

INDIAN INSTITUTE OF TECHNOLOGY GANDHINAGAR

FACULTY DEVELOPMENT PLAN OF THE INSTITUTE

(As approved by Board of Governors in its first meeting held on 18th December 2009)

Faculty is the backbone of any academic institute. Faculty helps students acquire knowledge in their specific subjects as well as develop innovative approaches to issues of practical importance through class-room teaching and out-of-the-class discussions. Faculty creates knowledge through research and, in the process trains graduate students (sometimes undergraduate students as well) in research and development activities. Character of the institute is defined and determined by the quality of its graduates when they go out in the field. It is a gradual process with critical inputs from the faculty. To shape the envisioned future of IITGN, it is critical to recruit and retain outstanding faculty and continue obtaining their top performance during their stay.

Well established institutes attract faculty commensurate with their name and track record. Some of the factors that attract the best faculty candidates are the quality of students, laboratories and research facilities, strength of Masters and Doctoral programmes, excellence in certain academic areas, potential for recognition of good work through financial and other incentives, and the quality of existing faculty and researchers. Academic and other freedom is always expected in academic institutes.

IITGN has yet to establish its traditions and credentials. However, IITGN carries the name of an IIT and is expected to provide excellence at the level of older IITs and beyond. Our admission process assures an outstanding quality of undergraduate students who are envy of any institute in the world. Financial backing of the Government of India assures speedy development of laboratories and infrastructure. Academic freedom to faculty members in pursuing and growing their envisioned areas can be guaranteed. We should not and cannot afford to compromise on the quality of faculty at this stage under the exigency of teaching classes. A lower quality faculty will not only adversely affect our pursuit of excellence during their (sometimes long) stay, but also hamper our ability to attract good quality faculty in the future. We have to approach our recruitment process by highlighting our strengths and coming up with novel schemes to overcome our limitations being a new institute.

In view of our commitment to excellence, the followings actions are proposed for the short term or are already being undertaken towards faculty recruitment, retention and development. This document will be periodically updated and will guide us in all faculty matters.

1. Communication: Communication and publicity is the key to attract faculty. We have to reach the potential faculty candidates in as large a number as possible and encourage them to consider making a career at our institute. With this in view, the Institute has been focusing on its web site, has initiated a quarterly newsletter (~3000 copies being mailed; including to all faculty members of all IITs), is in the process of developing strong mailing lists of top academics and industrialists, and has been successfully seeking regular press coverage. On his two trips to US, the Director visited several universities (Stanford, Caltech, University of California Los Angeles, University of Illinois Urbana Champaign, Northwestern University, and State University of New York Buffalo) where he met and addressed Indian graduate and post-doctoral students and elaborated on the advantages of joining IITGN. This has resulted in some of them applying for faculty positions to our Institute.

- 2. Recognition and Financial Incentives:** As an additional means of attracting outstanding faculty, provision should be made for recognition and financial incentive. At most of the renowned institutes, including several older IITs, accomplishments of faculty members are often recognized by offering them prestigious “Chaired” positions. We must create similar “Chaired” positions at IITGN. These “Chaired” positions will also carry additional honorarium over and above the Govt-mandated salary. At IITGN, there is also a need to create Research Fellowships for outstanding young faculty on the lines similar to the “Chaired” positions for established faculty members. These fellowships will not only provide recognition and financial incentives but also accelerate their professional growth. Additional funds for the honoraria have to be raised from private donations and endowments.
- 3. Recruitment Quality:** A good faculty candidate would like to go to a place having a better quality of existing faculty. In the long term interest of the Institute, we intend to not only be quite careful in ensuring the quality of faculty we hire, but also be strict in clearing the probation of faculty members currently on its rolls. In fact, we should seriously consider increasing the probation period of regular faculty to two years unlike the general practice in the IIT system for one-year probation which is not always sufficient to judge true potential or weakness of a young colleague.
- 4. Recruitment Process and Strategy:** In July 2009, faculty recruitment process was moved to IITGN and ~650 applications received since are currently being processed. Since IITGN does not have domain expertise in many areas, a 2-tier short-listing process has been developed (and documented) to utilize the expertise of senior colleagues at IIT Bombay and elsewhere. While efforts are being made to quickly complete this round of selections, so as not to lose exceptionally good candidates contract appointments through “standing committee” will be offered where appropriate without waiting for selection committee meeting. Efforts are also being made to bring some mid-career distinguished faculty to IITGN. Considering that group research is critical to making an impact in a discipline, we may also make several offers simultaneously in a research area in order to create viable a group.
- 5. Recruitment Strategy in “Other” Disciplines:** Currently, IITGN has academic programmes in a few disciplines only, but it will eventually start several other disciplines such as Computer Science and Engineering, Civil Engineering, Metallurgical Engineering, Biosciences and Bioengineering, etc. IITGN Academic Council has decided to start recruiting faculty and simultaneously start Doctoral programmes in all these areas, so that faculty members can initially start their research work through Doctoral students and develop laboratories and other research facilities. As faculty grows in a discipline, Masters and Bachelors programmes will be started in a phased manner and in that sequence. Therefore, the Institute will initially focus on research-oriented faculty recruitment and thus be able to develop faculty in these areas over a longer time period. This plan is now in place and the Institute is currently processing faculty applications in all such areas.
- 6. Visiting Professors:** IIT GN intends to be liberal in bringing short-term faculty members to help run the Institute, both for teaching and developing the laboratories, as well as for institution building. This is important to provide quality teaching to our students, and in mentoring of our younger faculty. Two approaches are being taken in the Institute towards achieving this.
 - a. Efforts are being made to bring mid-career faculty members from other academic institutions in the country. Already, IIT Bombay has been contributing towards this by

sending their faculty members for a semester, and in one case for a longer duration (Prof Yajnik has been with us since July 2008). We were also able to get Prof Dhiren Patel of Computer Science Department at NIT Surat to join us as Visiting Professor for a year starting in July 2009.

- b. Efforts are also being made to bring superannuated faculty members of IITs and other good institutions. We have received a fair amount of success in this regard and several such professors who retired from IITB have joined us, one retired professor of IIT Kanpur (currently settled in US) will join us shortly, and we are in discussions with some others.

7. Pioneer Leadership Programme: Board of Governors of IIT Bombay had earlier decided liberal terms for IITB faculty assisting the setting up of IITGN. In addition to their full salary, additional allowance of 50% of basic pay, furnished rent-free accommodation at IITGN, and air fare for travel once a month between Mumbai and Gandhinagar are provided. This provision has been very beneficial to IITGN programmes in utilizing services of experienced IITB faculty members. In order to attract mid-career faculty members of other Institutions in the country to move to IITGN for a limited period ranging from a semester to several years, Chairman of the Board of Governors has already approved a proposal to offer conditions similar to those offered to IITB faculty. However, additional cash allowance paid to faculty other than that from IIT Bombay has to be charged to the donations and endowment. Efforts are now being made to raise the requisite money.

8. Research Proposals: Research work carried out by faculty members distinguishes IITs from other engineering colleges. Besides publicity through publication of research papers and training research students, research activities improve quality of teaching, help develop laboratories and other facilities. Therefore, IITGN supports the research of its faculty members within its limited means. However, the Institute strongly encourages its faculty members to obtain additional research funds from outside agencies, and will provide all support to faculty members in developing and submitting research proposals to various funding agencies. Sponsored research projects afford greater flexibility and freedom to faculty members in their research activities, provides peer review comments on their ideas, and helps them gain visibility at national and international levels.

9. Research Space: Our current location places a significant limitation on the research space we can provide to our faculty. While we are making an optimal use of the space available, we need to go beyond. Two options are being considered: a) Renting a floor of a commercial building near the campus with an area of about 500 sq m, and b) Construction of about 1,000 sq m of pre-engineered workshop-type shed within the VGEC Campus at the cost of IITGN, which can be subdivided into smaller units and allocated for various purposes.

10. International Travel Support: Participation in international conferences and meetings is an important avenue for professional growth of faculty members, particularly for keeping pace with research being done at other places and futuristic trends. Therefore, we should encourage faculty members to participate in international conferences and provide travel and other support for the same. IITGN can provide limited funds for international travel through the MHRD grants. Faculty members can approach other agencies like DST for international travel support. We must also make efforts to raise private funds for international travel and other activities that encourage and support our pursuit of excellence. Several older IITs are already doing so.

- 11. International Exposure:** IITGN must encourage its faculty members to gain working experience in international environment. Those of our faculty members who have spent less than six months carrying out studies or research in a technologically advanced country will be encouraged to seek one-year international experience. They will be encouraged to apply for the fellowships available through Govt. of India, such as the BOYSCAST Fellowship and the Indo-US Science and Technology Fellowship, or seek funding opportunities from some university or research organization overseas. In some cases, we may even utilize our own resources through the MHRD grants/private donations to facilitate them obtain such an experience. We may also need to be liberal and make exceptions in granting leave of absence to the faculty for this purpose. It is best if they obtain such experience early in their career before they are deeply involved with their PhD students and other research projects.
- 12. Summer Industrial Experience:** Many younger faculty colleagues will benefit from working with design and development unit of an industry during the summer months. This can be a very useful experience for a faculty member in obtaining industrial perspective and to fine tune his teaching and research. IITGN will encourage such engagements by formally approaching the concerned industries on behalf of interested faculty members and where appropriate will extend required administrative and financial support.
- 13. Masters Programmes:** Masters programmes (MTech in engineering disciplines and MSc in sciences) enable faculty members to develop and teach post-graduate courses in their areas of expertise, and carry out research through Masters projects. Many of our Masters students may stay on for a doctoral degree, and hence, provide better research scholars to our faculty members. Therefore, Masters programmes are extremely beneficial for professional development and growth of faculty members. With this in mind, IITGN intends to start Masters programmes as soon as it is in a position to do so, with respect to its faculty strength in different disciplines.
- 14. Joint Doctorate with Academics from Elsewhere:** Considering our initial limitations in terms of research laboratories, IITGN is encouraging its faculty members to undertake PhD supervision jointly with academics elsewhere who may have strong research infrastructure.
- 15. Engagement of Senior External Academics:** IITGN will engage distinguished academics from around the country and overseas who will advise, guide and mentor the faculty. Already, Professor S P Sukhatme (former Director, IIT Bombay) and Prof J B Joshi (former Director, Institute of Chemical Technology, Mumbai) are engaged with us as Distinguished Honorary Professors. Institute has also set up an “Academic Consultative Group” for Chemical Engineering as a facilitation initiative for the benefit of our young faculty. Several more Advisory Committees will be formed both at the Department/Discipline and the Institute levels wherein the committee members will advise and guide the Institute and take the ownership of its short-term targets. The Institute intends to have fairly liberal budget on this head, to enable attractive terms and monetary compensation to such advisory committee members.
- 16. International Partnerships:** IITGN has benefitted enormously with the special relationship it shares with IIT Bombay. It now plans to forge strong relationships with several willing and enthusiastic universities worldwide with whom we would have active exchanges of faculty and students, and undertake joint projects. The Provost and Executive Vice President of SUNY Buffalo Professor Satish Tripathi will visit IITGN in December 2009 and several other senior academics from US universities have visited us in recent months or are scheduled to visit us shortly to discuss mutual collaborations and activities, e.g., Prof Nitish Thakor of Johns Hopkins, Prof Pratim Biswas of University of Washington St Louis, and Prof Kishore

Trivedi of Duke University. Besides the US, IITGN will also develop similar relationships with some European and Indian universities / research centres.

- 17. Periodic Assessment and Feedback System:** IITGN has now initiated a system wherein all faculty members fill up a self–assessment form at the end of an academic year. This will enable the Institute to evaluate the effectiveness of its faculty, and undertake any mid-course corrections in its policies on faculty matters. Further, it will enable the Institute to provide constructive feedback to the concerned faculty. On the part of faculty, this system will keep them aware of their own performance and output. Institute has also set up a system for quarterly report from younger faculty who are either on probation or on contract.