coaching centre of Gulbarga University, Gulbarga.

19. **Significant achievements of the department or faculty or students during past five years.**

Faculty members have published more than 100 research papers and presented their papers in 25 International conferences. MCA students have found gainful employment in reputed software industries in India and abroad. The Department has produced 4 Ph.D.'s and 6 M. Phil. candidates.

- Students of MCA 2003 batch have participated in Disha – 2003 and won the 2nd prize in Quiz competition held at Doddappa Institute of MBA/MCA Gulbarga.
- Students of MCA 2007 batch have participated in Disha – 2008 and won the 2nd prize in Debugging Skills, held at Doddappa Institute of MBA/MCA Gulbarga.
- MCA students have participated in two days workshop on "Embedded System" conducted by USIC, Gulbarga University, Gulbarga.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

Nil

21. **Plan of action of the University Department for the next five years.**

- To conduct UGC sponsored orientation and refresher courses in computer science.
- To enhance research lab facilities through research projects funded by UGC, DST and other agencies.
- To organize Conferences at National and International level with focused theme related to thrust areas of Department.
- To upgrade computer lab. facilities for MCA and M.Sc. (Comp.Sc.) courses to keep pace with the trends of the industry from time to time.

22. Any other highlights.

- i. Department is recognized as one of the leading Departments known for significant research activity in Computer Science, especially, in the field of Digital Image Processing.
- ii. During IV and V Semesters of MCA course, the students undergo internship as a part of curriculum in which they associate themselves with the University Central Library and Computer Centre and work as resource persons for the training programmes conducted at such central facilities for the benefit of students and staff.
- iii. Alumni are invited for delivering lectures and interacting with students in order to prepare them for industry career.

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
ENVIRONMENTAL SCIENCE**

1. Faculty profile, adequacy and competency of faculty

Sl. No.	Name of the Faculty	Educational Qualifications	Designation	Teaching & Research Experience	Specialization
1	Dr. R. Nijagunappa	M.Sc., Ph.D. PG Dip. in Statistics	Professor & Chairman Dean, Faculty of Science & Technology	37 years	Natural Resources Management using RS-GIS-GPS tools.

The teaching programme of PGD in Geoinformatics course is carried out by appointing four guest lectures. The faculty is competent.

2. Student profile according to programmes of study, gender, region etc.

The Department has an intake of 10 (Self Supporting Scheme) each year for P. G. D. in Geoinformatics. Approximately 60% are ladies. All the students are from other Universities. One of them is from Chattisgarh. The course started in the year 2007-08.

Course	Men	Women	Total
PGDGI	03	05	08
M. Phil.	--	02	02
Ph.D.	04	01	05

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

The Department has M.Phil. and Ph.D. programs in Environmental Science and intend to start M.Sc. in Geoinformatics after obtaining XI UGC Plan laboratory funding. The Dept. has been offering 3 weeks Training Programme on "Basics of Geoinformatics" for teachers every year, sponsored by ISRO. Further, the Dept. has been offering short term Certificate Courses in Geoinformatics for M.Sc. and B.E. graduates and Computer Applications for UG students. The members of the faculty contributed in starting the courses and bringing changes.

4. Trend in the success rate and drop out of students during the last five years.

The success rate is 100%. The dropout rate is 0%.

5. Learning resources of the department like library, computers, laboratories and other such resources.

Department has library, air conditioned Geoinformatics laboratory with 16 computers, ERDAS and ArcGIS software, A0, A3 & A4 black and white/colour printers, A3 and A4 scanners, UPS, LCD, digital satellite images, and digital camera.

6. Enhancement of the learning resources during the past five years.

The Department has been sanctioned ISRO's Grant-in-aid of Rs. 20 lakhs (2005-06) and Karnataka Science and Technology Academy's grant of Rs.5 lakhs (2006-07) for establishment of Remote Sensing (RS)-Geographic Information System (GIS)-Global Positioning System (GPS) Laboratory facility. The facility is being used for both teaching and research.

7. **Modern Teaching methods in practice other than the lecture method.**
The Department has been using Laptop computer, LCD Projector, OHPs, Computer multimedia software packages in teaching and research activities.
8. **Participation of teachers in academic and personal counseling of students.**
The teachers are actively involved in academic and personal counseling of the students. Slow learners are tutored and mentored periodically to overcome their deficiencies and improve their performance.
9. **Details of faculty development programmes and teachers who benefited during the past five years.**
The Department has organized three Training Programs on "Basics of Geoinformatics" sponsored by ISRO for the benefit of teachers of the University and the teachers of other Universities of Karnataka and other States.
10. **Participation of teachers in academic activities other than teaching and research.**
The Department has been involved in bringing awareness relating to environment in general and water resources management through Rain Water Harvesting in particular by delivering lectures, organizing workshops in affiliated colleges, NSS camps etc. Also, the Department has been bringing awareness in Remote Sensing, GIS and GPS technology with the support of ISRO in applications related to optimum use of national resources and protection of ecological balance.
11. **Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.**
The Department collaborates with ISRO, Karnataka Science and Technology Academy, Karnataka Remote Sensing Applications Centre, and other Universities in Karnataka in the establishment of RS-GIS-GPS laboratory facility and in starting ICT enabled job oriented courses like PG Diploma and certificate courses in Geoinformatics and other computer applications.
12. **If research is a significant activity, the thrust areas of the Department.**
The thrust areas are:
 - (i) Application of Geoinformatics techniques in Environmental Management, Water Resources Management including rainwater harvesting, and Urban Planning.
 - (ii) Environmental Impact Assessment.
13. **Details of the ongoing projects and projects completed during the last five**

years.

The Department has implemented the project sponsored by ISRO (Rs.20 lakhs) (2005-06) in the establishment of RS-GIS laboratory facility to offer courses in Geoinformatics. The Dept. is also implementing a project on urban sprawl studies of Gulbarga city.

14. **'Programmes by research' offered by the university.**

The department offers M.Phil. and Ph.D. degrees through research.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

The members of the faculty of the Department have published over 15 research papers in journals and seminar proceedings volumes. Senior staff member of the Department has been on the panel of reviewers and editorial boards for national journals.

16. **Participation of the department in the extension activities of the university.**

The Department had organized science exhibition related to Space Technology Applications during Silver Jubilee Year of the University. The Department organized Remote Sensing Awareness Programmes and Certificate Courses for the benefit of students and staff, sponsored by ISRO. The senior staff member has been delivering lectures on Rainwater Harvesting in NSS and MSW camps. He also delivered invited extension lectures on TV, AIR, colleges and Universities.

17. **Method of continuous student assessment.**

The Department has Semester Scheme with 20% component of internal assessment. The students are continuously assessed through take-home assignments, tests, quiz, hands on demonstrations etc. Students are encouraged to PowerPoint presentations on seminar topics and to browse internet for e-journals and literature to develop their professional skills.

18. **Placement record of the past students and the contribution of the department to the student placements.**

The Department is offering job-oriented PG Diploma in Geoinformatics from 2007-08 and the first batch of eight students are expected to get placement soon after completing their course.

19. **Significant achievements of the department or faculty or students during past five years.**

The Department has established RS-GIS-GPS laboratory facility, Geoinformatics Seminar Hall and Dr. Vikram Sarabhai Hall for offering job-oriented Diploma, Master of Science and Certificate Courses in Geoinformatics, an emerging technological field. The Department has been extending consultation services related to Environmental Impact Assessment to industries and government

organizations. The Department has been organizing Remote Sensing Awareness, Training and Certificate Courses sponsored by ISRO, and started P.G. Diploma in Geoinformatics under Self Supporting Scheme.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

Nil

21. **Plan of action of the University Department for the next five years.**

- The Department intends to start M.Sc. Geoinformatics course.
- To introduce Choice Based Credit System (CBCS)
- Resource mobilization through UGC and funding agencies to establish laboratories to offer M.Sc. in Environmental Sciences.
- To offer Innovative papers on Geoinformatics Applications in Water Resources Management and Environmental Impact Assessment.

22. **Any other highlights.**

- The Department intends to increase consultancy activities in Environmental Impact Assessment and Geoinformatics.
- The Department has already established itself as Centre for Studies in Geoinformatics and intends to make it a Centre of Excellence in the field of Geoinformatics.
- The Department has been offering job-oriented courses in Geoinformatics and intends to offer 100% placement for the students.

- - -

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
MATERIALS SCIENCE**

1. Faculty profile, adequacy and competency of faculty

Sl. No.	Name of the faculty	Educational Qualifications	Designation	Teaching and Research Experience	Specialization
1.	Dr. A. Venkatraman	M.Sc., Ph.D.	Professor	20 years	Materials Chemistry
2.	Dr. M.V. N. Ambikaprasad	M.Sc., Ph.D.	Reader & Chairman	17 years	Materials Physics
3.	Dr. R.L. Raibagkar	M.Sc., Ph.D.	Reader	15 years	Materials Science and Electronics
Professor – 01, Reader – 02, Total – 03 (Deputed from parent departments)					

2. Student profile according to programmes of study, gender, region etc.

Course	Men	Women	Total	Region
M.Sc.	10	02	12	Gulbarga
M. Phil	03	02	05	Gulbarga
Ph.D.	08	01	09	Gulbarga

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

This course was started in year 2004. Syllabus was framed by Board of Studies. One paper was replaced i.e., paper MST 1.4: Semiconductor Technology was introduced in place of Geo-materials. All the faculty members were involved in this programme. With the Innovative Programme in Materials Chemistry sanctioned to the Department, special papers in Materials Chemistry in theory and Practicals have been introduced.

4. Trend in the success rate and drop out rate of students during the last five years.

Success rate = 100%.

5. Learning resources of the department like library, computers, laboratories and other such resources.

Adequate number of books and Journals are available in the Library. Department also has books with the faculty members. These books are issued to the P.G. Students and research scholars as and when demanded.

Department has 07 Computers and 01 Laptop. These are used by faculty members, P.G. Students, Research Scholars and Office Staff. Department has broadband Internet facility available for 24 hours. This facility helps students and Staff Members in downloading the required information in updating their academic and research work. Materials Synthesis laboratory, with facilities of nano materials through wet chemical and biological routes has been introduced.

The department has three Laboratories. Each Laboratory is well equipped with instruments,(for Electrical Conductivity:- 2 probe and 4 probe, DC and AC, Dielectric, Magnetic Hysteresis, UV-Visible Spectrophotometer, etc., apart from Equipments, Chemicals, Glasswares, Manuals, Lab charts and Toolkits.

6. **Enhancement of the learning resources during the past five years.**

The department has organized number of Lectures, demonstrations by eminent Scientists, academic Professionals from National & International Laboratories, Research Institutes & Universities. Students have undergone various types of training by the experts and they are exposed to industry entrepreneurs to exhibit their talent and skills. They also had the opportunity of participating actively at two national conferences conducted by the Department and international conference (Nano-2007) organized at Bangalore on Nanotechnology.

7. **Modern Teaching methods in practice other than the lecture method.**

The Department is using power point & LCD projector and other modern teaching methods. Students seminar, group discussions, assignments are followed.

8. **Participation of teachers in academic and personal counseling of students.**

Internal tests and assignments are evaluated and remedial measures are suggested, for students who are not faring well. Students are given project work.

9. **Details of faculty development programmes and teachers who benefited during the past five years.**

Faculty members attended Refresher courses/Short term course in the area of Materials Chemistry and Nanotechnology.

10. **Participation of teachers in academic activities other than teaching and research.**

Faculty assisting in UGC XI plan, NAAC (related activities) and examination work.

11. **Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.**

The staff has collaboration with National Chemical Laboratory, Pune, Indian Institute of Science, Bangalore, Jawaharlal Nehru Center of Advanced Scientific Research, Bangalore, Indian Institute of Chemical Technology (IICT), Hyderabad, University of Pune, Shivaji University, Kolhapur, and RRCAT, Indore.

12. **If research is a significant activity, the thrust areas of the Department.**

The thrust area of the Department is on Materials Synthesis, with focus on wet chemical routes to synthesis, studies on nano-materials and nanotechnology for varied applications, in particular Sensors with focus on Conducting Polymers, Electronic Ceramics, Magnetic Ceramics and nanomaterials for application in the area of humidity, gas and biosensors, gas adsorption studies and in nanobiotechnology, etc.

13. **Details of the ongoing projects and projects completed during the last five years.**

Name of the Principal Investigator	Title of the Project	Duration	Funding Agency	Amount Rs. in lakhs
Dr. A. Venkataraman	"Synthesis of some important ceramic materials employing some novel chimie douce approach"	2003-06 completed	UGC	6.10
Dr. A. Venkataraman,	Synthesis, Characterization and Physico-Chemical Studies of Novel Polymeric Nanocomposites	2005-08 ongoing	DST	09.07
Dr. M.V.N. Ambika Prasad	Development of Humidity and Gas Sensors employing conducting polymer nanocomposites	2007-10 ongoing	DST	19.22
Dr.A. Venkataraman, Coordinator	UGC Innovative Programme in Materials Chemistry	2007-12 ongoing	UGC	40.00

14. **'Programmes by research' offered by the university.**

M. Phil. and Ph.D.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

The faculty members have published 52 research papers in National and International journals.

16. **Participation of the department in the extension activities of the university.**

Conducted the national conferences (AMS-06 and AMS-07) held on 9th and 10th January 2006 and 27th and 28th January 2007. Arranged special lectures and invited talks in the Materials Society of the department.

17. **Method of continuous student assessment.**

Conducting internal assessment tests, assignments and involving students in Project work.

18. **Placement record of the past students and the contribution of the department to the student placements.**

The first batch of M.Sc students passed out from this course in 2007 and all the students have been accommodated at various places (Academic, Industries & Teaching).

19. **Significant achievements of the department or faculty or students during past five years.**

The Department has got initial funding from the UGC (Xth plan grant) and regular University budget. Two major research projects (one from UGC and another from DST) are being carried out in the Department. Recently, UGC has sanctioned grant of rupees 40.00 lakhs and a post of lecturer and secretarial assistant for innovative programme and also DST has sanctioned research project for the development of Humidity and Gas Sensors employing conducting polymer nano composites of about Rs. 19.22 lakhs.

The Department has organized two National Conferences (Advances in Materials Science) AMS –06 & AMS-07. Dr. Anil Kakodkar, Chairman, Atomic Energy Commission, Govt, of India, inaugurated the First conference and delivered address. The second National conference was organized in collaboration with Ceramic & Cement Technology Department, PDA Engineering College, Gulbarga and Basaveshwar Engineering College, Bagalkot. This conference was inaugurated by Dr. Frank R. Sale, of Manchester University, UK and delivered the keynote address. One of the faculty members visited Hungary for 2 months under the educational exchange programme of the Hungarian Academy of Sciences. One of the staff members is selected as the regional Editor (India) for Journal-Thermal Analysis and Calorimetry (Springer Publication) and as an Editor for the Journal-Materials Science Research India. One of the staff members has been selected as editorial board member for "Sensors and Transducer".

Recently in April, the Department conducted a national workshop on Nanotechnology.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

UGC's Innovative Programme in Materials Chemistry.

21. **Plan of action of the University Department for the next five years.**

The Department plans to work on the area of the Nanotechnology, Nano-Biotechnology, Design and Development of Humidity/Gas Sensors and electronic-ceramics for device application and fabrication of PC based interfacing circuits. The Department plans to have Industry–University collaboration for mutual benefit.

Recently, two of the faculty members have submitted Projects to the Department of Science and Technology (DST), New Delhi, under the Instrument Development Programme (IDP), where in the Industry have to have tie-up with Universities to come out with Instruments that are commercially viable.

22. **Any other highlights.**

The department conducted one-day workshop on Nano-Technology, Science workshop.

The department has research students with different backgrounds such as Engineering, Pharmacy, Chemistry, Physics, Electronics, etc.

- - -

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
MATHEMATICS**

1. Faculty profile, adequacy and competency of faculty

Sl. No.	Name of the Faculty	Educational Qualification	Designation	Teaching and Research Experience	Specialization
1.	Dr.M.S.Malashetty	M.Sc., Ph.D.	Professor	32 Years	Fluid Mechanics
2.	Dr. M. Subhas Abel	M.Sc., Ph.D.	Professor	32 Years	Fluid Mechanics
3.	Dr. V. P. Rathod	M.Sc., Ph.D.	Professor & Chairman	32 Years	Fluid Mechanics
4.	Dr. Shabbir Ahmed	M.Sc., Ph.D.	Professor	32 Years	Algebra, Topology, Graph Theory
5.	Dr.(Smt.)C. Sulochana	M.Sc., Ph.D.	Reader	20 Years	Computational Fluid Dynamics
6.	Dr.N.B.Naduvanamani	M.Sc., Ph.D.	Reader	20 Years	Tribology
7.	Dr.(Smt)J.C.Umavathi	M.Sc., Ph.D.	Reader	20 Years	Fluid Dynamics
8.	Dr.S.N.Gaikwad	M.Sc., Ph.D.	Reader	16 Years	Magneto-Hydrodynamics
9.	Dr.J.Prathap Kumar	M.Sc., Ph.D.	Reader	16 Years	Fluid Dynamics
10.	Dr. M.H.Muddebihal	M.Sc., Ph.D.	Reader	22 Years	Discrete Mathematics, Graph Theory
Professor – 04, Reader – 06, Total – 10					

The faculty members are adequate and are competent to carry our teaching and research activities.

2. Student profile according to programmes of study, gender, region etc.

Department has an intake of 40 + 10 (Self supporting scheme) seats for the first Semester M.Sc. course. Approximately 60-70 percent of the students are ladies. Approximately 5% students are from other Universities (within & out side state). The student profile for the year 2007-08 is as under

Course	Men	Women	Total
M. Sc.	19	34	53
M. Phil.	10	08	18
Ph.D.	22	08	30

3. **Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.**

The department has introduced the Semester scheme for M.Sc. course as per UGC guidelines. Syllabus for M.Sc. has been revised during 2003-04 by taking into consideration of UGC/CSIR & NET/JRF syllabus. A new specialization on Fuzzy Sets & Fuzzy System has been introduced.

4. **Trend in the success rate and drop out of students during the last five years.**

The success rate is approximately 95%. The dropout rate increased during last two years due to their permanent appointments in the Govt. sector.

5. **Learning resources of the department like library, computers, laboratories and other such resources.**

The department has a departmental library with nearly 500 titles. Every staff member has a computer with internet connection. The department has two computer lab's for M.Sc. and research students separately with internet connection.

6. **Enhancement of the learning resources during the past five years.**

Nearly 600 titles have been added to the library during the last five years and the local area network is done within the department building and internet connection is given to all the staff rooms and computer lab's. Several experts from other universities and national institutes have been invited to deliver special lectures for the students and staff. Department also procured LCD projector.

7. **Modern Teaching methods in practice other than the lecture method.**

The faculty members have adopted the modern teaching methods other than lecture method. Department has two OHP machines and one LCD projector. Most of the faculty members are using these modern teaching aids for effective teaching.

8. **Participation of teachers in academic and personal counseling of students.**

All the teachers are actively participating in the academic activities and students counselling. Weak students in the class will be identified and special counseling will be done for such students.

9. **Details of faculty development programmes and teachers who benefited during the past five years.**

Department has organized a workshop for college teachers of Gulbarga University affiliated colleges. Senior members of the faculty have served as resources persons in the UGC sponsored refresher courses within and other universities.

10. **Participation of teachers in academic activities other than teaching**

and research.

The teachers participate in co-curricular and extra co-curricular activities in the university. To senior faculty are serving as members academic council at present and all other professors have also served as members of academic council earlier. Dr. J. Prathap Kumar has served as a special officer in the examination branch and served as warden of students' hostel. Dr. S. N. Gaikwad and Dr. (Smt.) C. Sulochana have served as wardens of students hostels.

11. Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.

The staff members have collaborative research work with Professors in foreign universities. The faculty is actively involved in research related to the application of theoretical fluid mechanics to several biological, engineering and environmental problems. They have also collaborative research work with research groups working on bio-fluid-mechanics at Karnataka University, Dharwad, Bangalore University, Bangalore, Tata Institute of Fundamental Research, Bangalore and Jadavpur University, Calcutta and Santiniketan University, West Bengal. In the field of Discrete Mathematics, the faculty has collaboration with the research group at Pondichery University, Karnataka University, Dharwad. In the field of topology, one faculty member has collaboration with an eminent professor at Central University, Hyderabad.

12. If research is a significant activity, the thrust areas of the Department.

The thrust areas of research are :

Fluid Mechanics, Biomechanics, Magnetohydrodynamics, Computational Fluid Dynamics, Topology, Graph Theory, Fuzzy sets & Systems

13. Details of the ongoing projects and projects completed during the last five years.

A. On going Research & Infrastructure Development Projects

Sl. No.	Title of the Project	Name of the PI / Co-ordinator	Funding Agency	Amount (RS.) in Lakhs	Period
1.	Mathematical, Analysis of Some Aspects Momentum, Heat & Mass Transfer in non-Newtonian Boundary Layer Flow	Dr. Subash Abel	DST	09.96	2005-2008
2.	Theoretical Study Non-Newtonian Effects of Lubricants and the Stability of Bearings	Dr. N.B. Naduvinamani	UGC	04.16	2006-2009
3.	Infrastructure Developmental	Chairman, Dept. of	UGC	20.00	2007-08

	Grants	Maths.			
4.	Department of Atomic Energy (NBHM Book Grants)	Chairman, Dept. of Maths.	DOA	03.00	Every year
5.	Special Assistance Program DRS-II	Dr. M.S. Malashetty Co-ordinator	UGC	29.00	2007-2012

B. Research Project/ Development Projects Completed

Sl. No.	Title of the Project	Principal Investigator / Coordinator	Funding Agency	Amount Sanctioned Rs. in Lakhs	Period
1.	UGC Special Assistance Programme: DRS Thrust area: Fluid Mechanics	Dr. M.S. Malashetty Co-ordinator	UGC	30.00	2002-2007

14. **'Programmes by research' offered by the university.**
M. Phil. and Ph.D. in Mathematics
15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**
The faculty members of the department have published 112 research papers in reputed national and international journals of good impact factor of 0.8 - 2.2. These published papers have been well cited by the researchers in the field.
16. **Participation of the department in the extension activities of the university.**
The Department has organized an excellent Mathematics Exhibition on the occasion of Silver Jubilee year celebrations of the University. Some of the staff members have delivered invited lectures in local colleges and other universities.
17. **Method of continuous student assessment.**
Conducting internal assessment tests and quizzes at regular intervals.
18. **Placement record of the past students and the contribution of the department to the student placements.**
Most of the past students are well placed in various universities and Engineering colleges.
19. **Significant achievements of the department or faculty or students**

during past five years.

The Department has hosted several national & international conferences, workshops, seminars, etc. The department is offering a special course on computer aided geometric design (CAGD) for M.Sc. Mathematics students with U.G.C. assistance since 1994. Two of the faculty members are honored by prestigious international awards from Canadian World Education Foundation Canada and from Matuhaya Rajal Foundation, Brunei.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

Based on the good performance in teaching and research the University Grants Commission (UGC), New Delhi has identified the department for **Special Assistance Programme DRS-I** with the thrust area as Fluid Mechanics and sanctioned a grants of **Rs. 30.00 lakhs** for the first phase (2002-2007) and on the basis of an excellent progress made during the first period of five years DRS-II has been sanctioned for 2002-2007 with a grant of approximately Rs. 30.00 lakhs for the next five years.

21. **Plan of action of the University Department for the next five years.**

The Department has a plan to impart an increased value based education by introducing new specializations in the thrust area of research and to have collaborative research with industries.

22. **Any other highlights.**

I. Conferences / Seminars / Workshops conducted:

Sl. No.	Name of the faculty of the Conference	Sponsored by	Date
1.	National Seminar on Recent Advances in Fluid Mechanics	University Grants Commission, New Delhi	September 11 & 12, 2002.
2.	National Conference on Advances in Fluid Mechanics	University Grants Commission, New Delhi	February, 5 & 6, 2004.
3.	International Conference on Advances in Applied Mathematics	University Grants Commission, New Delhi	February, 24-26, 2005.
4.	National Conference on Applied Mathematics	University Grants Commission, New Delhi	February, 7 & 8, 2006
5.	Workshop in Mathematics	University Grants Commission, New Delhi	26 th – 28 th March, 2007
6.	Workshop on Mathematical Sciences	UGC New Delhi,	31 st March, 2008.

II. Most of the staff members are serving as editorial board members and reviewers for several reputed national and international journals like Indian Journal of Pure and Applied Mathematics, Sadana, Journal of Engineering Tribology, Tribology International, Journal of Brazilian University.

- - -

MICROBIOLOGY

1. Faculty profile, adequacy and competency of faculty

Sl. No.	Name of the faculty	Educational Qualifications	Designation	Teaching and Research Experience	Specialization
1.	Dr.Y.F.Neelagund	M.Sc., Ph.D.	Professor	32 Years	Food Microbiology, Insect Microbiology
2.	Dr.Y.M.Jayaraj	M.Sc., Ph.D.	Professor	31 Years	Medical Microbiology, Environmental Microbiology
3.	Dr.S.M.Gaddad	M.Sc., Ph.D.	Professor	25 Years	Environmental Microbiology, Molecular biology
4.	Dr.K.Lingappa	M.Sc., Ph.D.	Professor	20 Years	Industrial Microbiology, Fermentation Technology
5.	Dr.A.Dayanand	M.Sc., Ph.D.	Professor & Chairman	20 Years	Microbial biodiversity and Bioprocess Technology
6.	Dr.(Smt.)Vandana Rathod	M.Sc., Ph.D.	Reader	13 Years	Microbial Enzymology and Microbial physiology
7.	Dr. C.T.Shivannavar	M.Sc., Ph.D.	Reader	13 Years	Medical Microbiology and Environmental Microbiology
Professor – 05, Reader – 02, Total – 07					

Adequate and Competent.

2. Student profile according to programmes of study, gender, region etc.

Course	Men	Women	Total
M.Sc.	22	33	55
M. Phil	02	04	06
Ph.D.	18	12	30
Total	42	49	91
Percent	48%	52%	100%

PG Students - 27 + 28 MPhil Students – 6 students

Research students – 30. Gender – 42% Male and 58% Female

Region – Covering mainly North Karnataka region and a few from other states.

3. Changes made in the courses or programmes during the past five years

and the contribution of the faculty to those changes.

- M. Sc. Course has been changed to Semester Pattern.
 - The entire faculty has contributed positively for incorporating the changes.
4. **Trend in the success rate and drop out of students during the last five years.**
 - Success rate : 95 to 98%
 - Drop out rate: 2.5% annually for perusing other professional courses.
 5. **Learning resources of the department like library, computers, laboratories and other such resources.**

Library – No departmental library. Solely dependent on Central Library.
Computers – 05
Laboratories – Fairly good space and infrastructure.
 6. **Enhancement of the learning resources during the past five years.**

Young faculty have undergone refresher courses, workshops and academic orientation courses and thus have enhanced the learning resources.
 7. **Modern Teaching methods in practice other than the lecture method.**

Seminars and group discussions are regularly conducted.
LCD and OHP are regularly used as teaching aids.
 8. **Participation of teachers in academic and personal counseling of students.**

All the teachers are actively involved in academic and personal counseling for the students as and when desired by the students.
 9. **Details of faculty development programmes and teachers who benefited during the past five years.**

Various academic and research related programmes have been attended by the faculty members and benefited for teaching and research activities.
 10. **Participation of teachers in academic activities other than teaching and research.**

Teachers are participating in various academic programmes other than teaching and research such as BOA, BOS, BOE, BOAE, Doctoral committees.
 11. **Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.**
 - The Department has established liaison for its research activities with NIMHANS, Bangalore, IISc., Bangalore, CMC., Vellore, NJIL&OMD Agra, Rallies Agro Chemicals Bangalore, Central Food Technological Research Institute Mysore, Andhra Pradesh Agricultural University Hyderabad, Department of Pharmacology Andhra University Waltair, Karnataka State Sericulture Board Bangalore and Department of Civil Engineering, PDA Engineering College

Gulbarga, Agricultural Research Station Gulbarga.

- Department has initiated collaborative research programme on i) 'Diversity, Molecular Biosystematics and Bioactive molecules of Actinomycetes' with Prof. Chang-Lin Jiang and Prof. Wen-Jun Li of the key laboratory for Microbial Resources, Ministry of Education, Yunnan Institute of Microbiology, Yunnan University, Kunming, Yunnan, P R of China, ii) Collaborative research programme on "Epidemiology of *Klebsiella pneumoniae*" (particularly ESBL) with Division of Infectious diseases, University of Pittsburgh, Pittsburgh, U.S.A.
- Outcome: Research and teaching strength of the faculty has been strengthened to a great extent.

12. **If research is a significant activity, the thrust areas of the Department.**

Research is a significant activity of the Departmental faculty.

Thrust Areas: Microbial Diversity, Bioactive molecules, Molecular aspects of epidemiology of Infectious diseases, Environmental Microbiology, Fermentation Technology, Medical Microbiology.

13. **Details of the ongoing projects and projects completed during the last five years.**

S. N.	Title of the Project	PI	Funding agency	Duration	Amount sanctioned
1.	Decolourisation of industrial effluents using immobilized microorganisms	Dr. S. M. Gaddad, Dr.C.T.Shivannavar	DOEn	1998-2002	16 lakhs
2	Treatment of wastewater using immobilized microbial systems	Dr. S. M. Gaddad, Dr. C.T. Shivannavar	AICTE	1998-2001	5.00 lakhs
3	Single cell oil production from yeasts	Dr. Vandana R., Dr. Y. F. Neelgund	GUG	2000-2001	10,000/-
4	Studies on microbiological quality of drinking water in Gulbarga city	Dr.C.T.Shivannavar, Dr. S. M. Gaddad,	GUG	2000-2001	15,000/-
5.	Development of whole cell and polysaccharide sub unit vaccine from epidemiologically typed <i>Staphylococcus aureus</i>	Dr. S. M. Gaddad, Dr.C.T.Shivannavar	DRDO	2007-2009	18,00,000/-

14. **'Programmes by research' offered by the university.**

M. Phil. and Ph. D. programmes.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

- i) National Journals : 35
 ii) International Journals : 12
 iii) Citation index : --
 iv) Impact factor : 0.5 to 2.5

16. **Participation of the department in the extension activities of the university.**

Regularly the department is involved in various extension activities.

17. **Method of continuous student assessment.**
Through regular internal assessment test, semester-wise examinations and personal observations regarding their academic performances.
18. **Placement record of the past students and the contribution of the department to the student placements.**
The students of this Department have joined research institutes of repute in India and abroad such as National Laboratories like National Chemical Laboratory, Pune; Central Food Technological Research Institute, Mysore; National Institute of Mental Health and Neurosurgery, Bangalore; Indian Veterinary Research Institute, Bangalore; Tata Energy Research Institute, Delhi; Vector Control Research Centre, Pondicherry; National Institute of Virology, Pune; Indian Institute of Agricultural Research, Madras; Indian Immunologicals, Hyderabad, Srichitra Medical Institute Trivandrum; Indian Institute of Science, Bangalore; Polio Vaccine Production, Bulandshahar; Gilmon Laboratories, Hyderabad; Central Marine Fisheries Research Institute, Cochin and various Medical, Dental, Pharmaceutical and Degree Colleges in Karnataka and other States. Apart from these, many of our alma-meters are also serving in various private and public sector concerns. Some of the students have also become self entrepreneurs by commencing their own laboratories and industries.
The Department is extending necessary guidance for placement of students through contacting scientists and also arranging campus interviews by different industries.
19. **Significant achievements of the department or faculty or students during past five years.**
 - Dr. C. T. Shivannavar (Staff) - Visited Dept. of Microbiology, Univ. of Illinois, USA, during July 2004 to January 2005 – on DBT overseas associateship award.
 - Syed G. Dastagir (student) – visited as research fellow in the Key Laboratory for Microbial Resources, Ministry of Education, Yunnan Institute of Microbiology, Yunnan University. Kunming, Yunnan, P R of China.
 - Mujahid (Student) - Visited the Division of Infectious diseases, University of Pittsburgh, Pittsburgh, U.S.A.
20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**
The Department has been identified by UGC under development (non-SAP programmes).
21. **Plan of action of the University Department for the next five years.**
Aiming at the introduction of new courses in the Field of Applied Microbiology, to fetch significant job avenues for the students and also involvement of the microbiology oriented industries in the departmental research activities.
Aiming to increase rate of passing of PG and research students at various competitive examinations like NET, CSIR, UGC, GATE etc.
Aiming to strengthen the existing research activities for the development of the region in collaboration with research organizations and industries.
22. **Any other highlights.**
 - The Department celebrated its "Silver Jubilee in 2001-02. The alumni and experts participated in the said academic celebrations.
The Department hosted Annual conference of Association of Microbiologists of India.

- - -

DEPARTMENT OF P.G. STUDIES AND RESEARCH IN

PHYSICS

1. Faculty profile, adequacy and competency of faculty (2001-2008)

Sl. No.	Name of the Faculty	Educational Qualifications	Designation	Teaching and Research Experience	Specialization
1.	Dr. P.S. Naik	M.Sc., Ph.D.	Professor & Chairman	28 years	Electronics and Solid State Physics
2.	Dr. R.D. Mathad	M.Sc., Ph.D.	Professor	30 years	Nuclear physics and bio-physic Radiation physics.
3.	Dr. M.T. Lagare*	M.Sc., Ph.D.	Professor	35 years	Nuclear physics and Radiation physics.
4.	Dr. R.S. Kunabenchii**	M.Sc., Ph.D.	Reader	26 years	Spectroscopy and Photonics
5.	Dr. M.V.N. Ambikaprasad	M.Sc., Ph.D.	Reader	25 years	Solid State physics and Materials science
6.	Dr. T. Sankarappa	M.Sc., M. Phil., Ph.D.	Reader	20 years	Solid State physics and Materials science
7.	Dr. V.M. Jali	M.Sc., Ph.D.	Reader	22 years	Solid State physics and Materials science
8.	Dr. S.M. Hanagodimath	M.Sc., Ph.D.	Reader	20 years	Nuclear physics
9.	Dr. Basavaraja Sannakki	M.Sc., M.Phil., Ph.D.	SG. Lecturer	17 years	Solid state physics and Radiation physics.
10.	Dr. B.R. Kerur	M.Sc., Ph.D.	Reader	19 years	Nuclear physics and radiation physics.
Professor – 03, Reader – 06, SGL – 01, Total – 10					

Professors- 2, Readers – 7, Lecturers – Nil; All the faculty members possess Ph. D. and are involved in teaching and research in Physics.

* Retired on Sept. 2007.

** Deceased on March 29, 2008.

2. Student profile according to programmes of study, gender, region etc.

Course	Men	Women	Total
M.Sc.	27	13	40
M. Phil	05	05	10
Ph.D.	34	06	30

M Sc/M.Phil./Ph.D.– 83 Students: 40 Females and 43 Males. Ninety percent of students belong to Gulbarga/Bellary/Bidar/Raichur/Koppal districts falling under the jurisdiction of Gulbarga University, Gulbarga; and 10% of students are from the other Universities in India.

3. Changes made in the courses or programmes during the past five years

and the contribution of the faculty to those changes.

Materials Science and Energy Physics were introduced. Subsequently material science became an independent Department. The Semester system has been introduced at the post-graduate level since AY 2004-05. The faculty members have all contributed towards design of the curriculum and conduct of these courses. A new and innovative course in Biophysics at the Post-Graduate level is being offered, since academic year 2001-02.

4. Trend in the success rate and drop out of students during the last five years.

The success rate is normally over 65%. The drop out rate is on an average less than 10%.

5. Learning resources of the department like library, computers, laboratories and other such resources.

The Department has got good computational and laboratory facilities. The students & staff use central library facilities.

6. Enhancement of the learning resources during the past five years.

New courses and experiments have been introduced at the post-graduate level in accordance with semester syllabus. New books, monographs both at the teaching and research level have been recommended for the central library. The faculty members have taken up several major research projects from DST, BRNS/DAE, UGC / NSC, IUCAA, which has helped in enhancement of learning resources during the past five years.

7. Modern Teaching methods in practice other than the lecture method.

Modern teaching aids such as OHP, LCD and Computers are being used in addition to the traditional lecture method.

8. Participation of teachers in academic and personal counseling of students.

Teachers regularly counsel the students in their academic activities.

9. Details of faculty development programmes and teachers who benefited during the past five years.

All the faculty members have undergone time to time the stipulated number of training programmes such as Orientation and Refresher courses in Physics. Further, the members have also participated in Seminars, Summer Schools, Symposia, Workshops and International Conferences.

10. Participation of teachers in academic activities other than teaching and research.

Some of the faculty members have delivered Radio & TV talks, popular science lectures as a part of extension activities and special lectures in other universities/institutions. Dr. Jali coordinated special lecture series in physical sciences to promote interest in the basic sciences. The program was sponsored by Karnataka Academy of Science and Technology.

11. Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.

Most of the faculty has collaborative research programmes with Inter-University Centers /National institutes such as NSC (IUAC), New Delhi, BARC, Mumbai, NCBS, Bangalore, UGC-DSA Centre, BU Bangalore, IUCAA, Pune, CAT & IUC, Indore, IISc, Bangalore, National Center for Ultra Fast Phenomena, Chennai, Laser Spectroscopy Centre, DRDO/KU Dharwad, Nanotechnology Centre, Cranfield University, UK and Condensed Matter Physics group of International Centre for Theoretical Physics, Trieste, Italy.

12. If research is a significant activity, the thrust areas of the Department.

The main thrust areas of research is Nuclear Radiation and Condensed Matter involving Energy loss of charged particles in matter, Plasma instabilities in inertial confinement fusion, Electronic excitation energy transfer in fluorescent systems, Laser induced energy transfer and dye lasers, Bimolecular investigations and radiation biophysics, High energy electron energy loss in cross linking polymers, Transport properties in low dimensional semiconductors, Radiation resistant ferroelectrics, ceramics and glasses, Scattering of x-rays near absorption edges, Electric and magnetic properties of thin films.

13. Details of the ongoing projects and projects completed during the last five years.

Name of the Teacher	Title of the project	Duration	Funding Agency	Amount Rs.	Status
Dr R.D.Mathad	High energy electron irradiation and energy loss in cross-linking linking polymers	3 years 2004-08	BRNS, DAE	10.00	Ongoing
Dr.V.M.Jali	Development of Radiation resistant Ferro electric thin films for memory device applications	3 years 2004-08	BRNS, DAE	11.88	Ongoing
Dr.T.Sankarappa	Electronic magnetic property in magnetic granular films	4 years 2004-08	DST	25.80	Ongoing
Dr. B R Kerur	Resonance scattering of X-rays near absorption	3 years	BRNS,	22.25	Ongoing

	edges	2005-08	DAE		
Dr V. M. Jali	Radiation effects on low thermal expansion ceramics	3 years 1998-2002	NSC	4.50	Completed
Dr S. M. Hanagodimath	Fabrication of wave guides in potential optical materials by ion implantation	3 years 2000-03	NSC	2.50	Completed

14. **'Programmes by research' offered by the university.**

M. Phil. and Ph. D in Physics.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

National: 30 International: 50 Total: 80

16. **Participation of the department in the extension activities of the university.**

The faculty members participate in the university extension activities by delivering lectures/ demonstrations in science awareness programmes.

17. **Method of continuous student assessment.**

As a part of semester scheme, internal assessment in both theory and practical courses are conducted on regular basis.

18. **Placement record of the past students and the contribution of the department to the student placements.**

Many students have joined national research organizations and teaching posts at both the post-graduate and under graduate levels. Also several students have gone abroad on research assignments. The details of a few of such students is given hereunder:

Dr Ganesh, Scientist, IPR, Ahmadabad; Aravinda Cinchure, Scientist, R & D, GE, Bangalore; Mr Thakur, NPL, New Delhi; Mr Hallikhed, Scientist, Singapore; Mr B Veeresh, IPR, Gandhinagar; Dr Jnanaprakash, Reader, Mysore University; Dr Rajesh K, Scientist, Canada; Sripad, SI, Haryana; Ms Shantabai & Darukesh, Scientists, ISRO, Bangalore; Mr Sheelavant, KAS, Lingsugur; Dr K Suresh, PDF, Thailand; Dhawalappa, Scientist, IGM, Allahabad; Dr V S Doddamani and Dr. Basavaraj Angadi, Bangalore University, B'lore; Dr Sangappa & Dr Devendrappa, Mangalore University, M'lore.

19. **Significant achievements of the department or faculty or students during past five years.**

Curriculum is periodically revised to upgrade and diversify in the needy and emerging areas of Physics. Staff members have been offered fellowships by the foreign universities/institutions and some members have been invited to present research papers at national / international conferences. Most faculty members have research projects funded by different Agencies. Some students have qualified in the NET/SLET examinations.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**

The effort has been made earlier to secure support from FIST, DST. Fresh effort is currently underway to seek assistance under SAP, UGC, Govt. of India.

21. **Plan of action of the University Department for the next five years.**

The Department plans to design new courses in the needy and emerging areas of physics and also to diversify research activity into multidisciplinary areas such as Biophysics, Photonics and Nanophysics.

22. **Any other highlights.**

1. Centre for Biophysics & Bioinformatics, establishment of a Centre for Biophysics & Bioinformatics facilitating the teaching and research in these multidisciplinary areas under department of physics has been approved *vide GUG AC Res. No. 22 Dated 30 March 2004.*
2. UGC has sanctioned Rs. 10.00 lakhs for strengthening of infrastructure (for non-SAP departments) for the year 2007-08.

- - -

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
STATISTICS**

1. Faculty profile, adequacy and competency of faculty

Sl. No.	Name of the faculty	Educational Qualification	Designation	Specialization	No. of publications
1.	Dr. S.S. Nayak	M.Sc., Ph.D.	Professor & Chairman	Probability	23
2.	Dr. K.S. Wali	M.Sc., Ph.D.	Professor	Demography	07
3.	Dr. C.P.S. Hungund	M.Sc., Ph.D.	Reader	Stochastic Processes	09
4.	Dr. S.S. Ingishetty	M.Sc., Ph.D.	Reader	Statistical Quality Control	04
Professor – 02, Reader – 02, Total – 04					

2. Student profile according to programmes of study, gender, region etc.

Student Enrolment	PG			M.Phil.			Ph.D.		
	M	F	T	M	F	T	M	F	T
Number of students from the same state where the institution is located	-	-	-	02	01	03	03	01	04
No. of students outside the state	-	-	-	-	-	-	-	-	-

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

Introduced the semester system at both PG and UG levels. The staff contributed to the preparation of course modules.

4. Trend in the success rate and drop out of students during the last five years.

The success rate is 90%. Dropout rate is 0%.

5. Learning resources of the department like library, computers, laboratories and other such resources.

There is no Departmental library. The dept. has 05 computers and one OHP.

6. Enhancement of the learning resources during the past five years.

About 100 books are added to the main library. Internet facility is being provided to the department and connection is provided to all the staff rooms.

7. Modern Teaching methods in practice other than the lecture method.

Faculty members are conducting seminars by students and discussions take place in the seminars.

8. **Participation of teachers in academic and personal counseling of students.**
Faculty members are giving personal attention to students in addition to teaching.
9. **Details of faculty development programmes and teachers who benefited during the past five years.**
Teachers have completed their mandatory requirement of orientation and refresher courses. Senior members have participated as resource persons in refresher courses conducted by the other Universities. All the teaching have presented their research papers in both national and international conferences.
10. **Participation of teachers in academic activities other than teaching and research.**
All the staff members have been working as members of BOS and BOE, Examiners of various universities. Prof. S.S. Nayak & Prof. K.S. Wali have been item writers for UPSC examinations. Prof. S.S. Nayak is also associated with setting of question papers and valuation of answer scripts of UPSC Civil Service Examinations.
11. **Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.**
Nil
12. **If research is a significant activity, the thrust areas of the Department.**
Probability Theory, Demography, Sequential Estimation in Stochastic Processes, Statistical Quality Control.
13. **Details of the ongoing projects and projects completed during the last five years.**
Ongoing project: Principal Investigator: Prof. S.S. Nayak. July 15, 2006. Title of the project: "Some Contributions to Record Values and Order Statistics" Funding Agency: CSIR Cost: Rs. 5 lakh (approximately)
Project completed: Principal Investigator: Prof. S.S. Nayak. 1997-2000. Title of the project: "Partial Maxima & Record Values" Funding Agency: DST. Cost: Rs. 3.617 lakh.
14. **'Programmes by research' offered by the university.**
The department offers M. Phil and Ph.D. programmes.
15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**
During the last five years, the faculty members have published 14 research papers in journals of national and international reputation.

16. **Participation of the department in the extension activities of the university.**
The teachers had arranged very good exhibition in the department for the benefit of public at the time of Silver Jubilee Celebration of the University.
17. **Method of continuous student assessment.**
Tests and Assignments.
18. **Placement record of the past students and the contribution of the department to the student placements.**
They are mainly employed in software companies, manufacturing organizations, teaching, banks, LIC, NSO etc. Two of the students are working as Faculty is Dept. of Statistics, Karnataka University, Dharwad.
19. **Significant achievements of the department or faculty or students during past five years.**
One of our old students was awarded the Mahalanobi's award in essay competition at the national level. He was also awarded the best NSS student.
20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**
Nil
21. **Plan of action of the University Department for the next five years.**
 1. PG Certificate course of one year duration in Statistical computing will be introduced.
 2. Introduction of job-oriented diploma courses.
22. **Any other highlights.**
The teaching faculty of the department is engaging classes in various departments like M.B.A, M.C.A, Bio-technology, Sociology, Social Work, Bio-Chemistry, Micro-Biology etc. and is also helping in research activities of the various other departments both for staff and research scholars.

- - -

**DEPARTMENT OF P.G. STUDIES AND RESEARCH IN
ZOOLOGY**

Self-evaluation of the department (limiting three pages). The information given below covers the period only from 2001 to present.

1. Faculty profile, adequacy and competency of faculty

Sl. No.	Name of the Faculty	Educational Qualification	Designation	Teaching and Research Experience	Specialization
01.	Dr. Saraswati B Patil	M.Sc., Ph.D.	Professor	32 and 35 years	Endocrinology & Biology of Reproduction
02.	Dr. Bhaskar N. Joshi	M.Sc., Ph.D.	Professor & Chairman	28 and 32 years	Endocrinology & Biology of Reproduction
03.	Dr. K Vijaykumar	M.Sc., Ph.D.	Professor	19 and 22 years	Aquatic Biology
04.	Dr. Ravindra Paul	M.Sc., Ph.D.	Professor	31 and 34 years	Environmental Biology, Crustacean Biology
05.	Dr. R. S. Kulkarni	M.Sc., Ph.D.	Professor	26 and 32 years	Endocrinology & Biology of Reproduction
06.	Mr. Murli Jadesh	M.Sc.	Lecturer	5 and 3 years	--

Three faculty positions are vacant. The faculty is adequate competent to carry out the teaching and research activities.

2. Student profile according to programmes of study, gender, region etc.

Course	Men	Women	Total
M.Sc.	12	30	42
M. Phil	07	04	11
Ph.D.	07	07	14

The Department has an intake of 30 students each year. Approximately 50-60% students are ladies and 2.0% students are from other states.

3. Changes made in the courses or programmes during the past five years and the contribution of the faculty to those changes.

The Department has introduced semester systems with new syllabus during past five years. The members of the faculty have contributed significantly in the introduction and development of the curricula, including laboratories courses. During the four semesters they study 16 papers covering wide range of subjects from Taxonomy to Molecular Biology, Genetics to Evolution, Endocrinology to

Etymology and Environmental Biology to Biotechnology. In addition a paper on Computer Applications and Methods in Biology is introduced during second semester to enable students in ICT and other recent methods. The course is designed to enable to students to take up both teaching and research in biology - modern or organismal. ICT enabled students could seek for other gainful placements.

4. **Trend in the success rate and drop out of students during the last five years.**

The success rate is presently 100%. The drop out rate is 5-10% (the dropout primarily is due to their getting a seat in B.ED course, which gives them early job opportunity.

5. **Learning resources of the department like library, computers, laboratories and other such resources.**

The Department has well-established laboratories, animal house, and computer lab with access to Internet, Instrumentation room, computer-interfaced microscopy and microphotography, museum and separate research laboratories for each faculty member. All these facilities are accessible to both PG and research students. The Department has about 15 computers with networking and internet facilities. A state of the art microscope, with computer interfacing and software for image analysis is available. Though the Department has no separate working library but faculty members have 500-700 books and these are made available to PG, research students and circulated among the faculty members. The students from other colleges and schools visit our labs and museum for their study. Students from schools consult our faculty for their projects including science exhibitions.

6. **Enhancement of the learning resources during the past five years.**

Our department obtained support from DST-FIST program (Rs. 35 Lakh) Under this program, the Department established a networked computer laboratory with access to Internet. The computer-interfaced microscope with adapter for fluorescence microscopy, phase-contrast microscopy and image analysis were also procured from the DST support. This facility is being used well by the faculty primarily for their research and also for teaching when required. The computer lab and Internet facility is used by all the faculty, PG and research students.

7. **Modern Teaching methods in practice other than the lecture method.**

We use audio, visual aids including PowerPoint slides in teaching, in addition to the traditional blackboard and lecturing with adequate space for interaction. The teaching methods includes seminars, group discussions etc. Department has OHPs, slide projector and also LCD projectors. In addition we have VCP, TV and a collection of videotapes on different topic in biology. The TV in addition to its regular use is also interfaced with microscope to show live microorganisms.

8. **Participation of teachers in academic and personal counseling of students.**
The teachers actively participate in academic and personal counseling of the students to overcome their problems and to improve their overall performance.
9. **Details of faculty development programmes and teachers who benefited during the past five years.**
The faculty members are well qualified and have completed their mandatory requirement of orientation programs and UGC sponsored refresher courses. Senior faculty members have served as resource persons in UGC-sponsored orientation program and / or refresher courses in our and other Universities. The Department also has organized two work-shops, three orientation courses and five UGC sponsored refresher courses.
10. **Participation of teachers in academic activities other than teaching and research.**
- All faculty members are involved in co-curricular and extra curricular activities.
 - The Department constituted a Society of Zoologists (SOZ), which organizes curricular, co-curricular and cultural events. Every year a teacher (on rotation) is put in-charge of these activities. SOZ is student-friendly and they manage all the events. The teacher-in charge is there to help when needed. This is a forum also for students to express and nurture their talents.
 - Education tours: to sea-shore/wildlife sanctuaries/national labs/R&D centre is compulsory. Teachers (by turn) accompany students on these tours to educate them.
 - Teachers from this Department go to School/Colleges on invitation to lecture or to participate in other academic activities
 - Prof B N Joshi is involved in establishing a History Science Museum in the University. He is also associated with Science Creativity Centre and was a member of the team which visited Infosys Foundation for support.
 - Some faculty members are also writing popular science articles in local language
 - Prof B N Joshi has an inventory of birds and wild flowers in the campus
11. **Collaborations with other Departments and Institutions at the National and International level and their outcome during the past five years.**
The Department collaborates with other Universities/Institutions like IISc, Bangalore CCMB, ICT, TIFR, NIMHANS and NIN Hyderabad to have access to sophisticated equipments, other facilities in their labs and reference work. The collaborations are based only on mutual interests.
12. **If research is a significant activity, the thrust areas of the Department.**
The thrust areas of the department are as follows:
1. Endocrinology/Biology of reproduction
 2. Regulation of fertility

3. Pineal gland physiology and Chronobiology (study of Biological Rhythms)
4. Fish endocrinology
5. Limnology and water quality assessment
6. Biological control of insect pests
7. Vermitechnology
8. Ornithology

13. **Details of the ongoing and completed research as well as infrastructural development projects.**

Name of the faculty of the Teacher/Researcher	Title of the project	Duration	Funding Agency	Amount
Department Project (Lead faculty and First Coordinator: Prof B N Joshi)	DST-FIST	2000-2005	DST New Delhi	35,00,000/-
Dr Umseh M. Shagoti	Vermitechnology bioprocessing of sugarcane waste	2002-2006	CSIR New Delhi	6,00,000/-
Dr Pulikeshi M. Biradar	Organic waste management through Vermitechnology in semiarid region of Karnataka	2000-2005	CSIR	5,40,000/-
Dr Sharanabasappa A. Patil		2004-2005	CSIR	1,28,000/-
Prof K. Vijaykumar	S.B. Lake Conservation and Management	On going	LDA Bangalore	2,75,000/-
Syeda Humaira Ambreen	Identification and culture of indigenous species of entomopathogenic nematodes having biocontrol potential for Gulbarga region	On going	Women's Scientist Cell DST New Delhi	6,03,655/-
Dr Pulikeshi M Biradar	Application of vermiculture biotechnology in (VBT) in organic waste management and its role in rural development	2005-2008 On going	DST-SERC New Delhi	8,10,000/-

14. **'Programmes by research' offered by the university.**

The University offers M.Phil. and Ph. D. Degree research programs in Zoology by this Department.

15. **Publications of the faculty, for the past five years. Details regarding citation index and impact factor analysis.**

The members of the faculty of this Department have published 280 research papers in reputed national and international journals. Some senior faculty members are also on the panel of reviewers and panel of editorial boards for few of the journals. The Impact factor citation index is yet to be assessed.

Total number of papers published is 52.

16. **Participation of the department in the extension activities of the university.**
 - Organized Science exhibition on the occasion of Silver Jubilee Year. A large number of students from schools, colleges and University visited the exhibition. It was inspiring especially for young students.
 - Our exhibition was awarded one of the prizes by an expert team constituted to judge the quality of exhibits.
 - The Department has also been assisting and participating in the extension activities like NSS, NCC etc.
 - The faculty members and students were involved in out-reach activities: delivered radio talks, popular lectures, written popular-science articles, and organized annual zoological exhibitions for the benefit of layman and school children.

17. **Method of continuous student assessment.**

Department has semester scheme with 20% internal assessment. The students are continuously assessed through tests in both theory, lab courses and assignments. The students are also encouraged to participate in seminars and make their presentation on the topic of their choice.

18. **Placement record of the past students and the contribution of the department to the student placements.**

Some of the Alumni have joined higher positions in other R & D laboratories and Universities.

19. **Significant achievements of the department or faculty or students during past five years.**
 - Awards/recognitions of the faculty as shown in column 1 Profile of the faculty
 - The Department was awarded the prestigious DST-SERC School in Chronobiology (with a grant Rs 5 lakhs) which was organized in the Department from December 29, 2004 to January 8 2005. Noted chronobiologists from India and abroad (**Ueli Schibler** - Switzerland and **Francis Levi** France) served as faculty to impart training in this cutting area of biology. The training included both theory and lab work. Students (20) selected on all India basis participated.
 - Department organized a "National Symposium on Recent Trends in Environmental Biology and Biotechnological Approach to Conserve Biodiversity and 25th Annual session of the Academy of Environmental Biology on October, 22-24, 2005".
 - In addition to their studies, students have enriched the museum.
 - Faculty has been active in research as indicated by publications in peer reviewed journals.
 - Faculty/students involved in popularization of science.
 - Participation in national and international meetings: to present paper, deliver a plenary lecture, or chair a scientific session. The faculty/researchers from this Department have participated in 32 national and 10 international symposia/ conference held in India and abroad.

20. **Participation of the department in COSIP/COHSSIP, SAP, CAS, DSA, DRS, FIST etc.**
DST-FIST (Dept of Science & Technology, Govt of India) grant of Rs. 35.00 lakhs. The fund as per its objective was for infrastructure in science and technology.
21. **Plan of action of the University Department for the next five years.**
Gulbarga region is located in the Deccan plateau and is plagued by environmental vagaries such as low rainfall, high temperature and aridity resulting in economic backwardness of this region consequently leading to educational backwardness. It is strongly felt that such backwardness can be brought down if not completely eliminated with dissemination of knowledge. This has to be undertaken in schematic way. We do realize that centers of higher learning such as Universities have a great responsibility in the removal of backwardness. The department of Zoology, in its own way, as a part and parcel of the university, assumes importance as a platform to transfer knowledge to its own pupils at the same time ensuring that this transfer is need-based and ultimately useful to the common man. The future plans envisaged in this department are a step in this direction. It is the endeavor of the faculty to strengthen the existing fields of specialization in tune with the developments elsewhere in the world.
It is the long cherished objective to establish the '*Centre for Research and Training in Applied Zoology*' with a view to establish a strong research base to tackle some need-based areas as already recognized with emphasis on issues of local importance, such as Vermitechnology, Limnology and water quality assessment, Hormone research, Regulation of fertility employing plant extracts, Basic and Medical Chronobiology, Biological control of Insect pests and Bioinformatics.
The Postgraduate student of Zoology can be placed as lecturers in Colleges Research and Development programs. Pharmaceutical industries and work as Medical representatives. They can take-up self-employment by Vermicomposting, Poultry development, Dairy farming, Fish farming, Sericulture and Scientists in Research Institutes in addition to above.
22. **Any other highlights.**
Department has also started consultative work on
1. Water quality assessment of ponds, lakes, wells and borewells of Hyderabad Karnataka region.
 2. Vermiculture and vermi-composting.
 3. Application of herbal products for fertility regulation.
 4. New Areas of Research: (a) Work on melatonin-induced potentiation of anti-tuberculosis drug (yielded promising results), (b) Synesthesia – a neurological phenomenon in which two or more bodily senses are coupled.
 5. Karnataka Science & Technology (KSTA)-sponsored special lecture series for life science students was organized during January 18-20, 2007. The purpose of the lecture series was to promote career in pure science. KSTA sanctioned Rs 1 lakh grant for this purpose. Prof B N Joshi of this department was the coordinator. Two hundred students from life science department participated in the lecture series. On the basis of a test

conducted at the end of the lecture series of top three students were recommended to KSTA for further training of these students in premier scientific Institutions.

6. Using UGC unassigned grants visiting fellows/professors were invited to augment teaching.
7. The Department made use of the initiative of Indian Academy of Science (Bangalore) in University education and invited fellow of the academy (Prof. S.K. Saidapur FASc, FNA, currently Vice Chancellor Karnataka University) for special lectures (Academy provides the support)
8. Prof B N Joshi worked as Editor of Gulbarga University Journal of Science (*Vijnana Ganga*) 2003. He also worked as one of the editors wrote chapters for Kannada Text Book in Biology for Pre University Students (Published by Kannada University *Hampi*).
9. Recognition/Awards/Rewards to staff.

Dr. B.N. Joshi.

- Elected President Indian Society of Chronobiology (2004-2008)
- Member DST-PAC (2001-04)
- Chairman Planning Committee DST-SERC School on Chronobiology (2001-2006)
- Member UGC Expert Committee X plan (2002)

Dr. K. Vijaykumar

- E P Odum Gold Medal sponsored by Int Soc for Ecological Communication Dumka Jharkhand)
- Fellow National Environmental Science Academy, New Delhi
- Medal for organizing National Symp on of Academy of Environmental Biology.
- Participated in Int Conf on Greater Himaylayan Climate, Health, Ecology & Environment, Nepal Jan 2004.

Dr. R.S. Kulkarni

- Gold Medal from ZSI in 2003.
- Eminent Scientist of the Year award 2004 by National Environmental Sci Academy.
- Fellow of the Academy of Environmental Biology Meerut (UP) 2006.
- Best Scientist of the Year Award 2007 by National Environmental Science Academy Dec 2007.
- Presented paper at European Comp Endocrinology conf held at Bonn (Germany) Aug/Sep 2002.
- Presented paper at Int Conf on Greater Himaylayan Climate, Health, Ecology & Environment, Nepal Jan 2004.
- Student SV Satish - Best Poster Presentation Award Indian Science Congress, 88th Session (2001).

- - -