

DRAFT REPORT
ON
INSTITUTIONAL ACCREDITATION
OF

B. N. Bandodkar College of Science

Thane, Maharashtra

August 27 - 29, 2003

National Assessment and Accreditation Council
Bangalore

Report of the Peer Team on the Institutional Accreditation of
B. N. Bandodkar College of Science, Thane – 400 601, Maharashtra.

Section I : Introduction

Balkrishna Naik Bandodkar College of Science (BNBCS), was established in 1969 under the management of Vidya Prasarak Mandal (VPM), Thane, on a 13 acre piece of land reclaimed from the marshy, muddy area inundated by water of the nearby Thane Creek under high tide. Over the years the land was developed with the efforts of the local Philanthropists and a committed management under the leadership of Dr. Vasudeo Narayan Bedekar.

The college catering to students from the areas of Thane, Dombivli, Kalyan and their vicinity, was initially affiliated to the University of Pune. In June 1975, on redefining the jurisdiction of the Mumbai University, the affiliation of the college was shifted from the University of Pune to Mumbai University. The College is a grant-in-aid (g-i-a) institution and receives 100% salary grant from the Govt. of Maharashtra. The College is recognized by the University Grants Commission and received the recognition under 2f and 12B in June 1985.

Initially the College was started as a composite college with all the three faculties, viz. Arts, Commerce and Science. In 1969, a separate building was constructed out of a donation given by the then Chief Minister of Goa, Shri Bhausaheb Bandodkar. In 1975 the science departments were given independent status and thus came into existence the Balkrishna Naik Bandodkar College of Science (BNBCS), named after the father of the donor of the present block Shri Bhausaheb Bandodkar.

VPM runs 13 institutions, including BNBCS. Located on a Campus of about 13 acres, in the suburbs of Bombay the BNBCS shares the campus with four other institutions viz. Arts & Commerce College, Law College, College of Management and a Polytechnic. Apart from the UG, PG, PG DIPLOMA and Research programmes conducted in departments of Chemistry, Mathematics, Zoology, Physics, Statistics and Botany the college also provides education at the +2 level. While the college has separate staff for the Junior and Senior sections the facilities are optimally shared.

The College, at present, runs 7 B.Sc. degree programs, 4 Post Graduate degree programs and two Postgraduate Diploma programs. While the PG programmes in Botany and Zoology are by research, the PG programmes offered in Chemistry include both by Papers and by Research. The department of Zoology is a recognized research center for Ph.D. in Zoology. In

the unaided section the college offers a self-financing UG course in Information Technology (B.Sc. (I.T.)). The college is also a recognized center of Yashwantrao Chavan Maharashtra Open University (YCMOU) for offering B.Lib.Sc. and M.Lib.Sc. courses through distance education mode.

There are 40 permanent teachers of whom 11 hold Ph.D. degree, 12 hold an M.Phil. and 17 hold a Post Graduate degree as the highest qualification. 17 teachers are female and 27 male. Among 18 temporary teachers 5 have Ph.D., and 13 PG qualifications. 12 of them are female and 3 male. There are 47 technical staff, of whom 3 are female.

At present the college has 1160 students on its rolls. There are 1129 students on the UG roll under the g-i-a pattern, of whom 556 are female and 573 male. At the PG level, enrolment stands at 30, of whom 14 are female, including 2 female out of 4 at Ph.D. Under the self-financing course of B.Sc. (I.T.) the enrolment of students stands at 165 of whom 69 are female and 96 are male.

During the years of 2000-2001 and 2001-2002 the dropout rates at UG level was 12.1 % and 6.94 % respectively. At the PG level the dropout rate was around 2 %. The success rates are 86 % and 88 % respectively at UG and PG level.

The unit cost of college education for the institution is Rs. 28,744 (approx.) inclusive of salary. Except for the B.Sc. (IT) the College follows an annual pattern of examinations. The support services / facilities in the college include Central Library, Computer Centre, Sports, Press, Workshop, Canteen, Vehicle parking shed, Auditorium, Audio Visual facilities, and Advanced Study Centre.

The BNBCS has requested for the assessment and accreditation by the National Assessment and Accreditation Council (NAAC) in October 2002. The NAAC appointed a Peer Team comprising Prof. N. Unnikrishnan Nair, Vice-Chancellor, Cochin University of Science and Technology, Kerala, as Chairman, Prof. Aroon Krishnarao Heblekar, Former Principal, P.E.S. College of Arts & Science, Ponda, Goa, and Prof. Y. Azeez Ahmed, Former Principal, Alameen College, Bangalore, as members for Assessing the institution as per the prescribed procedures of NAAC. Dr. (Mrs.) K. Rama, Deputy Advisor, NAAC, co-ordinated the whole exercise.

The Peer Team visited the College on 27 and 28 August 2003. After visiting the various departments, support facilities, meeting and discussing with the teaching and non-teaching staff, alumni, parents, students and members of the management and verifying the documents, the Peer Team recorded its observations and recommendations in various sections as follows.

Section II : Criterion wise analysis

Criterion I : Curricular Aspects

The college has a well spelt out mission and vision statements. With its mission to mould students into rational thinkers, competent workers and socially aware citizens and a vision for Imparting quality education in Science the college has been striving to serve the students from the Thane district of the Maharashtra. The College runs 7 UG programs, 4 PG programs and a Ph. D. program under the g-i-a pattern, all in the general science streams. Looking into the demand for the graduates in computer science and Information Technology etc. the college during the year 2001-2002 started a self financing course in Information Technology i.e. B.Sc. (IT). The college is a recognized center of the Yashwantrao Chavan Maharashtra Open University (YCMOU) for conducting UG and PG courses in Library Science.

Being an affiliated college, it is guided by the rules and regulations and the curriculum prescribed by the University of Mumbai (MU). At F.Y. B.Sc. in the UG Science stream, a student has a choice of four subject combinations, viz. (1) Physics, Chemistry Mathematics, (2) Physics, Mathematics, Statistics, (3) Chemistry, Botany, Zoology, (4) Information Technology. The first three combinations carry a Foundation Course (F.C.) in addition. At the S.Y. B.Sc. the choice widens and the students have an option for more combinations. With the Foundation Course running in the second year too, six combinations viz. (1) Physics, Chemistry, (2) Physics, Mathematics, (3) Chemistry, Botany, (4) Chemistry, Zoology, (5) Mathematics, Statistics, (6) Botany, Zoology, are offered. Information Technology is offered only for the B.Sc. (IT) students .In the third year, (T.Y) B.Sc., the student singles out on to subject specialization. The specializations offered by the College are (1) Physics - Electronic Instrumentation, (2) Mathematics - Computer Programming and Systems analysis, (3) Chemistry - Drugs and Dyes, (4) Zoology - Fishery Biology, (5) Statistics - Operations Research, (6) Botany – Horticulture and information Technology,

At the PG level the College offers a M. Sc. degree program in Organic Chemistry (by papers and also by research), Physical Chemistry (by research), Zoology (by research) and Botany

(by research). The department of Zoology is a recognized research center and offers Ph.D. programme. To provide vocational training to the present and the past students the college has set up a Center for advanced studies, which provides PG Diploma and certificate courses in Applied Analytical Chemistry, Horticulture and Intellectual property rights as evening courses. The center is planning to start a few other short-term courses in computer science and environmental sciences etc.

Every department has its own Subject clubs. The students are encouraged to actively take part in the various activities of these clubs which include seminars, talks, awareness activities etc. which not only help them in the furtherance of their knowledge but also inspires and provides them a direction for further progression in their respective areas of specialization. The continuation of the project work for the undergraduate students, inspite of its deletion by the Mumbai University in the revised syllabus to inculcate the research orientation and spirit among the students is an appreciable feature.

Four of the faculty are on the Board of studies in their respective subjects and had participated in curricular planning and evolving innovative practices. The College introduces new courses strictly within the framework of the affiliating university even if there is a delay in getting an approval from the university. Most of the teachers of the college are also contributing to the University teaching departments by working there as Honorary basis. The college provides the required adjustments in the college teaching schedule for such teachers.

The college has a strong Industry – Institute – Society interaction and has established an Advanced Study Centre, for initiation and co-ordination of the various programmes like the PG diploma course in Applied Analytical Chemistry, partly sponsored by the Lab India Instruments Pvt. Ltd. and the various activities initiated by the Botany and Zoology departments in protection and improvement of the local water bodies and the nearby tribal populations etc. thereby strengthening the linkages.

Criterion II : Teaching – learning and Evaluation

The college admits the UG students strictly on the basis of merit, considering their marks obtained in the H. S. C. Examination. Being a grant in aid college the college follows the University / State Govt. norms with respect to admissions, fee structure and the academic calendar. For admission to the Postgraduate courses the University allocates the students to the college. However for M. Sc. Chemistry, out of ten seats, seven seats are filled by the University and the remaining three seats are filled by the college on the basis of merit.

Different courses are organized for the needy and deserving students for acquainting them with simple statistical techniques, computer literacy programmes and for additional guidance. The advanced learners are identified in the class and are given special guidance for competitive examinations. They are encouraged to take part in various competitions for which the teachers continuously provide guidance like quiz contests etc.

The teachers prepare their academic plan in the beginning of the year under the guidance of the heads of the dept. The progress of implementation is reviewed and discussed in the departmental meetings. The syllabus is unitized and implemented as per the schedule given by the university. Extra lectures are arranged wherever necessary. Tutorials and term end examinations are conducted as per university guidelines. The college regularly organizes students excursions, field trips, Industrial visits and visits to research institutes, etc. for giving the students on hand experience and exposing them to the field situations.

Students are motivated to read reference books to get additional information. The college has a central computer center established by the management in the campus with full-fledged Internet facilities. The students have access to Internet facilities by paying a nominal fee of Rs.15 per hour. The teachers have a free access to the Internet provided in each of their departments, which the students may also avail on request.

The college on an average has 280 working days and 180 teaching days. Ratio of teaching staff to non-teaching staff is 4:5. The evaluation pattern is explained in the classrooms during lectures and the performance of the students is monitored through tutorial tests, class tests, small projects and viva voce. The term end examinations also help the monitoring of their performance.

The college recruits the teachers through the advertisements published in the national newspapers with prior permission of the director of higher education. The selection is through a selection committee appointed as per university norms and the university approves the appointments. In last two years around six teachers participated in various national conferences and two teachers attended international conferences. The college has been actively involved in and organized various conferences and workshops with internal as well as external funding. Students are encouraged to participate in the conferences and present papers.

The college follows the self-appraisal method prescribed by the Govt. of Maharashtra to evaluate the performance of the teachers. The placement committee appointed by the University also takes into account the self-appraisal reports of the teachers, for considering them for the higher grade.

The college also occasionally obtains the feedback from the students on teacher's performance but do not have established mechanisms for analyzing the same and initiating corrective actions.

Through the various subject clubs of the college the students are actively involved in various extension activities and also benefit from the lectures, seminars and talks by eminent persons from various fields. Through these clubs the students get an opportunity to interact and learn with experts from other fields of specialization also.

Though there is no formal linkage at national/international level, the college takes help of the experts from institutes like I. I. T., U. I. C. T., T. I. F. R., B. A. R. C. etc. and regularly organizes lectures and talks by these experts. The students have been consistently performing well in the university examinations and at least six of their students have achieved ranks in University examination.

Criterion III : Research, Consultancy and Extension.

The college promotes research by assigning projects to UG students offering M. Sc. by research in various disciplines etc. The management encourages the teachers to take up various research activities by giving study leave and permitting adjustments in teaching schedule. Almost all the teachers of the Botany and Zoology departments and some from the chemistry department are actively engaged in research. The continuum of the work done through years by the Zoology department on the Thane Creek ecology is a feature worth

appreciation. The work done by the departments of Botany and Zoology in the field of environment and nutrition received international recognition. Both departments have been active in providing consultancy. However a formal mechanism may need to be evolved for better promotion of the same.

There is a designated teacher for extension activities with one of the teachers holding it as an additional charge. The extension activities conducted by the college include community development, social work, health and hygiene awareness, medical camp, blood donation camp, AIDS and environment awareness. The NSS and NCC volunteers assist the traffic police by working as traffic wardens. N.S.S. students and members of Nature Club actively participate in tree plantation programmes in collaboration with NGO "Hariyali". The College is promoting awareness of Yoga practices among the teaching, non-teaching staff and students and also regular Yoga classes are conducted under the expertise provided by NGO "Ambika Yog Kutir, Thane." Apart from these activities the college teachers and students are actively involved with various NGOs working on social and environmental issues in and around the college campus.

Criterion IV : Infrastructure and Learning Resources.

The college is situated on a well-developed campus spread on 13 acres of land. The college along with four other colleges shares the Campus. The BNBCS is run in two spacious buildings with the entire required infrastructure. The college shares the playgrounds, auditorium, general computer center and the conference room with other colleges in the campus.

The college has a well-equipped library with a book bank facility and is open to students during the regular hours. The library is computerized, but is yet to fully put into use. The library has around 15,000 books, and the alumni have been liberally donating for the development of the library. The library has an Internet facility but have to use the reprographic facilities of the office. There is an advisory committee for the library and there is an inter library connection with their own institutions in the campus.

The college is connected to other institutions on the campus through LAN. The computer center managed in the campus by the management provides additional computers and Internet

facilities to the students and teachers of all the institutions in the campus on nominal fee. The working hours are 09:30 hrs. to 17:30 hrs. only on week days. All seven departments have computers of their own.

Apart from the additional courses and inputs available through the advanced study center, the students can also pursue evening courses offered by other institutions within the campus. While the Government provides for 2% of the maintenance cost the management bears the major chunk of it.

The college runs B Lib Sc And M Lib Sc courses under YCMOU. And the college conducts joint programmes on the environmental issues in collaboration with NGOs like Jidnyasa, Envirovigil, HOPE, Hariyali and other Local agencies.

First-aid boxes are available in the college office and gymkhana. Whenever the health problems of students and members of the teaching and non-teaching staff arise, they are advised to approach Dr. V. N. Bedekar (President of VPM) and Dr. V. V. Bedekar (Chairman, VPM) for medical counseling. For psychological counseling students are referred to Institute of Psychological Health run by Dr. Anand Nadkarni, the alumni of the college.

The college uses play grounds in the vicinity for matches and tennis practice. For Cricket, Football, etc. they use the campus grounds. Before the important sports events the outstanding sport persons are provided special coaching by coaches. The college tries to give maximum help in all respects including finance, in terms of traveling allowance to the deserving students to take part in various events and tournaments. Participating students also get concessions in attendance and special classes are arranged for their benefit. The College gives them 10 grace marks in total, according to University norms.

Criterion V: Student Support and Progression

All students who complete minimum prescribed period of study are allowed to appear for the final university examinations and drop out rate is minimal at around 7% at the UG and 2% at the PG level. Though no official record is maintained, the alumni who attended the interaction meeting with the Peer Team reflected the alumni character of the past students and how they are well placed in life. The Alumni association is trying to do things in an organized manner

and though not much of financial support is provided by them they have been contributing to the institution by providing placement services and career guidance and counseling etc.

The college publishes an updated prospectus annually giving the details of the Members of the Management Committee, College Campus, and academic calendar of the College, Courses available, Medium of Instruction, Rules, regulations etc., regarding admission, Fees, deposits etc., Scholarships, Incentives and Concessions etc., Extra Curricular and, Co-Curricular Activities etc. With an aim to provide a platform for expressing the skills of the students the college publishes annually the college magazine "Sanyuja". The students also have the facility to publish their works in various other magazines brought out by the other institutions of the campus and the management. The students are also encouraged to put up various posters and wall magazines from time to time.

The college has instituted various scholarships and Endowment Prizes for the benefits of the students. The college has also several merit and other Government scholarships / freeships.

The college provides for facilities for indoor and outdoor games, nature club, debate club, student magazine and cultural programs, audio video facilities, dance and music competitions and essay writing. The different departments run subject clubs and extra training is given for designing and launching web pages, computer hardware and software courses and rangoli classes. The alumni who are in various fields of fine arts, during the interaction meeting have fondly recollected their experiences and their teachers who encouraged and supported them in pursuit of their interests in music, dance and dramatics. This indicates the type of encouragement the students get for not only pursuing their studies but also their extra curricular interests.

The students are encouraged to register for various certificate and part time courses provided by the institutions in the campus and outside and also in the courses offered in the Advanced Study Center of the college.

Criterion VI : Organisation and Management.

The college has an efficient internal co-coordinating and monitoring system. There is a Board of Management consisting of trustees, president, vice-president, chairman, secretary, and other members of the managing committee, which looks into overall functioning of the institute and resource generation and future planning. There is also a college committee as per the provisions of University of Mumbai, which is headed by the Principal and is responsible for the implementation of the academic calendar and activities as per the instructions of the University and State Government.

There is a Local Managing Committee (LMC), in which there are representatives of Management, members of teaching and non-teaching staff. The L.M.C. meets twice in an academic year and is entrusted with preparation of budget for various departments and to ensures good academic standards in the institute.

To ensure smooth and efficient running of the institute, prepare timetable, and to discuss various circulars received from the University the Principal has periodical meetings of the Heads of the Departments. Regular meetings of the teachers are also conducted to discuss the allocation of the topics to be taught, completion of the topics, setting of the question papers, preparation of the departmental results etc.

In order to carry out extra and co-curricular activities various committees are formed. These committees plan and carry out a variety of activities. Chairperson of the respective committee and Principal supervise the activities continuously.

There are some special committees which help in managing college administration. Some of these committees are Examination Committee, Attendance Committee; Unfair means Inquiry Committee, Library Committee etc., which are headed by the teachers on rotation. To ensure the participation of the students in all events and to discuss the problems of the students, there is a students' council.

The Principal, Vice-Principal in association with the Heads of the Departments and Office superintendent plan the duties to be assigned to the non-teaching staff and supervise their work. Heads of the Departments conduct meetings of the non-teaching staff of their departments and instructions are given to them so as to carry out duties smoothly and efficiently. Principal and Vice-Principal also conduct meetings of the non-teaching staff to discuss various administrative matters. Appraisal report of every non-teaching member is prepared. The college has very efficient and committed non-teaching staffs that are provided training by the teachers of the respective departments on the new techniques introduced. Two short courses were arranged with the help of CMC Computer to enable the non-teaching members to make use of useful computer packages like MS Office.

The college has an internal audit mechanism and grievance redressal cell. Members of non-teaching staff are given advance for festival and Members can take loans from Provident Fund

and VPM's Employees Credit Society. The requirement and eligibility criterion depends upon the amount of loan, purpose of loan, salary of the applicant, previous balance if any.

In order to develop the college academically, the college management gives a freedom to the Principal and the staff. The teachers are encouraged to go for orientation courses, refresher courses, seminars, and workshops and also to organize seminars and guest lectures in the respective subjects.

Criterion VII : Healthy Practices:

- The college has adopted mechanisms for internal quality checks like monitoring of student academic progress, attendance and discipline.
- The college practices latest managerial practices such as strategic planning, teamwork, decision-making and computerization. College provides for wide option in science subjects and has provided for IT at B.Sc. level on self-financing basis.
- College runs postgraduate courses on campus including research at M. Sc. and PhD Levels.
- There is one research project running in the campus within an outlay of approximately Rs.6.5 lakhs.
- The college has linkage with YCM Open University to run B. Lib. Sc. and M. Lib. Sc. courses
- NSS and NCC units are pro-active and are involved in various social activities like traffic control and construction of water harvesting bunds.
- A number of committees help the Principal in running the college.
- Subject clubs support routine teaching for the academic progress of the students.
- Environment projects like solid waste management, zero garbage concept, tree plantation, pulse polio campaign, blood donation, medical camps are run with an active support of the students.
- Lectures by eminent personalities related to social problems such as dowry, terrorism is organized.
- The college provides for outdoor sports, cultural programmes and extension activities for the all round development of the personality of the students
- There is a book bank and, library is kept open for longer hours before and during examination.

- Seminars, tutorials, group discussions, viva voce, field trips, Internet facility are the other activities conducted by the college for supplementing the learning process of the student.
- The college has an active interaction with industries and has been able to generate funds from contributions from philanthropists.

SECTION III : OVERALL ANALYSIS

BNB College of Science has served the population of Thane from 1969 till date by imparting science education to the youth of the area. The college has facilities for both undergraduate and postgraduate education, research and other utility courses like IT and library science.

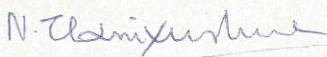
The College has links with two different universities viz. University of Mumbai and Yashwantrao Chavan Maharashtra Open University on matters of academic interest. The Management is proactive, dynamic and enlightened providing leadership and direction to the development of the institution.

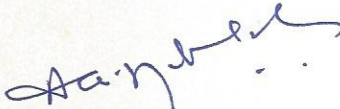
While appreciating the various strengths and achievements of the college mentioned under various sections of the report, the committee would like to put forward the following suggestions / recommendations for further improvement of the institution:

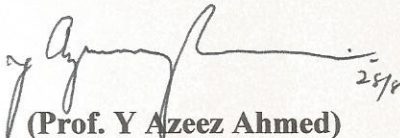
1. All the departments of the college should explore the possibility of securing externally funded research projects from agencies like University Grants Commission, DST, NBHM, DBT etc. This will help teachers to enhance their research potential and to provide much needed infrastructure to carry out research.
2. The college needs more space to accommodate Labs with updated facilities to carry out research. The same may be planned in advance.
3. The number of subscribed Indian Journals needs to be increased and few International Journals are also to be provided in the Library.
4. The traditional subjects taught at present have to be augmented with frontier areas of Science being pursued globally such as Bio technology, Bio Informatics, Bio Chemistry, Micro Biology, Electronic Sciences, Photonics and Artificial intelligence etc.
5. Industry Institute partnership is to be raised from the present level. The Management should lay down norms for consultancy work to encourage the teachers and technical staff.

6. College can think of permitting students to work in Industrial/Business concerns and share their academic time for skill development.
7. Allow provisions for students in various courses to attend part-time certificate/diploma courses in allied subjects along with their regular studies to boost their placement potential.
8. Appointment of supporting faculty with colleagues from industry/business establishments to share their experience with regular students and faculty members.
9. Strive for a college with potential to achieve further academic excellence in the circles of Universities and the State.
10. A corpus fund should be created by raising money from alumni, public and well-wishers for overall development, sustenance and growth of the college.
11. More endowments/scholarships to be instituted to encourage financially backward students belonging to downtrodden sections of the society.
12. Due consideration and importance may be given for moral education classes to both boys and girls.
13. Book Bank facilities are strengthened with participation from alumni and generous contributions of the well-wishers.

The Peer Team appreciates the efforts put in by the management, the Principal, the teaching and non-teaching staff and the stakeholders in developing the institute and providing support. The team also likes to place on record its appreciation for the initiative taken by the Principal and the staff in preparation of Self Study Report and offering itself for Assessment and Accreditation by NAAC. The Peer Team members and NAAC thanks the college management and staff, the alumni, the parents and the students for its continuous support provided to them in successfully completing the exercise.


(Dr. N. Unnikrishnan Nair)
Chairman

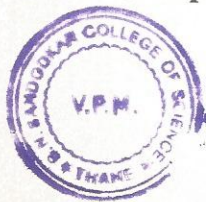

(Dr. Aroon K. Heblekar)
Member


(Prof. Y Azeez Ahmed)
Member

I agree with the contents mentioned in the above report


(C.G. Patil)

Principal
B. N. Bhandodkar College of Science



Principal
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Thane (W) - 400 601.