TRIBHUVAN UNIVERSITY **INSTITUTE OF ENGINEERING** PULCHOWK CAMPUS STRATEGIC PLAN (2017 - 2021)KATHMANDU, 2018

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Institute of Engineering Strategic Plan (2017-2021) Kathmandu, 2018

Foreword

The Institute of Engineering(IOE), founded in 1930 (1987/11/19BS) as Nepal's first technical school and reformed to present shape in 1972, is producing outstanding engineering technicians and engineers for more than 80 years. The tradition of excellence in the IOE is further intensifying in the course of time. IOE is also becoming more and more responsive to the ever-changing needs of the students and the engineering profession.

IOE envisioned becoming the center of excellence, both as think tank-premier national center of engineering education capable of addressing national engineering issues and as regional hubsouth Asian center; for research, innovation and dissemination of engineering knowledge. This is possible only by setting a mission of quality engineering education in the frontier engineering areas relevant primarily to nation thereby enhancing national development process. It is true that quality is achieved only with creating excellence in; work, work environment, human resources, etc.

The new world-order posed by the globalization has set a challenge to build capability and competency. The new paradigm is emerging; higher education has been accepted as capital-the source of knowledge and skill that eventually increases productivity. The global context is exposed more and more on the economic growth. It signifies that larger the accumulation of knowledge and skill, higher shall be the productivity and eventually higher economic growth. Technology has set new world order-global village. The tremendous technology development has left no sphere unless to consider for the quality of life. Engineering higher education has unprecedented role to gear up the national development process of Nepal. In the context of exceptional explosion of knowledge, higher education, particularly in engineering field, has to become dynamic, as never before, constantly entering into uncharted areas. The need of overwhelming engineering human resource is ever increasing.

Understanding this essence, IOE need to be relevant and responsive to the needs of the country and contribute to the organizational stability and growth. This Strategic plan has been formulated to establish policy direction and plan the limited resources.

Vigorous discussions and hard-work have been made to come to this shape. It is found in different times that attempts are made to define policy direction of IOE. The last attempt was the formulation of strategic plan in 1999. Following its footstep, this planning has been formulated with the vision of five years (2013 to 2017). The Academic staffs, staffs and management bodies of different level have contributed to come to this shape of this plan.

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SECTION 1 INTRODUCTION

1.1 Contexts and Rationale of Strategic Plan

Although the beginning of formal technical education in Nepal dates back to 1930 with the establishment of a technical school at Kumari Chowk in Kathmandu, the present structure of The Institute of Engineering (IOE) was formed under Tribhuvan University (TU) only after the introduction of New Education System Plan in the country in 1972. Since then it is devoted to produce different levels of engineering manpower capable of meeting national aspirations to accelerate the pace of development in the country. Under the TU Act, IOE is authorized and entrusted with the responsibility of education, training, research and development in the field of engineering. Today IOE is the premier institution of higher learning of engineering in Nepal. Its growth, both in physical infrastructure and program terms, has been phenomenal over the past thirty-five years. At present with four constituent campuses and ten affiliated colleges in various parts of the country, it offers a variety of academic programs ranging from skill dominant technician education to knowledge dominant studies in engineering education from Bachelors' and Masters' to Doctoral levels.

With the increasing number of private institutions of engineering in operation and consequent sharing of public resources, IOE is not only required to move towards financial sustainability within partial government funding but also to maintain its competitive edge both in terms of quality and quantity of education in future. IOEs huge investments in capital and human resources in the past further demand expansion, innovations in management, financing and program extent, and quality assurance, to sustain its current edge over other institutions of engineering. IOE has already made some operational restructuring in response to the change in its operating environment through: Mobilization of internal resources;

- Improvement of its management capabilities through implementation of decentralization and partial autonomy from TU central administration; and
- Several academic innovations such as single entrance system, introduction of new curricula, program segregation, limitation of back paper sitting practice, in-house capacity admissions and final examination, diversification of bachelor's degree and introduction of master's and Ph.D. Programs. To sustain the restructuring and complete it, and to aggressively move forward to achieve higher levels of excellence with the intent of becoming one of the best institution of engineering in the nation, and in the region, a comprehensive strategic document is necessary. Creating a plan involves listening to many ideas from stakeholders, assembling the ideas into a framework that supports the mission and vision of the institute.

1.2 Purpose of the Plan

The purposes of strategic plan are:

• To bring continuous improvement in academic, administrative, financial and research activities of IOE, Pulchowk Campus and achieve excellence through academic programs and research to the engineering dimension of the development process

- To consistently and distinctly stay ahead of other institutions of the country through program innovation and quality education
- To provide an enhanced forum for research, study and exchange of information, technology and engineering of issues of national importance and of regional and international interest
- To develop IOE, Pulchowk Campus as a research and development think tank for solving national development problems

1.3 Process of Preparing the Plan

The process of preparing this plan starts from revision of draft report of Strategy Plan prepared for the Engineering Education Project in the year 2000. Group discussions, workshops and analysis on this report were done. Importance was given for active participation of key stakeholders.

Two days seminar at Dhulikhel, one day workshop at Mata Tirtha and several meetings and group presentations were done at different dates. Opinions and feedback of senior officials, professors and staffs of IOE and constituent campuses were collected to develop guiding principles for drafting the rules that to be incorporated in the strategy plan. Following areas were considered during the process of plan preparation:

- Governance Structures, responsibility, authority, resources, and accountability at various levels.
- Future plan for Diploma Programs.
- Achieve excellence in quality of teaching and learning, research activities and extension services.
- Financial sustainability of the IOE and Campuses.
- Modernization and transformation of physical facilities, laboratory and equipment.
- Guiding principles in drafting the strategy area wise.
- Identification and sequential order of contents to be included.

1.4 Participants of Strategic Planning

Present and past senior officials including Dean, former Deans, Director of CARD, Directors of different Centers at IOE, Campus Chiefs of constituent campuses, HODs, Professors, representatives of teachers and staffs associations were involved in the planning process. Group formation, group discussion, presentations, interaction with major stakeholders and opinion collection were done to develop the plan.

1.5 Stakeholders

IOE Strategic plan should anticipate and respond the expectations of all its stakeholders. The two groups of Stakeholders of the institute are:

• External stakeholders include students, parents, industry, average Nepali citizen, Nepalese Society and the Government. These stakeholders are on the demand side to the institute. IOE has potential to move forward with further quality improvement and efficiency enhancement by reform, and creating excellence in its output so as to satisfy the expectations of the external stakeholders. In this context, the role and responsibility of the government, role of the current students, parents, students' alumni, industry, and civil society are supportive.

• Internal stakeholders include the management, faculty and staff, who have to fulfill the function of supply side of the institute. Efficiency and effectiveness of the management, faculty and staff have direct impact on processing of the input and creating excellence in the output of the institute. These stakeholders play key role and are responsible for creating excellence in work and work environment for quality products.

1.6 Components of the Strategic Plan

Institute of engineering (IOE) envisioned being a premier engineering education institution at par with world class models. This is reflected on the capacity and competency of the graduates. This can be measured in the performance of the graduates in the workplace. IOE believes that this can be achieved with the mission of quality engineering education & research in the frontier engineering areas relevant primarily to nation and to the global demand at large.

Despite the autonomous character of Tribhuvan University (TU), the state of condition of the TU/IOE is such that its liabilities are substantially taken over by the state. Therefore, IOE bears the responsibility of procuring national demand of the skilled engineering human resources in one hand and in the other hand IOE has to address the pressure of global demand. This is true that IOE should be prepared to bear this responsibility. The issues and challenges have to be identified and resolved to address this new scenario. For this IOE should be dedicated for innovation & governance, technology & infrastructures. IOE should come up with concrete priorities.

Nepal with the lower economic and social indicators is in dire need of high economic growth. This can be geared up with producing knowledge capital. This is possible only through IOE's role of; Academic excellence, Think-Tank, Improved working environment, Financial sustainability & Collaboration & cooperation.

1.6.1. Academic Excellence

Academic Programs

Academic excellence is reflected in the consistence and market relevant programs. The curriculum should reflect the technology and market. Academic products are evaluated on their performance in the work place, namely; in industries and services. Cooperation and collaboration of academic programs with industries are therefore meaningful. Technology and market have created greater mobility of resources. This has compelled universities to launch joint academic programs.

The attention of Nepal is gradually drawn in the engineering education. It was in the 1978 that IOE enrolled first batch of bachelor level course in engineering. IOE has proved to be the pioneer to and continuously producing high quality engineers in the course of time. The academic programs have to be expanded, in discipline and in space.

Research works

The scopes of academic institutions are teaching & learning processes, research and trainings. Through these works, institutions create knowledge and continuously upgrade it in compatible with the technology and objective conditions. Research is very important component to achieve excellence.

The Academic staffs should be developed as the researcher. The research habits are important to explore new possibilities. Moreover, concrete research policies should be established to develop research culture. A part of the resources have to be allocated for the research purpose. The Academic staffs are developed to explore news knowledge, however not all the Academic staffs are dedicated in the research works. Therefore, those professors keen in the research should be encouraged. The research works should also be published and circulated in the academic sectors. This is important to have opportunities of sharing knowledge and achievements. The workshops, seminars, discourses and conferences are the means for this purpose. Such programs should be organized in local, regional and international level.

Research works can be moved forward only with the initiation of individual. Institution can create conducive environment for this. IOE has long history of conducting research in different areas; however, Academic staffs are yet to be encouraged in the research areas. The first step of the research is the proposal writing. A policy may be required for certain period to provide a kind of incentive to Academic staffs for proposal writing. Such proposal should be based on the real problems prevailing in the society and seeking some kind of solution. Policy direction should also be shifted to problem based research in the master and doctoral research. The government may also be benefited by the outcomes of such research in the policy formulations. Attempts should also be made to participate in the research works as called by different institutions and agencies.

A reliable source of research fund is imperative. IOE shall initiate to raise such fund within organization and from outside.

Training Programs

One of the important components of academic excellence is continuous education & training. The knowledge will always be updated through trainings. A training center is inevitable for this purpose. The Academic staffs and staffs should enhance their productivity. They need regular trainings. The achievements in the academic institutions are for the benefit of the people. This can be developed as a product in the industries and service sectors. The experiences in the professional sector have to be shared in the academic institutions. There should be a close cooperation between academic and professional institutions. This shall give exposures and experiences in both sides. Training programs are very much instrumental for this.

Exam and Evaluation

The foundation of academic excellence is the calendar of operation. It has to be consistent and all the activities shall be well defined; quantified with specific time frame. The products of the academic institutions are primarily the graduates. The services are other products. The performance of the products indicates the excellence in true sense. The measure of capacity and competency is done through examinations and evaluations. These measures should be consistent through well-defined guidelines. The periodic corrective measures should be applied to address shortcomings and lapses. The conservative mindset of making things complicated has to be changed into the wider perspective of pragmatic thinking.

The exam is an indicator of the quality. This has to be reliable and consistent in term of management and information. The students may build their confidence if all the information regarding evaluation are easily accessible. This has to be managed through the use of technologies, such as; internets, e-library, e-journals, virtual labs and video conferencing etc. The measure of quality is the performance of students. This is best reflected in the evaluation results. In many cases, it is found that questions and answer-sheet checking are most sensitive parts. They need to be reformed such that parity in evaluation could be achieved. Attitudes are sometime hurdle in the evaluation. The reliability of exam for centers largely depends on the attitudes of the management and invigilators. Academic calendar is being followed for academic Excellency of the campus.

The first step of the quality of academic institution is the entry process of the students. The entrance exam of IOE is reliable and competitive. In some cases, evidences of lapses and shortcomings are found in the involvement of human factor. It is also true that subjective judgment is very important in the academic evaluation. Understanding this fact, continuous efforts have to be made for the improvement of entrance exam. The infrastructures, such as; building spaces, software and hardware, are needed for the better delivery. IOE has achieve large experiences of exam handling and it is improving the process through continuous monitoring and feedback.

Admission process in Pulchowk campus is as per Brochures of the IOE.

1.6.2 Think-Tank

The development of the country has always been the main agenda for all the government of Nepal. After the completion of nine five year plans and two three year plans have been completed. Nepal is running now with three years interim plan (067/68- 069/70), which is the 12th national plan of the country. Reviewing the past plans, different priorities are found in different plans. Sometime, infrastructure development was in the priority and other time social development was in the priority. In the later period, importance was given to the fulfillment of basic needs. Poverty alleviation and private sector development are getting attention since eighth plan. This is true that infrastructure development and human resource development are the foundation for the economic growth eventually confirming prosperity of the people. It is important to have organizations to give input to the government thus serving to the policy decisions. Institute of engineering, being the center of excellence in engineering knowledge and producing high skilled human resource, is an important institution to address to engineering issues in the country. IOE should realize this essence and act accordingly.

Advocacy on Engineering Policies

A nation cannot be developed unless emerging issues and challenges are addressed through policy and programs. The globalization has further posed pressure to compete in the global market. It is time to see the matter in a different way so that productivity may be increased. For Nepal as a developing state, it is time to move forward with new vision and mission. This could be well directed by the experts of the subject matters. An authority has to be developed to create ideas & opinions and also address emerging issues. Nepal is yet to build infrastructures and huge engineering knowledge is imperative. IOE should lead in the process of tackling engineering issues. The ideas have to be generated and discussed through different seminars and workshops. The thrust should be in the innovation and development. Interactions may be made with national planning commission and ministries to define leading infrastructure needed for the fast pace of development of the country.

Leadership in Emerging Engineering Issues

The country underwent through painful insurgency for ten years. Anarchy and chaos prevailed even after peaceful settlement of the problem. Much of the works are undergoing, however, integrated planning is yet to be made. IOE, through its Academic staffs and students, could develop a master plan in coordination with government line ministries indicating state of infrastructures (inventory). This shall assist in the planning process. In addition to this, the problem areas identified by the planning and implementation authority may be taken as the areas of research. IOE may play a lead role.

Addressing National Development Issues

It is said that ideas are drifting everywhere. It is important to hold and interpret creatively for the benefit of the mankind. Societies in the world are growing with different physical, climatic and cultural background. They have their own characters and specialties. Nepal has its own character. Development issues differ with these diversities. IOE should initiate to identify emerging development issues and find rational alternatives to address those issues.

1.6.3 Improved Working Environment

Governance of IOE is very important for the quality. Working environment is the prerequisite of the governance. To create the work environment for excellence, wide ranging structural and organizational reforms are needed. Along with this, regulatory reforms are important for the smooth functioning of the organization.

Structural and Regulatory Reforms

The reforms are basically designed to enable IOE to take up an autonomous stance in administrative, academic and financial matters, including self-regulatory authority. The planned time frame of implementation of such reforms is Chaitra 2067 to Chaitra 2069 and needs to be seen as a complement to the regulatory reforms needed to put the structure and organization to effective purpose. The current receptive situation of TU management should be quickly capitalized by IOE as experience shows that efforts at getting working autonomy from TU has been successful when the TU top management is liberally oriented. It would be most strategically opportune to initiate at IOE at the current juncture, when TU itself is in the process of making strategic changes.

Following this essence, IOE shall initiate some structural reforms. The office of the Dean shall be reorganized with proper job descriptions to all the positions. The examination shall be managed with adding one more assistant chief. The works of the assistant Dean shall be reorganized as planning, general administration, academic administration and examination. The industrial liaison unit shall be made more effective for academic-industry cooperation.

The process of autonomy from Tribhuvan University shall be geared up. Pulchowk Campus will be given the Central Campus status. All the six teaching departments in Pulchowk Campus shall be given the status of Central Departments (Civil engineering, Architecture, Electrical engineering, Electronics and Computer engineering, Applied Science and Mechanical engineering). Each Central Department shall have a Planning cell, Administration cell and 'Progress, quality and evaluation' cell and RTCU. Subject Committees shall be replaced by Department Committee. The Department Committee shall be formed from all Course Committee Chairmen, Professors and Readers. Instruction Committees shall be replaced by Course Committees composed of all course faculty members in active teaching at the department. Chairperson of the course committee shall be elected among members by themselves.

IOE shall reorganize examination division to reflect the three levels of programs. Visualizing volume of works in the examination division, three deputy chiefs shall be entrusted. The evaluation of masters programs shall be decentralized to the central departments. The role of research committee under IOE shall be made effective to conduct doctoral research works.

The structural reforms in IOE can be materialized with regulatory reforms. The autonomy regulation 2005 with first amendment of 2011 has paved track for IOE to move forwards in the autonomy. IOE shall apply for this autonomy. This autonomy will open avenue for greater authority in academic planning, administration decisions and financial decision. This will also offer self-regulation and administrative autonomy including authority to raise salary and perks within overall budgeting principles.

IOE is running regular and full fee schemes in all three levels of programs. A concrete regulation shall be formulated to establish effective, efficient and transparent transaction and also to enable quick and efficient actions.

There are constituent campuses and affiliated colleges running academic programs under IOE. Their delivery need to be monitored. It is quite obvious that inspection and monitoring process cannot be effective in the absence of proper regulation. IOE shall formulate comprehensive inspection and monitoring directives within the framework of the TU bye laws.

Quality largely depends on the quality of students. The enrollment system in IOE is from nationwide competitive entrance exam. The regulation of the entrance exam shall be revised incorporating past experiences and international practices.

The quality of academic institution lies on the research works. The master programs and doctoral research are the foundation. IOE shall formulate concrete regulation to run the master and doctoral programs. The research in the master and doctoral program shall be oriented to the problem based research. The Academic staffs shall be encouraged to do research works and research funds shall be developed and this shall be operated with proper regulation.

Management & Leadership

Good governance is the key indicator for the quality education in the IOE. Engineering education is critical to Nepal's aspiration of strengthening its capacity and accelerating economic growth. The system is huge and complex. There is a consensus that reforms are imperative. Issues of fair access and affordable participation in higher education are critical if Nepal is to empower its people with educational opportunities that allow individual potential to be fulfilled, and allow more Nepalese graduates opportunities for employment and to compete in an international arena.

There are approximately 40 engineering colleges delivering bachelor and above degrees in engineering across the country. Among them, 26 colleges are situated in Kathmandu and rests of the colleges are expanding in the span of the country. IOE being the pioneer in engineering education bears the state responsibility to produce necessary engineering human resources for the country's development activities. The demand of engineering education is continues. The significant changes in supply and demand make it increasingly important to ensure that engineering education systems and institutions are effectively and efficiently governed and managed to meet the needs of industry and society.

In addition, major higher education reforms are ongoing and IOE is taking initiative in the reform of engineering education. Among other key priorities, the importance of increasing autonomy and accountability of IOE from university is imperative in improving the quality of learning and teaching outputs and outcomes. There is now an even greater commitment and imperative to implementing these reforms.

Good governance is an area where effective management is essential. Strengthening links with industry and local communities could also support a range of development opportunities for courses, faculty and most importantly the student experience and education and research outcomes. It underpins and supports the mission and purpose of the institution. Without such shared intent in purpose and delivery executive body will be weak. Good governance creates sound, ethical and sustainable strategy, acceptable to the institution as whole and other key stakeholders. It oversees the implementation of such strategy through well considered processes and procedures in an open, transparent and honest manner. Good governance is essential to the grant to reassertion of autonomy. Core management, by embracing good governance approaches, accepts sun equivocally their own collective and individual responsibilities.

The activities of stakeholders (students, staffs and Academic staffs) are very much responsible for the quality of education. In many occasion, emotional manifestations are

visible on the surface in the form of political groups, interest groups and unionism. These manifestations have to be addressed considering objective reality. Such activities are actually the reflection events and activities of society. Moreover, optimum utilization of resources is possible only through good governance. The role of leadership is imperative in this regard. The security system has to be strengthened. Information is important for governance. Management information system has to be established.

IOE is moving ahead with the task of producing quality engineering human resources through four constituent campuses and ten affiliated colleges. Unless the management and delivery is properly monitored and evaluated, IOE cannot achieve its goal. Monitoring and evaluation can be made properly in the light of clear and concrete guidelines. Such directives have to be formulated. All institutions should be periodically monitored and evaluated following given guidelines.

Nepal government has devised the policy of university education only from bachelor level and above. IOE is still running diploma level programs. This is not in line with the government policy. It is obvious that diploma programs have to be phased out. IOE should gradually phase out diploma programs from constituent campuses.

The immediate effect of globalization is the competitiveness. All the components of IOE should be effective and efficient to cope with the global needs. For this; the faculty, the staffs and the students should be oriented such that their energy and capacity shall be used to the optimum level. A permanent system of quality management unit may be needed for this purpose.

Understanding this essence of good governance, IOE is dedicated to establish deliverable policies for public benefits which include a clear place for engineering education. To begin with, IOE is devising policy of autonomous structure of the institution along with the autonomy from the university.

Academic Staffs & Staffs (HRD)

Proper human resource development plan is essential for the effective functioning of the institution. Unless the Academic staffs and staffs are competent and capable, the output cannot be expected. Proper procedures have to be devised for the recruitment, upgrading and retention of Academic staffs and staffs. Career building ladder is must for effective delivery from staffs and Academic staffs.

The world is changing and technology is developing in an exponential way. Updating and refreshing of new knowledge and technology have become integrated part in every profession, this is valid in the academic institution as well. Moreover, higher academic degrees may be necessary for deserving Academic staffs and staffs. The trainings are other parts needed in the institution. Depending upon the objective conditions, the Academic staffs and staffs may be recruited in contract and temporary basis. Their career should be well defined through permanent provision and system of upgrading in the institution.

The role of academic institution is to create knowledge and also build capacity of individuals for their survival. There are so many cases that well experienced and capable persons/ experts are seeking entry in the academic institution. The entry of such persons is meaningful and valuable for the institution. A policy of system of lateral entry may be instrumental in such case.

Students

The students are the center of focus in the academic institution. This is true that the capable and competent students have more dedication and hard work. This eventually gives better academic results. As academic institution, IOE expects such quality students and therefore have devised to enroll competent students. The other part is also equally important; teaching learning environment of the institution. IOE should devise such system to create conducive environment for learning.

IOE is the center of excellence of engineering in the country and bears the responsibility of procuring necessary engineering human resources. There should be effective curricular, cocurricular and extra-curricular activities in the institution. This will prepare students to demonstrate their potential in the professional areas.

During the initial stage of engineering education, government provided scholarships for the subsistence of the students during apprenticeship and diploma level study. In the later stage, sponsorships were introduced in the bachelor level students. The needy students may be poor or meritorious ones are refrained from getting such scholarships. The only system of supports to the students prevailing now is the token of scholarship (amounting Rs.2000 per semester) and free-ship (pay off tuition fee) to the meritorious students. Understanding the largest part of population (about 80%) in the rural part of the country and poverty therein, potential students from rural Nepal are in need of scholarship for their subsistence during the study. There is a need to devise a system to provide such scholarship to the deserving students.

IOE recruits students from nationwide competitive entrance exam. There are the voices that such single entrance may not only be very much effective to recruit quality students. Moreover, there are capable students in the span of the country and due to the poor access in to the engineering education they are refrained to get entry. Engineering education is workshop based education. The residential provision has been very effective to build study environment in different parts of the world. IOE is giving attention on this provision. This is obvious that the poverty prevailing in the country has become one of the factors that restraints students from engineering education. A provision of student loan may be necessary to address such cases.

The academic institutions produce graduates. The confidence of knowledge and skills that students received from the institution is crucial before going to the profession. Proper counseling may be effective to the students to cope with their practical matters.

Infrastructures

Academic institution needs appropriate laboratories and workshops for the effective delivery of the knowledge. Infrastructures that include buildings and other hardware should be compatible with the prevailing technology and needs. IOE needs to develop its infrastructures accordingly. Infrastructures are the foundation of academic institution and demand capital investments. Government should give attention in this regards. As a part of government policy, there was engineering education project under World Bank assistance some 30 years back. All the infrastructures in IOE and its constituent campuses were developed during this period. Those infrastructures are getting absolute in the course of time and they are in dire need of repair, maintenance and even to replace. IOE is in need of capital investment to upgrade these infrastructures so that it can address the needs of time.

1.6.4 Financial Sustainability

Resource Planning

Resource planning is the task of determining how the institution will afford to achieve its strategic goals and objectives. Usually, an institution creates a resource plan immediately after the vision and objectives have been set. The resource plan describes each of the activities, resources, equipment and materials that are needed to achieve these objectives, as well as the time-frames involved. Resource planning covers wide range of areas. The

assessment of academic environment is the primary task of planning. Once the vision mission and objectives are set, resources from different sources needed to achieve those objectives have to be identified. Resource planning has a serious task of calculating total cost for each activity and projects this into the budget. The risks and challenges related with the cost and budgets have to be identified during the planning. Performing resource planning is critical to the success of any organization. It provides the direction of institution with rigor, by confirming that the set-objectives are achievable from a financial point of view.

IOE needs to plan processes for using its resources in the most efficient way possible. These resources can include tangible resources such as goods and equipment, financial resources, and human resources such as Academic staffs and staffs. Resource planning includes exploring available physical resources in the institution and also identifying human resources and the job assigned to them. Planning should ensure the optimum use of these resources to achieve institutional vision mission and objectives.

Understanding the essence of resource planning, IOE has thought series of activities for the financial sustainability. As a public academic institution, the source of fund of IOE is primarily the government and the students. Visualizing recent pasts, government's investment in the higher engineering education is diminishing. The effect of this is the financial crunch in the IOE as well. As a way out for this financial crisis, IOE devised full fee system to cover the recurrent cost of the institution. There is a need to devise tools for the effective utilization of the resources in one hand and in the other hand nonproductive and defunct areas should be identified & closed.

Fund Management

Fund management is very important part in the institution. Institute of Engineering, being the public institute, depends heavily on the government. The government has provided all the capital investment in the institution. The salary component of the Academic staffs and staffs comes from the government treasury. The components; repair & maintenance and scholarships are also in the heading to be covered by government, however, the budget for these components has stopped coming from government from last few years.

Being academic institution, IOE functions teaching-learning activities, research and training activities. This is true that the shortage of fund has hindered IOE activities, as a result of this, limited to teaching-learning activities only since many years. Academic institution cannot go ahead only with teaching and learning process.

IOE has thought to go ahead with different activities for fund management. Government is the sole fund provider till now. The nature and existence of IOE as public institution, it has become difficult to attract endowment and charity funds. People and institution are there willing to contribute in IOE, however, the procedures, tools and mindsets are not simplified. Occasionally, government has granted engineering education projects and such projects have been instrumental for the development of the necessary infrastructures.

A part from these sources of fund, IOE has introduced full fee system following the principle of cost sharing. IOE has two streams of students: regular and full fee students. The regular students pay negligible tuition fees and full fee students pay minimum tuition fee. The fund collected from students are used to cover the teaching materials cost and other recurrent costs.

The consulting service is other important source of fund management, however, the government and other public institutions have not visualized the IOE potential of service delivery, therefore, and such consulting works are not taking place to the expected level.

The expansion of programs is yet another source of fund management. IOE is introducing new programs in bachelor and master level in the market related areas. Moreover, doctoral program has been continued.

IOE has focused now on the research. Different sources are identified and fixed fund shall be made so that all Academic staffs are involved in different kinds of research work. The affiliation fees and deposits shall also be directed in this fund.

1.6.5 Collaboration & Cooperation

Technology Transfer

Academic institutions are the center for knowledge creation and technology development. This is true that such knowledge should be a means of survival to the students. Globalization and technology advancement have set new world order; world as global village and creating of knowledge society. This has created pressure on the academic institution to produce competent graduates. This new scenario has compelled every institution to go with the need-assessment and technology needs of the country. This is the age of information. Unless institutions have proper technology information, they are deemed to lack behind in the race. Moreover, mechanism of technology transfer varies from country to country and place to place. IOE needs to find such mechanisms in the contest of Nepal.

Understanding this fact, IOE is planning to develop enabling environments for technology transfer. There are different factors influencing in this area. IOE shall study these factors and set programs to address these factors. The other part is the capacity of Academic staffs and staffs. They need to be equipped with proper knowledge and skills. This is possible through training and refreshing programs.

International Collaboration

Globalization has become the reality. This has Open Avenue for large mobility of human resources. The graduates from one institution are now in need of certification of their knowledge and skills. This is done by recognition of the academic degree of the individuals. IOE should be aware of this fact and proceed ahead in the process of recognition & accreditation regionally and internationally.

Technology transfer is possible from joint programs and research works. This shall also facilitate harmonization of the courses in collaborating institutions. Moreover, the exchange of Academic staffs and staffs shall help understand physical, societal and technological state of condition.

The thrust of higher education is obviously the knowledge sharing. The achievements and findings of the study and research are valuable assets. They need to be disseminated. This can be done through publications. Academic institutions should take initiations jointly or individually for the publication of different kinds of journals and conference proceedings.

IOE has already been able to establish remarkable linkages with international organizations. Initially such linkage started with grants and technical assistance received from donor countries and it has been expanded through mutual agreements with technical institutions with higher standing abroad for strengthening IOE's existing academic programs and developing new programs. Such linkages have proved most fruitful in strengthening Masters and Ph. D. programs. IOE, through already attained autonomy from TU under decentralization regulation 1998, can now expand such linkages more directly and the focus will be on quality of such linkages.

1.7 Scope of the Plan

This strategic development plan is aimed at fulfilling the targets set in the strategic vision. Scientific management and innovative reforms are needed in academic, administrative, financial and research activities of the institute. The horizon for this plan could be five to ten years. This plan shall clearly specify the achievements to be made against a time frame. It contains a list of strategic implementation activities pertaining to management reforms and Institutional development.

SECTION 2

INSTITUTION'S PROFILE

2.1 Overview

2.1.1 Geographical Setting of Nepal

Nepal is the landlocked country in the northern hemisphere sandwiched between two Asian giants: China and India. Nepal has the glory of having world's highest mountain-Sagarmatha (Everest) and being the birth place of Lord Buddha- Light of Asia. Country covers about 0.03 % and 0.3% of land of world and Asia respectively. The beauty of the country is extreme diversity within close proximity of topography, ecology, flora and fauna. The lowest altitude is 70 M and highest is 8848 M.

There are three ecological belts; Tarai (plain area), Pahad (hill area) and Himal (mountain area) spanning east-west. The Tarai region lies in the southern part of the country. This area, being an extension of the Genetic plains of India, forms a low flat land. It accommodates 48.4 percent of population. This area includes most of the fertile land and dense forest of the country. Population of this region is increasing at a faster rate compared to the other two regions; one among the reasons of faster growth is due to internal migration. The hill region is located between the Mountain and the Tarai regions. It lies between the altitudes of 610 meters above the sea level. The region comprises several attractive peaks, fertile valley and basins such as Kathmandu and Pokhara valley. These valleys and basins are relatively densely populated. The region accounts largest share of the land area of the country. Share of population of this region is 44.3 percent. The Mountain region covers mountainous area of the country and lies in the north. The altitude ranges from 4877 meters to 8848 meters above the sea level. This region consist large number of magnificent snow covered mountains including the highest peak of the world, the Mount Everest. Almost all big rivers running through the country originate from this region. Because of its geography and climatic conditions it is the most sparsely populated region compared to other two. According to the 2001 census, the region accommodates 7.3 percent of the total population.

The location of Nepal in the globe is in the latitude $-26^{\circ} 22$ ' N to $30^{\circ} 27$ ' N and longitude $-80^{\circ} 4$ ' E to $88^{\circ} 12$ ' E, bordering China in the north and India in the South, East and West. Total area of Nepal is 147,181 Sq. Km. There are five types of climates in Nepal; warm & humid, warm & dry, composite, cold & humid, cold & dry. The country is stretched eastwest with average length of 885 KM and north-south with average breadth of 193 KM. The world's eight highest peaks above 8000 M are situated in the mountain range of the country. Total population of the country according to the census 2011 is 266, 20,809. The gender ratio is 94.41 with males 129, 29,431 and females 136, 93,378.

Apart from the ecological divisions, there are seven Provinces. For administrative purpose, the country is divided into 77 districts. Sixteen districts in the north constitute the Mountain region, 40 districts in the middle constitute the Hill and 21 districts in the south fall in the Terai Region. Districts are further divided into number of Village Committees and Municipalities. For several reasons number and size of these local units changes from time to time. Currently, there are 752 local levels including village committees and Municipalities. Local levels are sub-divided into smaller units, called the Ward.

2.1.2 Educational Status and Scopes

Engineering education has two dimension; skill developing and capital formation. Both are equally important for the economic growth of the country. It has different facade; from health to hygiene, from food technology and agriculture to animal sciences, from forestry to mineral resources, from infrastructures to service delivery, etc. The skill development is the part that gives knowledge of application of technology to enhance productivity. Engineering education prepares students/trainees for jobs that are based on manual or practical activities, totally related to a specific trade, occupation, or vocation. In other words, it is understood as teaching procedural knowledge. Along with this, engineering education imparts knowledge and principles related to the engineering professional practice. It includes the initial education for becoming an engineer and any advanced education and followed by specialization.

As the world is moving towards knowledge based economy, all the nations are entering into 'global skill race'. In this race, education knowledge and skills are assuming ever-greater importance. The developed nations; USA, UK, Germany, etc. are advocating the creation of a high-skilled, high-waged economy by upgrading the education and skills of its workforce. It is now established that the creation of world-class skills is assumed to be a route to economic prosperity, reduced income inequalities and social cohesion. Such policy prescriptions rest on the idea of a knowledge economy where innovative ideas and technical expertise hold the key to the new global competitive challenge. Therefore, the governments all over the world want their countries to have high-value, high-skill economies, and they realize that the first step towards this aim is to have a well-educated workforce. This is obvious that a knowledge-driven economy demands a larger proportion of the workforce with a university education and with access to lifelong learning opportunities has had a major impact on participation rates in tertiary education. This is more pronounced in the engineering tertiary education.

A study revealed that the neighboring countries of Nepal are giving attention more in the tertiary education. China now has more students in tertiary education than the United States and this gap is likely to grow in the future. India has also witnessed a significant expansion since 2015 and has announced ambitious plans for a five-fold increase in government expenditure on education between 2017 and 2021.

The emphasis on engineering higher education in China and India has resulted to the double digit economic growth. Technology vision of then-leadership has been instrumental for today's status of India and China. Establishment of five Indian Institute of Technology (IIT) in fifty's decade by Jawaharlal Nehru, first Prime Minister of India, was a great technology vision to make modern India. Encouraged by the achievement of IIT in India, Indian government has expanded IIT's. India has now established numbers of especial technical institutions understanding the facts that Engineering Education plays a vital role in human resource development of the country by creating skilled manpower, enhancing industrial productivity and improving the quality of life. India has given special emphasis on the higher engineering education. These institutions are, Central Government funded State Government/State-funded & Self-financed institutions.

Institution	No.
Indian Institute of technology	<mark>15</mark>
Indian Institute of Management	<mark>13</mark>
Indian Institute of Science, Bangalore	<mark>1</mark>
IISERs	<mark>5</mark>
National Institute of Technology	<mark>30</mark>
Indian Institute of Information Technology	<mark>4</mark>
NITTTRs	<mark>4</mark>
Others (SPA, ISMU, NERIST, SLIET, NITIE &	<mark>9</mark>
NIFFT, CIT)	
TOTAL	<mark>81</mark>

2.1.3 Stakeholders and Scope of Their Participation

Till 1986, there was only one University, Tribhuvan University, in Nepal. The Sanskrit University was founded after the government adopted multi-university bill from the parliament in 1986. The momentum to establish engineering colleges in private sectors was observed after the popular movement of 1991. Nepal Engineering College was first of this kind to be established in 1994 under the affiliation of IOE/TU. Kathmandu University established in 1991 by private sector initiation also began engineering program in 1994. In the course of time, few more universities were established. Among them, Purwanchal University and Pokhara University have also launched engineering programs. At present, there are about 40 engineering colleges today running diploma, bachelor degree, master degree and doctoral programs in multi-dimensional Engineering disciplines. Among them 33 colleges are affiliated with different Universities and seven are the constituent colleges of universities.

Primary stakeholders of the higher education are; the policy makers from government body and universities, the teachers, students, staffs. Besides, political leaders, social leaders and local government bodies have significant role in the process of enhancing quality education. It is obvious that the ultimate aim of higher education is development of the country and prosperity of the people. Therefore, the scope of all stakeholders expands to the prosperity of Nepal.

2.2 Description of Institute of Engineering

2.2.1 Historical Development of Institute of Engineering

History of engineering education dates back to Vedic period. Different literatures, such as; Vastushastra, Vastupuran, Vasturatnakar, Vastusar, Vastumandan, Mayamatam, Manashar, Matsyapuran, Mahabharat, Prashadmandan, Shukraniti, Brihatsamhita etc. have shaded light in different dimension of engineering knowledge and skills. The Takshashila, Nalanda and other universities of the early periods were some eminent institutions delivering formal engineering education. In the historical period, there was more informal technical education, transferring technology from generation to generation through experiences. The great legend Balabahu (Araniko) was the architect of the 13th century, well-known for establishing new history of pagoda architecture in China. Vocational education was very much popular in Kathmandu valley during Malla period as a tool to increase revenue. There was a special degree for citizens to learn some kind of skills and involve in production and business. Malla period was famous for handicraft. It was the golden period for all types of architectures. The kings from parts other than valley were also found to be cautious on the importance of technical works. During Rana dynasty (1846-1950) Mr. Bir Shamsher was

found to be aware of the technical education for the development of the country. As a result of this, his son, Gehendra Shamsher, along with other 5 students were sent to Japan for higher engineering study. They were the pioneer engineers taking formal engineering degree in modern engineering education in Nepal.

Formal technical education started in 1930 (1987/11/19 B.S.) after the establishment of technical school in Kumari Chowk, Kathmandu. At the beginning, this school began the trade course on textile skill. In 1942 (1998/10/17 B.S.), engineering section was introduced in the school offering two years sub-overseer course for SLC graduates. This school was shifted to Tri-Chandra campus in 1945 and renamed as engineering school in 1950. It was in 1958 that this school was accepted as a formal institution to deliver engineering education and once again renamed as Nepal Engineering Institute and it was shifted to Nepal Administrative Training Council complex, Jawalakhel at the beginning of 1958. By the end of same year 1958, it was taken to Ananda Niketan, Pulchowk. It offered overseer course in civil engineering and later on in 1971 offered electrical overseer course. In 1963, technical training institute was established in Thapathali under the assistance of German Government offering overseer course in mechanical and electrical engineering.

After the introduction of New Education System Plan in 1972 in the country, Institute of Engineering (IOE) was formed under Tribhuvan University and both the Nepal Engineering Institute and Technical Training Institute were brought under Institute of Engineering. Nepal Engineering Institute was renamed as Pulchowk Campus Followed by the government policy of expanding engineering education, Institute of engineering begin bachelor courses in engineering from 1978, master coursed from 1996 and doctoral program from 2003. By now, bachelors, masters and doctoral programs are run in Pulchowk campus.

2.2.2 Physical Infrastructures

Institute of Engineering (IOE) is a technical organ of Tribhuvan University. It is situated in Pulchowk, Lalitpur. Besides, IOE has some centers working in highly specialized areas.

- 1. Center for energy studies is working in the areas of alternate energy sectors and assisting in the master program of renewable energy engineering,
- 2. Center for disaster studies is working in the areas of disaster and assisting in the master program of disaster risk mitigation.
- 3. Center for pollution studies is working in the areas of pollution.
- 4. IOE consultancy service is delivering consulting services in engineering.
- 5. Curriculum implementation and material development unit is involved in the development of instruction materials etc.
- 6. Center for applied research and development is dedicated in the research activities.
- 7. Continuing education division is looking after the trainings programs.

Pulchowk Campus

Land & Buildings

This campus is situated at Pulchowk in Lalitpur sub-metropolitan city. It occupies 368 Ropani 2 Aana 2 paisa 2 dam areas in conventional unit, which is about 215 square kilometers.



This campus has three story five academic blocks, one three story administration block, seven workshop and laboratory blocks, one library block, one CIT block, five student hostel blocks, three canteen and cafeteria, 30 units of teachers and staff quarter, twelve guard houses, etc.

Furniture

All the buildings are well furnished by necessary furniture. However, the furniture's are as old as 25 years and many of them are in need of replacement. B-Block class rooms also renovate with furnishing for class run. Public Health Labs have well new equipment with granite top working tables and wash basin supported by JICA.

Drinking Water Facilities

This campus has its own source of underground water extracted by two boring pumps system. However, the water contains some impurities and need to be filtered. There is also water supply from municipality source. Each Department managed water purified drinking water for staff and students. Boy's hostel

Sanitation Facilities

This campus has its own independent sewerage system that includes sewer line connected from all buildings and transported to the septic tank constructed inside the complex. The septic tank is connected with soak pit.

Residential Facilities

Teacher's and Staff's Residence

Campus has thirty units of quarters to accommodate teachers and staffs. This is very less in compare to the demand. Lower staff quarters also provided for 30 no's lower staff.

Student's Residence

Campus has students hostel to accommodate 450 boys and 60 girls. This is less to the need of the students' numbers. We have Separate building for MSC Hostel for 60 students.

Sports Facilities

Campus has well managed Football Ground and Cricket Ground. Volleyball and Basketball courts are also well maintained. There is also Gym Hall inside the collage complex. Indoor halls are not available for sports.

Roads and Transport Facilities

The road network inside the campus is black topped. Students come at campus by Patan Dhoka route buses and Lagankhel route buses.

Library

Library has more than 72000 books. It has also international subscriptions of journals. It is developing e-library infra structures. Pulchowk Campus Library is the largest library among all Engineering Campuses in Nepal in terms of space, collection, users, its activities and services.

Books are prioritized according to the academic courses studied in the campus. The books are mainly in the subjects; science, mathematics, civil, architecture, computer, electrical, electronic, mechanical engineering, etc. Books in verities of other subjects are also available in the library. The library has a book bank system. Under this system, whole set of course books are issued for a full semester to the students. Students later returned back the books into the bank after semester examination is over. The same books are issued again to the new students in the next year for the same semester. Library is equipped with DDC 22nd edition, ACCR² and LC subject headings.

Library recently started computing its stocks; library catalogues are available in the campus. Any member of the library can browse library stocks to find what are available and useful for them. It is also planning its services with computers in the desk to make its service quick and reliable.

There is separate library for Master's and Ph.D. students at F-Block. The MSc Library started to record thesis database which includes Thesis abstract and topic of Master's Thesis and Ph.D. dissertation from IOE. There is also manage to operation of Department Library on Architecture Department, Electrical Department and Electronics and communication Department.

Canteen and Cafeteria

Campus has two cafeterias for Tiffin/snacks and tea. There is also one student's Mesh canteen for the lunch and dinner of students.

Laboratories

Campus has number of well-equipped laboratories and workshops. Most of the laboratories are well equipped with computer facilities and are adequate for the purposes of rendering research, training, consultancy development works in the wide ranging engineering . Followings are the detail of departmental laboratories;

Electrical Department

- Basic Circuit Lab
- Old Machine Lab
- New Machine Lab
- Instrumentation and Control Lab
- Switchgear and Hydropower Laboratory
- Repair and Maintenance Lab
- Transformer Test Lab

Electronics and Communication Lab

- Repair And Maintenance Workshop
- Installation Workshop
- Computer Laboratories And Networking Facilities
- Instrumentation And Control Laboratory
- Power Electronics Lab
- Computer Research And Development Lab
- Electronic Communications Lab
- Basic Electronics Lab I/II
- Advanced Electronic Lab
- Basic Computer Lab
- Advanced Computer Lab
- Repair And Maintenance Lab
- Photovoltaic Lab
- DBMS Lab And Computer Simulation Lab
- Project Lab
- Student Computer Club

Civil Department

- Structure Laboratory
- Heavy Lab (Hydro Lab)
- Geotechnical & Transportation Laboratory
- Civil Engineering Materials, Concrete, Masonry & Rcc Laboratory
- Surveying Instruments
- Water Supply/ Environmental Engineering Laboratory
- Building Material Lab
- Highway Material Lab
- Geophysics Lab
- Engineering Geology Lab
- Rock Mechanics Lab
- Machine Workshop
- Building Science Lab
- Public Health Lab

Mechanical Department

- Mechanical Workshop
- Machine Shop
- Fluid Mechanic
- Mechanics of
- Machine Dynamics
- Thermo Dynamics & Heat Transfer
- Material Science
- Strength of Material
- Machine Solids
- Renewable energy
- Instrumentation
- Metrology
- IC Engine
- Computer Lab

Applied Science Department

- Physics Lab-1
- Physics Lab-2
- Chemistry Lab-1
- Chemistry Lab-2
- Computer Lab-1
- Computer Lab-2

Architecture Department

- Dark Room -1
- Dark Room -2
- Computer Lab
- Project Room

Facility Management Section

- Basic Skill Workshop Carpentry- Senior Carpenter 1 Carpenter 2
- Electrical Repairing Section- In charge 1 Electrician2
- Telephone & Networking Repairing Section IT officer 1 Technician 2
- Plumbing Section Senior Plumber 1 Plumber helper 1
- Masonry Section Senior Masonry 1 Helper 2

Other Infrastructures

Campus has one large bus, one small minibus, two cars and few motor bikes. Few diesel generators are also available backup system.

Pulchowk campus has broad band internet connection from Nepal Telecom which provides fast speed internet facility in all administrative, academic blocks and hostel & quarters. Campus has own V-SAT system to provide internet system for all Students and Staff. It's running by CIT under Pulchowk campus.

Campus has a well-equipped and well managed centralized Information and communication technology (ICT) center. This center is responsible for the internet service in the campus.

There is high speed internet facility (Local access network (LAN)) over all administrative and academic building along with teacher/staff quarter and student hostels. The internet connection has been made easy access by installing wireless system.

Campus has a plan to construction Graduate Building for MS.C Program and Academic Block for Aerospace Engineering inside campus complex. Campus has MOU signing with IOE Consultancy for preparation of Building Design and cost estimate recently

Centers and Specialized Units

Institute of engineering has following centers to perform its different activities;

• Centre For Energy Studies (CES)

Centre for energy studies (CES) was established on January 21, 1999. The Main Objective of the center is to enhance promotion and development of Renewable Energy Technologies through study, research, human resource development at various levels, and information dissemination for the sustainable development. As an institution within IOE/TU, capacity building of local manpower is the main focused activities of CES. CES has supported and provided assistance to the



courses on; Master of Science in Renewable Energy Engineering (MSREE) and Master of Science Engineering in Energy System Planning and Management (MS ESPM). "Zero Energy House (ZEH)" and energy Park (EP) are the parts of Centre for Energy Studies. ZEH is being used as a living laboratory for research students and also demonstration sites for all concerned in the application and development of Renewable Energy Technologies.

• Centre for Applied Research and Development (CARD)

Centre for Applied Research and Development (CARD) is an autonomous research and development Centre within the IOE. The main objective of the CARD is to sustain the primary mandate of the Institute of Engineering (IOE) to educate and develop new knowledge through a vigorous and highly visible research environment. CARD thrives to establish a research culture and development leadership in IOE. It supports all kinds of scholarly activities: fundamental research, applied research and development contract research to government, non –government and international agencies. It capitalizes on the wide range of multi-disciplinary in-house expertise and capabilities of the IOE.

• Institute of Engineering Consultancy Services (IECS)

Institute of Engineering has established a central unit for rendering consultancy services in multidisciplinary engineering areas. This unit provides services in project development, design, supervision, quality control, monitoring and evaluation of projects, conservation works, etc. The IECS generally handles consultancy of multidisciplinary nature. The client seeking consultancy services should contact IECS.

• Continuing Education Division (CED)

Continuing Education Division (CED) is a unit within the IOE. The main objective of this unit is to provide short term tailor made training course. This division has conducted various types of training program on computer, GIS (in association with GIS society), Engineering applications (in association with IIT's, Universities from USA and Canada) etc. The continuing Education Division also conducts various training programs opens to public. Clients seeking short term training programs may contact the CED.

Centre of Pollution Studies (CPS)

Centre of Pollution Studies (CPS) is yet another center in the Institute of Engineering. This center aimed to conduct and manage study/Research regarding Pollution thereby providing assistance in integrating high-level engineering education and research regarding pollution. This center also works to develop expertise regarding the areas related to pollution and to support their utilization and Mobilization. It conducts trainings regarding pollution.

Centre For Disaster Studies (CDS)

The Centre for Disaster studies was established in 2003 in the Institute of Engineering. Understanding the disaster and its subsequent effect of looses of life as well as properties every year, IOE decided to conduct research and develop human resource to mitigate disaster effects. CDS has the objective of working for management of disaster in the country. This Center is also offering short-term courses, carrying out research works in disaster. This center is supporting and assisting Master course in Disaster risk Management in the IOE.

Centre for Information Technology (CIT)



Centre for Information Technology (CIT) is a unit within the Institute of Engineering. The objective of CIT is to provide Information Technology facilities to the faculty, staff and students of the IOE. It has its own VSAT terminal, optical fiber backbone for internet connectivity and large computing facilities within Pulchowk Campus Premises. CIT provides Internet access to Academic staffs, staff of TU and the students of IOE at a reasonable rate. There is also the provision of establishing CIT units in all constituent campuses. This unit shall also provide IT services to other organization when and where required.

Curriculum Implementation & Material Development Unit (CIMDU)

The Major objective of this unit is to facilitate the departments with various types of academic trainings and seminar to enhance the academic performances. This unit also co-ordinates the activities concerning development of courses and lab manuals by IOE Academic staffs. A part from this, this unit also assists in the curriculum reform process of the Diploma-, Bachelor- and Master level.

Industry Liaison Council (ILC)

There is a unit looking after industrial relation for connecting academia to industry. This unit explores the market condition for IOE graduates. The engineering human resource demand of the industries is worked out and suggests necessary revisions in the courses

Programs and Courses

2.3 Academic Programs and Curriculum Management

2.3.1 Programs

The programs and courses offered at the institute have the flexibility to evolve and change in response to new requirements. They serve the dual purpose of building a solid foundation of knowledge and of enhancing confidence, creativity and innovation in its students.

Institute of Engineering is offering Ph.D. research, Master degree (graduate course), Bachelor degree (undergraduate course), in different engineering disciplines in different campuses and colleges.

IOE is offering Ph.D. research program and Master degree courses in Pulchowk Campus only. Details are illustrated as follows;

1. Doctoral Programs (Ph.D. Research)

PhD research programs are offered under all engineering departments of Pulchowk Campus. This research program is run under IOE's own internal resources. The minimum duration of Ph.D. study at IOE is 3 years and the maximum duration is 6 years. This has been made regular since 2010.

2. Master Degree Programs (Graduate Courses)

All master degree programs are offered at Pulchowk Campus only. Master programs are run from mobilizing internal resources.

Departments	Running Master Programs	Proposed Master Programs
Department of	1. Structural engineering,	
Civil	2. Geo-technical engineering,	
Engineering	3. Environment engineering,	
	4. Transportation engineering,	
	5. Water resources engineering,	
	6. Disaster Risk Management	
	7. Construction Management	
	8. Hydro Power Engineering	
Department of	1. Renewable energy engineering,	
Mechanical	2. Technology and Innovation	
Engineering	management	
	3. Energy System Planning and	
	Management	
	4. Mechanical System Design and	
	Engineering	
Department of	1. Power System Engineering	
Electrical		
Engineering		

Followings are the running and proposed master programs under different department;

Department of	1. Information and Communication	
Electronics and	Engineering	
Computer	2. Computer System and Knowledge	
Engineering	Engineering	
Department of	1. Urban Planning	
Architecture	2. Energy for Sustainable Social	

&Urban	Development	
Planning	3. Energy Efficient Building	
Departments of	1. Climate Change and	
Sciences &	Development	
humanities	2. Material Science	
	3. Applied Math	

3. Bachelor Level Courses (Undergraduate Courses)

IOE, Pulchowk Campus is offering bachelor level courses in various engineering discipline through constituent campuses and affiliated colleges. Followings are those courses;

- Civil Engineering,
- Mechanical Engineering,
- Electrical Engineering,
- Electronics & Communication Engineering,
- Computer Engineering,
- Architecture
- Aerospace Engineering.

IOE, Pulchowk Campus is initiating to offer bachelor level in; Aeronautical Engineering and Chemical Engineering in coming academic year.

4. Master level students' enrolment in different academic years 2053-2074



2.3.2 Curricular Management and Support

All academic programs under IOE are run with TU curriculum. IOE Faculty Board is given authority to make academic decisions regarding curriculum, materials development,

course design, syllabus revision and implementation under TU decentralization rules 1998 (2055BS).

The dawn of new millennium has brought with it, a fast changing technological landscape. This technological landscape depends upon the Technical Education System, which propels a country to the forefront in the fields of Science & Technology.

In the emergent international order of fast technological changes, the pressures of globalization, quality consciousness, stiff competition, technology upgrade pose profound challenges to the Technical Education System. The world of work, wants a result-oriented technical graduates, with minimum gestation period in Industry. On this background, IOE, Pulchowk Campus has brought in various educational reforms in its Curricula. The process of Curriculum Revision is being conducted in close coordination with eminent educationists, Principals, Heads of Departments, Instruction Committees, Key Faculty Members and subject experts of IOE, Pulchowk Campus. It is obvious that curriculum is inevitable component of educational program and is designed and implemented to achieve specified educational objectives.

The curriculum revision from time to time is imperative for the fact that:

- Education is purposeful
- There is an organized plan of action contemplated
- Such a plan is translated into action through appropriate strategies of implementation

Understanding this fact, revised curriculum is expected to:

- Satisfy needs of user system (Industries) to a large extent
- Follow National policy directives
- Meet Societal Concerns
- Help in Total Personality Development of Students
- Take care of future demands as far as possible

Standing on this foundation, IOE has planned for the periodic revision of curriculum of all programs in the program cycle. The revision of curriculum for bachelor and master programs has planned to complete in 2018. Ph.D. regulations shall be revised on 2018 as well.

2.3.3 Teaching Learning Management and Practices

IOE, Pulchowk Campus has effective teaching learning practice. This is followed by tutorials, workshop practices, laboratory works and exposures. The methodology adopted in the bachelor and master level is overhead projectors and multimedia projectors also. Interactions are also applied in the class. The classrooms are dedicated to the students for a semester. Workshops and laboratories are prepared in accordance with the class-routine of the students.

2.3.4 Teaching Learning Resources and Support

Modern methods are used for teaching and learning with the use of modern equipment's such as multimedia toolset in all classes. The concept of e-learning system, in IOE is being explored. Library will be enriched with added books, international journals and publications. The concept of video conferencing was introduced in the year 2012. The international journals is subscribed from 2012 onwards. It is planned to add more technical

International journals in the collection. E-Learning system has been implemented to improve teaching learning environment.

2.3.5 Examination System and Results

All be analyzed and problem areas shall be identified and corrective measures shall be applied to achieve better results of the students. All results shall be made accessible in the website. The system shall be made efficient by 2018, such that, Students are able to see their results in the web site and download their mark-sheet in the same day of result. IOE is implemented the online IOE has been able to successfully undertake and implement the examination function decentralized to it from TU since the late eighties. Although operating in the traditional fashion, IOE has been able to manage and control the quality of graduates to its satisfaction. Despite the complexity involved in administering examination and with a wide range of programs, IOE has set up a system of timely examination and results declaration.

All examination system is in semester system and is conduct by the examination control division of IOE. Due to the increased volume of work, exam system is not functioning as efficiently as expected. It needs further improvement in present structure, resources and technology used. New strategy will be implemented to improve efficiency of exam board, as per suggestions of exam system revision committee formed by the Dean's Office.

IOE is very serious on the evaluation system. Institutional directives shall be developed for entrance examination system for its further reliability and credibility. This shall be initiated from 2018. All the components of exam evaluation systems shall be molded into a welldefined format and this shall be integrated with curricula. The processes of question setting, moderation, answer-sheet checking and scrutinizing of the answer-sheets shall be well regulated and monitored and this process shall begin from 2018. Data base of the results of all exams application form for semester examination. IOE is planning to implement the assessment marks submission from campuses through online system to exam control division.

2.4 Human Resource Management

2.4.1 Administrative Personnel and Staffs

The most critical input required to realize the academic objectives of an educational institution is efficient and effective service of academic and administrative staff. A study shall be conducted for the improvement of the capacity of the staffs. Depending on the recommendation of the study report, improvement measures shall be adopted from 2019.

(<u>_</u>),		
Campuses	Staffs	
Pulchowk	161	
Total	161	

Staff strength of Institute of Engineering (2018):

An action plan on human resource development and management for short term and long term shall be worked out. Training packages for the current human resources of IOE, Pulchowk Campus and special package for human resource management shall be developed. New programs shall be developed for faculty as well as administrative staffs.

2.4.2 Management Personnel

The chief executive of the IOE, Pulchowk campus is campus chief. There are three assistant campus chiefs looking after Pulchowk campus activities. Other management bodies in the campus are department head, deputy head of the department, instruction committee chairman, MSc. program coordinators, etc.

2.4.3 Academic Staffs

Academic staffs are the backbone of academic institutions. IOE is aware of this fact. IOE has about 604 Academic staffs including in all constituent campuses. Initially, IOE was running diploma courses and largest consignment of Academic staffs was in the instructor stream. In the course of time bachelor programs are becoming main stream in all campuses and Academic staffs in lecturer stream are increasing.

Following is the picture of Academic staffs in IOE;

Campuses	Faculties
Pulchowk	329
Total	329

2.5 Institutional Management

Institute of Engineering is the Technical Engineering Organ of Tribhuvan University (TU) and functioning under TU decentralization rules 1998(2055). The highest body in the IOE for policy decision is management and development council. The implementation body in IOE is the executive committee. The executive chief of the IOE is Dean. There are four assistant Deans to look after planning, administration, and academic administration and examination divisions in IOE. There are different research centers under IOE. They are governed by respective boards. The subject committees are formed based on the courses. The faculty board is responsible for the decisions pertaining to academic decisions. There are four constituent campuses under IOE; Pulchowk Campus. Each campus has one campuschief and three assistant campus-chief.

2.5.1 Institutional Structure

Following is the institutional structure of IOE;



2.5.2 Management Committee

TU decentralization rules 1998 (2055BS) has established executive committee under the chairmanship of Dean. The committee consists of one assistant Dean as member secretary and as members; the campus chief of Pulchowk campus, two senior teachers from IOE as recommended by Dean.

2.5.3 Administration

The administration of Institute of engineering is run in accordance with the TU academic and administration rules 1993 (2050BS). The head of institute is the Dean and all the academic and administrative works are done through four assistant Deans. There are four constituent campuses and are headed by campus chief along with three assistant campus chiefs in each campuses. There are different sections looking after the administrative works, namely; staff administration, academic administration, general administration, accounts, stores, planning, etc. Following the direction of TU decentralization rules 1998, IOE has examination division to conduct examination.

2.5.4 Academic Management

Academic programs are run by respective departments in Pulchowk campuses. Master and Ph.D. programs are directly run by dean's office. The academic decisions are taken from the faculty board. The curriculum and matters related with subjects are worked out and forwarded by subject committees; this is then decided by faculty board. The pedagogy and related matters are dealt by instruction committees in respective departments.

2.5.5 Associations (Academic staff, administration Staff and Students)

The political reflections of the society do exist in the IOE. There are different political groups working within teachers, staffs and students in all constituent campuses and these groups are affiliated to major political parties in the country. There are also elected body of teachers association, staffs association and students union in all campuses. Frequently, emotional manifestation of these groups can be seen in the campuses. These groups sometime come to IOE office to build pressure and fulfill their demands. The activities for such manifestation are; for & against statements, demonstration, picketing, padlocking offices, etc.

2.6 Economic and Financial Management

IOE follows the financial regulation of Tribhuvan University. This regulation is basically similar to the Nepal government financial regulation. The book keeping is done in accordance with this regulation. In addition to this, IOE has got the decentralization in accordance with the decentralization rules 1998 (2055BS). This rule has granted some authority to executive committee to decide on financial matters in the IOE.

2.6.1 Fixed Assets

Institute of Engineering (IOE) is a technical organ of Tribhuvan University. It is situated in Pulchowk, Lalitpur. It has four constituent campuses; Pulchowk campus in Lalitpur, Thapathali campus in Kathmandu, Purwanchal campus in the eastern region (Dharan) and Paschimanchal Campus in western region (Pokhara). Time and again, the Government of Nepal has capital.

Land & buildings

Pulchowk campus situated in the Lalitpur sub-Metropolis has land of area about 265 square kilometers. This campus has three storey five academic blocks, one three storey administration block, seven workshop and laboratory blocks, one library block, one CIT block, ICTC block, five student hostel blocks, three canteen and cafeteria, 30 units of teachers and staff quarter, twelve guard houses, etc. This campus has its own source of underground water extracted by two boring pumps system. There is also water supply from municipality source. This campus has its own independent sewerage system that includes sewer line connected from all buildings and transported to the septic tank constructed inside the complex. The septic tank is connected with soak pit. Campus has students hostel to accommodate 450 boys and 60 girls. There are well managed football ground and cricket

ground. Volleyball and basketball courts are also well maintained. Indoor halls are not available for sports. The road network inside the campus is black topped.

Books

There are libraries in all constituent campuses. Pulchowk campus, Thapathali campus, Purwanchal campus and Paschimanchal campus have books more than; 72,000, 30,000, 32,000and 40,000 respectively.

Laboratories and Workshops

There are different laboratories and workshops in all constituent campuses. Pulchowk campus has more than 70 well equipped laboratories and workshops. Most of the laboratories in this campus are equipped with computer facilities and are adequate for the purposes of rendering research, training, consultancy development works in the wide ranging engineering. Most of the laboratories in these campuses are designed for diploma level study.

Other infrastructures

Pulchowk campus has one large bus, one small minibus, two cars and few motor bikes. Few diesel generators are also available to produce electricity. Pulchowk campus has broad band internet connection from Nepal Telecom which provide fast speed internet facility in all administrative, academic blocks and hostel & quarters. Campus has also V-SAT system; however, it is not in operation as it is costlier in the operation. Campus has a well-equipped and well managed centralized Information and communication technology (ICT) center. This center is responsible for the internet service in the campus. There is high speed internet facility (Local access network (LAN)) over all administrative and academic building along with teacher/staff quarter and student hostels. The internet connection has been made easy access by installing wireless system. Campus has started to provide the access to the wide range of scientific journals to quality information and helped the researchers to complete their research for teachers and students.

2.6.2 Operational Expenditure and Trends (management plus programs)

IOE, having four constituent campuses and numbers of research centers, has annual operating expenses on an average 5,00,00,000.0 (Nepalese rupees five crores). This cost includes running of diploma, bachelor, masters and doctoral programs. Master and Doctoral programs are self-sustaining and bachelor programs are partially sustaining. The diploma programs do not cover their operating cost and consume substantial amount. The amount of operating expenses is increasing by 10% every year. At present IOE is managing teaching & learning activities. Research works are to minimal level. The activities required for growth and development are yet to be planned, designed and implemented. Therefore, running cost is at the minimum level. Largest segment of the operational cost is salary and remuneration of the staffs. It is obvious that increasing the academic programs shall increase the running cost also.

2.6.3 Sources of Income

As a public academic institution, the source of income of IOE is primarily the government and the students. Nepal government pays salaries of the administrative and academic staffs. Teaching materials and other expenses are covered from students' fees. Visualizing financial crunch, IOE has devised full fee system in 1999 to cover the recurrent cost of the institution. Nepal government has made all the capital investment for infrastructures in IOE.

A part from this, IOE has planned to identify new sources of income. Research is such area to generate income. IOE is purposing to the government to identify priority issues and problems in the formulation of policies. IOE has decided to operate problem based research works in master and doctoral programs, such that those researches shall be directed towards those priority issues and problem as identified by government.

The other areas of income are endowment and charity funds. This is not easy for IOE as a public institution. IOE shall formulate concrete regulations and that may pave path for such funds.

Following the principle of cost sharing, IOE has introduced full fee system. According to which 25% of the students are enrolled as regular students paying minimal fee and 75% students are enrolled as full-fee students paying higher tuition fee. Besides, IOE is planning to introduce more and more market relevant academic programs in bachelor and master level. This shall also generate some funds.

The infrastructures and services available in IOE shall be utilized to provide consulting service to the private and public sectors. This shall also generate some income in IOE. The training unit and quality management unit may also be used to offer respective services to public sectors.

2.7 Research Documentation and Publications

2.7.1 Research and Development

Institute of Engineering focused largely on the teaching and learning process. Researches are not frequent among the faculties. In fact, research budgets are the allocated in the institute. There are very few researches undergoing in the Institute of Engineering. PhD WITH RESERCG

2.7.2 Documentation and Publications

There is poor documentation system in the IOE. Though, a copy of research document is kept in the library. Master and doctoral research thesis and dissertations are also available in the library and respective departments.

A journal of Institute of Engineering is published every year. This is the indexed journal. This is available in the website and widely circulated in the academic and professional sectors. All the departments of every constituent campus also publish different kinds of publications. There is also a monthly IOE news bulletin and is being published regularly. All other affiliated colleges publish annual publication containing research articles and other creations. Students are encouraged for the publication works.

2.8 Co-Curricular and Extra-Curricular Activities

IOE has also different co-curricular and extra-curricular activities in all campuses and colleges. Different kinds of games are organized by elected student body-student union and other organs of students in different forms. Games and literature activities are the parts of extra-curricular activities. There are also other activities that support the academic performances of the students. These activities are the engineering exhibitions, technical seminars, professional talk programs, etc. These activities are co-curricular activities.

2.8.1 Indoor Activities

There are many activities organized inside the buildings. Basically, indoor games are played inside building. Some of such games are as follows; Table tennis, Carom-board, Chess, Tennis, etc. A part from this, model competitions, seminar talk programs and workshops, are also organized by departments and students. The robotics clubs and similar clubs are also working and organizing different indoor events.
2.8.2 Outdoor Activities

There are many activities organized on the ground. Basically, outdoor games are played on the ground and courts. Some of such games are as follows; Football, Volleyball, basketball, cricket, athletics, etc. There are also annual exhibitions in IOE demonstrating students' achievements, technological models, project models, etc.

SECTION 3

DEVELOPMENT TREND

3.1 Physical Infrastructure Development

The physical infrastructures of the IOE were developed by the capital investment of the government. During the initial stage, some of the infrastructures and laboratories were developed with the assistance from different donors. It was in 1972, government introduced new education policy and Institute of engineering was established. Some infrastructures were developed during this period. By the end of seventies, eastern region campus and western region campus were established in Dharan and Pokhara respectively. During eighties, engineering education project was launched to develop the infrastructures of the Pulchowk campus. Substantial parts of the infrastructures and laboratories were therefore developed during those periods. It has been more than 30 years of developing infrastructures. There is virtually no capital investment then after in the IOE. Repair and maintenance activities are also not going on due to absence of budget.

3.2 Program/Academic Development

All the engineering programs before 1978 were focused on producing middle level and low level technicians in IOE. The apprenticeship and diploma / certificate level were running. After 1978, IOE begin bachelor programs, initially, bachelor level in civil engineering. At present, there are eight bachelor level programs; civil, electrical, electronics and communication, computer, mechanical, agricultural, industrial, architecture, etc. IOE is introducing bachelor level in geometrics and aeronautical engineering shortly.

IOE started master program in 1996 introducing master in urban planning. At present IOE is running twelve master programs and eight master programs are in the pipeline to run. As a part of faculty development plan, IOE started doctoral program in 2003 with the enrollment of ten doctoral researchers. At present, there is regular doctoral program running with in IOE.

3.3 Student Enrollment

The student enrollment system is very competitive in IOE. IOE organizes central entrance examination for diploma, bachelor and master program. Students from all over country take part in this entrance examination. The entrance exam is electronically operated.

3.4 Human Resource Development

Right from the beginning, IOE had formulated concrete human resource development plan. According to which, more than 500 numbers of teachers and staffs were sent abroad; US, Canada, India, Philippines, Germany, UK, Japan, China, etc. Many of the teachers were sent abroad for their master and doctoral degree.

As a part of career development, many instructors were given opportunity to study bachelor degree. IOE has introduced new provision of study-plan for teacher working in the contract basis. This provision gives continuity to the job while studying in IOE. According to this

plan, teacher studying in master level shall take 9 period classes of bachelor level in the lab as teaching assistance.

There is also a provision of the study leave for permanent academic staffs. Large numbers of teachers have entertained this facility in their study abroad.

However, refreshing trainings are lacking in IOE due to absence of budget.

3.5 Student-Teacher Ratio

IOE curriculum, as it was designed initially, has the provision of 1:10 teacher student ratio. It has become the trend that more than 25 percent teacher stay in the leave (most of them are in the study leave).

3.6 Institutional Development

Visualizing the importance of engineering education to accelerate development process of the country, IOE formulated new strategy for the institutional development. IOE was decentralized in 1999 in accordance with the TU decentralization rules 1998. Following this rule, IOE is having greater leverage in the administration and academic decisions.

In the course of time IOE has introduced sustainable programs which are market relevant and yet capable enough to cover the recurrent costs. Besides, administrative improvements activities are underway to increase efficiency and effectiveness of activities.

3.7 Economic and Financial Development

The financial condition of IOE is disappointing to move ahead with conventional university system. IOE has introduced full fee and sponsorship system in the programs. This system has been instrumental in sustaining operating cost of the IOE. Besides, master programs that are market relevant have been able to be a source of fund for running campus. A provision of research budget has been made to accelerate research activities in IOE. It is planned, through these research activities, to generate some fund.

SECTION 4

SWOT ANALYSIS OF IOE

4.1Strengths

The key areas of success in the last two decades of the Institute of Engineering are recapitulated below. These show proven strengths of IOE:

Admission process

IOE can, with pride, claim to have set up and implemented the most credible admission process within the various Academic staffs and institutes of TU. It has proved that the existing system to be capable of controlling quality of admission and staying clear of political and external pressures that have bulldozed such efforts elsewhere. Although senior management appointment appear affected by changing national politics., the success and strength of the admission process indicates that at the middle and policy implementation level, IOE has ingredients making up academic confidence and integrity.

• Examination process

IOE has been able to successfully undertake and implement the examination function decentralized to it from TU since the late eighties, as it was the first of such steps ever taken by TU. Although operating in the traditional fashion, it none the less shows that IOE has been able manage and control quality of graduates to its satisfaction. Despite the complicity involved in administering examinations and with a wide range of programs, IOE has set up a system of timely examination and results declaration worth noting.

• Physical Facilities

In the area of physical facilities, IOE as strong edge over all emerging institutions as well as over regional level colleges of engineering in India, largely because of significant investment in the past two decades. Facilities of Pulchowk Campus are particularly amenable to research and development in engineering.

• Quality of Graduates

Institute of Engineering has played its role as a national institution for engineering manpower training and education quite successfully in its more than half a century of existence. The middle level technical manpower comprising of overseers in the country are all solely produced in the country and IOE products enjoy comparative advantage in employment, a clear reflection of the qualitative achievement in course delivery. It is today the single largest institute of education of engineering manpower in Nepal and its Civil engineering graduates form a decisive volume of engineers in the country already. The performance of students completing the Bachelor program and undertaking further studies in foreign students have been singularly excellent. At AIT, Bangkok, where IOE graduate are pitted competitively with graduates from other countries, their performance has been exemplary and meriting report in their annual publications.

• Program with and Credibility

Since last year post-graduates with specialization in Urban Planning and Structural Engineering are out in the market. Starting from this year, students will graduate out in other areas such as Mechanical engineering, Electrical engineering and Electronics. Nest year, Architects and specialists in Water Resources and Environmental Engineering will start serving the nation. Judging from increasing number of applicants and willingness to pay for higher fees, it is recognized that IOE has already been able to establish some credibility in its newly established post-graduate programs.

• In-house Program Development

The fast growth and comparatively quick stabilization of post-graduate programs speak of the growing academic maturity of IOE. Although the first of the Masters Study Programs were developed with primer Norwegian assistance thorough CARD, the Center for Applied Research and Development, in terms of course design, structuring, delivery and evaluation, these programs are to a large extent in-house initiatives, Their success tell that IOE has already developed academic capability and quality sufficient to initiate, Design and deliver academic programs and packages without expatriate assistance.

International Contacts

With the institution of the five graduate programs and the fast increasing post-graduate offers at IOE, the international contacts of the Institute of Engineering has gone beyond those formed purely for receiving 'technical assistance' or for faculty development. The sound education given in the Institute has found expression in out past students excelling in further studies abroad. Of late Institute has truly gone international in many other ways such as organizing international conferences, hosting international professors for course delivery and meaningfully providing local based to visiting international students. With several Memorandums of Understanding signed with local, regional and international institutions, the Institute of Engineering has been able to marshal international expertise into joint academic exercises.

• Finance

Faced with challenges to meet growing demand of funds, which could not be met with the falling level of direct financial support from the Government, IOE started on the path towards partial cost recovery and internal resources generation. The institution of 'full-fee-paying' classes in Bachelor degree studies on electronics, architecture, civil engineering and computer engineering and imposition of fee structure based on 'fulloperational-cost-recovery basis' are two actions which have brought significant level in of internal resource mobilization. Current estimates of such resources total over 30% of the total recurrent budget allocated from regular sources. Indeed with several other viable areas of resource mobilization under consideration, it is possible to foresee a future within significant portion of the costs (at an estimated 60% of current recurrent costs) will be recovered and OE can be largely financially self0sustaining. However, given that fact the quality improvement moves will greatly increase demand and recurrent cost financing, IOE still has to a long way to be able to achieve a real financial sustainability.

4.2 Weaknesses or Gaps

IOE's futures moves must in parallel reduce or nullify several weaknesses in the system if plans are to be effective in implementation. The following are some of the weaknesses identified in the preceding sectorial reviews.

- <u>Image</u>: IOE continues to carry the social image of an institution plagued by strikes, nonoccurrence of classes, poor facilities, politicized atmosphere etc. this owe to general TU situation and to some extent to the pre-democracy period in IOE. This negative image is singular in hampering the internal resource drive and attracting brilliant and 'able-toafford' students. IOE has no public image improvement campaign to speak of and this weakness in bound to have serious implication for the future as it moves towards sustainability and competitive environment.
- <u>Motivation and commitment</u>: The major weakness within IOE is staff motivation and commitment and continuing staff attrition. Lack of staff application to institutional committee and community works is primarily a result of poor salaries and lack of prospects of research and professional works from within the institute, which has prompted many members of faculty to take up professional practice outside IOE. Most faculty members are found giving only minimum input as against their duty in the institute. They are present in the campus only for their assigned classes. This situation highly delimits innovation and development within IOE. Likewise IOE has been suffering from staff attrition in important areas of its program focus. Earlier staff attrition has been attributed to such reasons as low salary, unfocussed recruitment ad staff development program, lack of research opportunities, limit promotional prospects, lack of 'higher academic programs', etc. Lately, however, 'low salaries' and lack of research opportunities appear to dominate staff opinion on reasons of attrition.
- <u>Research culture</u>: Lack of research culture and limited inputs towards raising research activities as the institute moved to higher levels of education has resulted in a situation, where questions on the capability of IOE to deliver Master's and Doctoral programs may be legitimately raised. International visiting faculty has been unanimous in calling for serious efforts to raise level of faculty research. Research competency and continuous research not only keep the faculty abreast of new developments but also makes them well versed with local problems, both of which help in maintaining problem quality and relevance.
- <u>Linkage with Industry</u>: Along with research, IOE's other weakness in a virtual lack of linkage with industry, government and engineering community at large. Without such linkages, IOE is not in a dynamic position to tune up its programs and activities to the demands of this has been the lack of practice infusion into its academic programs, which could have been possible through IOE staff placement in Industry and seconding professionals with industrial experience into its teaching faculty. Because of the weak linkage with government, unlike in many developing countries, many of IOE's highly educated faculty members have not been commissioned to advise the government n major engineering projects largely executed by foreign firms.
- <u>Resources and endowments</u>: IOE has only recently been able to bring about some changes in the funding pattern dominated by government grants and government backed loans, through objective prioritization of activities to raise internal resource mobilization. Still such resources are dominated by student fees, not an attractive area for a costly education as that of engineering and a country where education reach of the poorer sector of the country is a priority. Cases of well-run and self-sustaining institutions show that creating stable income through *endowments* is the most desirable and successful resource for sustainability, predictability of the income and autonomy. Unless such stable sources of the funds are created. IOE will have continued problems of sustainability.
- <u>Efficiency of Internal Resources Utilization</u>: Although internal resource mobilization has increased to significant proportions, its locative efficiency remains low. The increasing internal resources were expected to increase staff remuneration well enough to increase faculty presence for community and institutional activities but this has yet to happen. It is generally felt that the benefits accruing are to a very limited number of faculties and also

is not able to reach the targeted group. Likewise the impact of fund on facility development, maintenance and upkeep has not been visible at all.

- <u>Capital Replacement Costs</u>: Over the past two decades IOE has been continuous developing and adding to its physical facilities and equipment. Some maintenance action to keep up the facilities has been undertaken. But there has been no planning for financing capital replacement and depreciation so far and very shortly IOE will have to face up to this. Current levels and nature of financing is not going to meet the large demand of capital replacement, which has already taken significant proportion due to obsolescence and use with limited maintenance. Unless regular updates of laboratories and equipment are done, IOE stands to lose its edge other private institutes quite quickly.
- <u>Administrative Regulations</u>: IOE is administered under TU regulation, primarily developed on civil service pattern of the government. Such regulations, particularly those pertaining to faculty hire, promotions, dismissals and salaries, restrict its capacity to turn entrepreneurial, a direct demand of the competitive environment and internal resource mobilization. These regulations and IOE's lack of authority to draft and implement appropriate policies and regulations make IOE institutionally weak. Autonomy must extend to and include ability to develop and see through its own policy.
- <u>Students' performances</u>: The performance of students in out-laying campuses has recently gone down raising questions on its capacity to handle the wide spectrum of courses. The recent low pass rate in its Diploma programs reflect more on different levels and quality of academic delivery pertaining in its outlying campuses and are a weakness of academic coordination and failure of the Instruction committee function. To a lesser degree, this dysfunction extends to the subject Committee function also. Another causative factor is the administrative organizational set-up that is not particularly effective for academic coordination and quality control. As a matter of fact, it would not be wring to note that it is a common but serious weakness pertaining in the TU system.
- <u>Use of physical facilities</u>: Inefficient and less than satisfactory use of physical facilities, particularly laboratories, plagues IOE and it has not been able to enrich is academic programs to the level possible through available physical facilities. Its laboratory technician cadre is does not match the facilities.

4.3 **Opportunities**

The field of engineering education is one of the fastest growing areas in Nepal. The state of national development and globalization of science and technology create demands for study and research in both the conventional and the contemporary areas of engineering and opportunities of expansion and extension are very wide.

- <u>National Scene:</u> Conventional areas of engineering: Nepal's developing economy continues to demand high level engineering manpower in such conventional areas as construction and physical infrastructure engineering. Unique geography and geology of the country demand innovation even in these conventional areas and provide great opportunities for institutions of engineering education. The fast growing number and variety of private institutions offering engineering education are a testimony to this demand and IOE has operational advantages that enable it to capitalize on 'higher level' demands better than other private or public institutions of higher learning. There is scope and need of horizontal expansion with offers of more focused discipline areas.
- <u>National Scene:</u> New areas of engineering: Nepal's developing economy, globalization in information and flow of international funds have coupled up to create situations of 'quantum jump' into frontier technologies. These have in turn created demands for education in these areas. The demand for Renewable energy engineering. Computer engineering and Information technology are already gaining significant momentum in the

country. Bio-chemical and bio-technology areas are likely to offer still newer set of opportunity areas for IOE.

- <u>National Scene</u>: Newly established private institutions of engineering education: The rapidly growing number and nature of private engineering education institutions offer opportunities of IOE in providing expert services to these institutions for their quality development. At present several of the faculty members provide part-time lectures to these institutions in varied areas of expertise on a personal basis and these could be institutionalized. The expertise of faculty and extent of facilities at IOE offer positive prospects for offering faculty quality improvement programs to the newly coming up institutions.
- <u>National Scene:</u> National projects and Research: Nepal's Nature and Natural landforms, Himalayas and geology and development and culture are unique combinations creating particular problems demanding specific research and problem solutions. Despite the fact the IOE's weakest aspect is research, mountain road engineering, building materials engineering, glacial flow and energy studies, hill irrigation, rural development, engineering and planning, communication engineering are come such areas that present opportunities for research in national developmental context.
- <u>Widening Program Scope</u>: Both in terms of long-during educational programs and shortterm training and refresher courses, there is great potential in Nepal that can be capitalized by IOE. IOE's continuing education offers have been quite attractive to trainees and can be transformed into a financially and academically rewarding venture. There is equally wide scope for setting up research based post-graduate and doctoral programs targeted to both national and international students.
- <u>International Scene and Unique position of Nepal:</u> Nepal's unique politico-geographical location offers great opportunities for international workshops, training and short-term courses particularly for fellows from South Asian and Trans-Himalayan countries. Significant prospect in supporting engineering education and training needs of such agencies as SAARC and ICIMOD exist. Given low costs, the enrolment of international students in its regular courses as well as for research is another area, which IOE could fruitfully explore. A fair number of research students are already enrolled at TU's Central Departments in areas of architecture, planning, urbanism and culture and such enrollments could easily be switched to IOE.
- <u>International Visiting Students:</u> Several students from India, British, Japanese and American Universities annually visit and consult with IOE faculty in connection with their field studies in Nepal on an informal basis. Regularizing and formalizing these contacts can open new financial and academic opportunities for IOE.

4.4 Threats/Challenges

Although as an Institution IOE does not face severe challenges from other similar institutions in the country, detailed observation of private colleges / Kathmandu University / Pokhara University does indicate minor challenges that may take serious dimensions in future and need to be noted.

• Nepal is one of the poorest countries in the world and national challenges are rooted in poverty. Engineering and engineering education in the country has been elitist and there is little that IOE can rightfully claim to have done for the uplift of the poor people. Although this aspect has been recognized in the past²⁴, little has been done to change the situation. In the context of the spelled development and poverty alleviation, it comes as a great challenge to IOE that is focus on the poor man of the nation and his needs. It is also observed that as the absorptive capacity of the Tarai is fast coming to saturation, Nepal will see great developmental, environmental and ecological pressures doubling up in the

hills and the mountains. In this context, various engineering questions need to be addressed, such as;

- What sort of ecological planning approaches are needed for the mountains, hills and Terai, in Nepal?
- What engineering could do raise the productivity of the common people there? Taking under consideration; Alternate energy? Hill irrigation? Hill roads? Material development? Hill ecology? Rural Settlement development? Glacial engineering? There are myriad of possibilities.
- Are there ways of reaching them more directly than through just research and teaching?
- Such questions will have to be answered and challenge to IOE will lie on how well it can focus to the common people and their needs.
- As last foreign assistance and loans projects ceased at IOE by 2000 AD, it threw a strong challenge to IOE to sustain both its physical facilities and academic program. As IOE no longer commands government attention to it as in the eighties, IOE could not be expecting foreign money as easily as in the past. Increasing competition will mean that IOE will have to prove itself as an effective institution of national and international relevance to attract international funds. International grants will have to be brought-in until internal improvements and resource generation reach sufficient levels in the process of attaining financial sustainability.
- How to get the best of students opting for engineering education into IOE is another challenge to IOE for the immediate future. Government as well as non-government resources are both going to remain important for substance of IOE for the near future and statistics show that on both counts private university and its Engineering related programs in Nepal are better funded that those of IOE. Higher salary offered at private universities and institutions has started affecting faculty recruitment as more qualified younger entrants prefer higher salary institutions other that IOE employment. It is important for IOE to ensure that raising resources through full-fee students does not lead to run down in quality of admitted students or product quality.
- Challenges to IOE as an institution of engineering education extend to flow of students abroad, largely to neighboring countries. The educated elite of the country still preferred to send their children to universities of neighboring countries. In large part, this challenge is also a factor of IOE's weak image in the society.
- IOE has not been able to attract international students, whose presence is not only prestigious but also likely to raise more resources. At the same time, their presence helps improve its image to be able to attract Nepalese students going out the country for engineering education. A very few SAARC students have come to IOE in the past with scholarship support. Mobilizing international resources through foreign student enrolment remains a challenge to IOE and its magnitude would increase over time.
- To attract international students, IOE has to demonstrate is capacity and publicize itself through developing, offering and maintaining quality programs of relevance to international students. This calls for positioning itself through such programs and achievements as a specialty institution. Its experience in running national programs as well as operational zing it's various MOUs can help in taking up this new and desirable challenge.
- Efforts at organizational restructuring, delegation of authority and building up of collegial leadership have not been successful in the past and it will be a great internal challenge for IOE to break this inertia. Institution of a dynamic and decentralized administration capable of delivering academic excellence and conducive to academic leadership may demand full administrative autonomy from TU. Otherwise IOE will find it difficult to prove to the country that although it is within TU, maladies of TU do not affect it. Although such moves were under serious discussion in the late eighties, IOE has been

able to get only limited autonomy through decentralization rules 1998, in terms of mobilization of internal resources so far.

- There is also a discussion undergoing on the role of IOE in producing competent engineering graduates. The voices are echoing; government should pay special attention to engineering education. As center of excellence of engineering education of the country, IOE and its constituent campuses should emerge as national engineering institution coming out from university limitations.
- The various instruments of exchange signed with regional and international institutions are not operational as serious two-way exchange and IOE has been playing a receiving role only. IOE has to build confidence and strength to transform its actions into an exchange role.

4.5 Basis and Core Priorities for the Institutional Development

IOE is the center of excellence of engineering education in Nepal. It administrative structure, working system and processes are all in the conventional mode. They have not reformed since long time. Development is a continuous process and IOE need to reform for effective delivery. Following the decentralization rule 1998, IOE has got the decentralization from university; however, policy decisions are still centralized. Despite this, IOE is dedicated to achieve quality education through; Innovation & governance, Technology & infrastructures. To achieve the goals, IOE needs to have proper institutional development.

4.5.1 Basis of institutional development

- Governance & Leadership
 - Governance is important component for the effective and efficient delivery of the services. Being academic institution, IOE is now in the cross-road. It has the responsibility of producing competent and capable engineering human resource needed in the country and also response to the global demand. The traditional way of operation is not enough for this. IOE needs to have administrative reforms that include clear job description of the individuals and departments, removing of defunct units, career development plan, etc. Leadership commitment to achieve predefined objective is imperative. The traditional governing system, being the constraints in moving ahead, need to be changed and autonomy of IOE has strong meaning in the governance of IOE.

• Quality

Quality in the academic institution is reflected from the performance of the graduates and the academic staffs. The graduates manifesting competitive capacity in the market is the true indicator for the quality of the institution. The performance of the teachers is manifested in the form of research and publication of their works. Therefore, key success of the institution is the ability to attract, recruit and retain good students and teachers. IOE has been successful in attracting best students in the country. Quality matters should not be reflected in impulsive way, it is a concrete matter and should be treated as continuous process. A permanent Quality management unit should be established within IOE to look after quality matters.

• *Financial sustainability*

Availability of resources for capital investment and the recurrent cost is imperative for the smooth functioning of the institution. The institution needs to be well resourced to progress rapidly. IOE as a public institution needs government support for its stability and growth. Besides, availability of competitive research funding is indeed important factor. As government covers salary components only, IOE is facing problem in covering recurrent cost. The research fund in Nepal is virtually not allocated by the government. Financial sustainability is governing issue for academic institution.

4.5.2 Core Priorities of Institutional Development

• Upgrading laboratories of all constituent Campuses

Engineering education has its root on the scientific knowledge and skill duly tested in the laboratory and workshops. More than 60% academic delivery is through laboratory and workshops (practical based). It is obvious that laboratory and workshop equipment's demand huge investments. The last capital investment that government of Nepal had was some 25 years before through engineering education projects financed by World Bank. Except some very essential equipment's procured from IOE's limited funds, substantial parts of the laboratory equipment's are those procured during project period. Those tools and equipment's are becoming obsolete in the context of fast pace of technology development. IOE is in the serious pressure to upgrade all the laboratories in all constituent campuses.

• Establishing Quality Management Unit

This is the age of quality. Quality for IOE is primarily the performance of the graduates. The norms and standards required for the delivery of faculties, staffs and students need to be monitored periodically. All the processes of academic delivery need to be studied and upgraded to meet the standards and relevancy. Achieving quality is a continuous process. Therefore, the feedbacks and suggestions from the workplace of the graduates are subjects to analysis and accordingly needed to take improvement measures in to the system.

The performance of human resources is utmost important for the quality education. Competent and capable human resources are prerequisite for the governance and delivery. Understanding this fact, a concrete plan of human resource development is needed for better performance of IOE. As an effect of globalization, there has a great mobility of human resource. This mobility is both inside and outside the country. IOE should plan concrete policy and procedural measures to retain capable faculties.

IOE need to establish quality management unit to consider quality matters.

• Establishing Continuing Education and Development Center

The traditional notion of education was producing elites in to the society. There has been paradigm shift in this definition. Education has been taken as the means of survival. This means education should be able to develop knowledge and skills to increase the productivity of the individual. In addition to this, there has been great consensus that education can be effective if it is linked with workplace. Globalization has triggered this notion. This has established a linkage between academia and professionals. This is true that the knowledge and skills that academia have, needed to be disseminated to professionals, and also the experiences that professionals have, needed to be shared with academia. This process is very effective in increasing productivity.

Understanding this fact, IOE is planning to establish a training center in the name of continuing education and development center.

• Establishing Campuses in Mid- & Far Western Region

Nepal began regional development planning since 1972. There has been much works in the infrastructure development area then after. However, the development process in the mid-western and far-western region is lacking behind. Human resource development index is lowest in these regions. In the meantime, Nepal faced insurgency during 1996-2006. During this period there was a loss of more than 15000 lives. Among them, the substantial numbers were youths. This is the economically active population. This is going to create demographic gap in the region. Understanding this fact, IOE being the national institution, is purposing to establish constituent campuses in these regions. This will produce skilled engineering human resources in the region.

• Upgrading Dean's Office

Institute of Engineering is the engineering organ of Tribhuvan University. It is situated in Pulchowk, Lalitpur. One of the constituent campus-Pulchowk campuses is also situated here. IOE is governing four constituent campuses and ten affiliated campuses. Visualizing the national demand of engineering human resources, there is a need to establish more and more constituent campuses and affiliated colleges. The numbers of campuses and colleges are important, but the quality is much more important. Public institutions are facing the problem of governance also. IOE is not exception on this. Being the center of excellence of engineering education in the country, the role of IOE is imperative. The traditional management system and the infrastructures are not enough to address this demand. The infrastructures, such as; building, space, office system, etc. and capable human resources are prerequisite to achieve quality engineering education. IOE is planning to construct a well-established office as dean's office.

SECTION 5 THE STRATEGIC PLAN

The Institute of Engineering is taking a leadership role of engineering education in the country. It has redeveloped its strategic plan, based on input from the leadership, faculty, staff and other stakeholders, to achieve excellence in education, training, research and outreach as a means of moving the institution from its current national lead position to internationally recognized status.

To meet this challenge, IOE will raise its expectations substantially— more rigorous academic curricula will be developed, annual research expenditures will be allocated and will successfully rise external funding for construction of new buildings and renovation of existing space including high-tech research labs. In addition, IOE will seek more support for professorships and graduate student fellowships.

The following Strategic Plan presents IOE's mission, vision and strategic initiatives to meet the set goals. It focuses on several key elements that are essential for the continued advancement of the institute among the ranks of the best engineering programs, and places an emphasis on the importance of quality and excellence in all aspects of the institute and its campuses. Within the plan, there are numerous references and specific action steps in which the emphasis on excellence is highlighted. Moreover, the plan recognizes the importance of education, research and outreach, and focuses on strengthening the constituent campuses as well as affiliated colleges in these areas through an integrated approach.

5.1 Vision Mission and Goals

The Vision

The vision of the Institute of Engineering is to be a premier engineering education institution at par with world class role models.

There has been paradigm shift in the conventional university education. University education, since its inception, was thought to produce elites in the society and formulation of ideas, opinions and theories. It was the means for prestige and pride in the society. This postulation has been changed and the new concept is emerging, higher education as the means of survival. Higher education, indeed, increases the knowledge and skill of the individual eventually increasing productivity. Therefore, it is considered as capital and creates wealth in the family and society. To be more precise, engineering higher education is imperative for the economic growth of the country. The globalization and its effects have set new economic order and it has triggered the mobility of the labor force and opening global market for all. This has called for competitive and capable human resource can only cope the need of the global market. The universities now have understanding that they should be the part of global higher education and societal environment.

By staying focused on this essence IOE dreams to produce capable and competitive human resources and do research to find solution to unresolved engineering problem.



University: Alignment of Key Factors

IOE vision to be world class institution. The key factors for this are the availability of resources, governance and concentration of talents. This will, in turn, produce capable and competitive graduates in one side and in the other side institute will have considerable research outputs. These research outputs may be patents rights attracting international, regional and domestic prizes and honors. The synergy of these factors also triggers the process of technology transfer in the institution.

IOE Mission

The Mission of the Institute of Engineering is to provide quality engineering education and research in the frontier engineering areas relevant primarily to nation.

To accomplish this mission IOE will;

- Offer broad array of academic programs.
- Employ highly dedicated faculty members who are effective teacher –scholars committed to maintain academic environment with emphasis on student mentoring.

• Provide quality education and training in engineering as required by the developmental policies and programs of the country.

• Endeavor to serve the nation and the people of Nepal, and thereby enhance national development.

Objectives

After presenting above vision and mission we set five broad objectives of IOE:

- Academic Programs: Through enhanced academic programs- on education, research works, training programs, exam and evaluation, develop new knowledge at the forefront of engineering and technology that enhances the wellbeing of individual and society
- Advocacy on Engineering Policies: Through advocacy on engineering policies, develop leadership in emerging engineering issues and address national development issues
- Laws and Regulations: Through the compulsory implementation of laws and regulations, enhance management and leadership skills of faculty, staffs and students, make optimum use of resources and infrastructures
- **Resource Planning**: Through the resource planning and fund management obtain financial sustainability of the institute
- **Technology Transfer**: Through the international collaboration and joint programs, enhance mechanisms for technology transfer and capacity building

Goals

Above objectives are followed by the following goals with measurable outcomes in the areas of research, educational, and resource excellence:

Goal # 1: Enhance Academic Excellence

Goal # 2: Research and Development Think-Tank

Goal # 3: Improved Working Environment

Goal # 4: Financial Sustainability

Goal # 5: Collaboration and Cooperation

The other specific goals of IOE are,

- To obtain excellence in responding, through engineering academic programs and research, to the national development process of Nepal
- To create an academic niche in South Asia by recasting its international contacts and supports so as to provide an enhanced forum for research, study and exchange of information and technology on issues of national importance and of regional and international interest
- To consistently and distinctly stay ahead through program innovation and quality education
- To perform various research and development works so as to strengthen national engineering capabilities and development problems
- To offer various types of trainings, sponsored courses, conducting problem based research and providing engineering consultancy services

5.2 Core Values and Norms

The Values of IOE are

- To be true to the students and the nation
- Assess the needs of the students and respond to them
- Assess the needs of the nation and respond to them
- To be fair and equitable to all levels of educational programs

Through the above, IOE will

- Improve the quality of its education
- Strive for collegial leadership
- Encourage cooperation of international and national institutes of higher learning and research
- Encourage cooperation of industry and other users of its services

Annexes

Vision	To be a premier engineering education institution at par with world-class role models				
Missions	Quality Eng Relevant Pr	gineering Educat rimarily to Nation	ion & Research in n	the Frontier Eng	gineering Areas
Goals	Academic excellence	Think-Tank	Improved working environment	Financial sustainability	Collaboration & cooperation
Objectives	Academic programs	Advocacy on engineering policies	Structural & regulatory reforms	Resource planning	Technology transfer
	Research works	Leadership in emerging engineering issues	Management & leadership	Fund management	International collaboration
	Training programs	Addressing national development issues	Faculties & staffs		
	Exam & evaluation		Students		
			Infrastructures		

1. Vision, Mission, Goals and Objectives

Activities

Mission	Quality Engineering Education & Research in the Frontier Engineering					
	Areas Relevant Primarily to Nation					
Goals	1. Academic exce	llence				
Objectives	Academic	Research works	Training	Exam and		
	programs		programs	evaluation		
Activities	Market relevant courses in B.E. and Master programs	Research policies to establish research culture	Continuous education & training	Academic Calendar of operation		
	Curriculum reforms (BE/MSc)	Research funds	Establishing training center	Assessment guidelines for consistency		
	Regular Ph.D. program	Professors dedicated in research & fund are explored	Academic & professional institutions cooperation	Regular corrective measures to improve pass rates (subject/teacher/ exam/ mgmt.)		
	Cooperation Programs with industries	Research publications (journals and proceedings)	Exposure & experiences	Publication of result from internet/ SMS etc.		
	Consistency in	Proposal to	Cooperation	Parity in student's		

enrolment/	UGC/NAST and	with industry	exam evaluation
evaluation &	int'l aganaias	nrofossional	(question setting,
of P E & MSc	lift I agencies	sectors	checking &
		sectors	morting &
programs			marking, scrutiny,
T	E		Deliebilitze ef errore
Joint programs	Exploration of		Reliability of exam
(BE/MSC/Pn.D.)	fund for research		centers (final exam
with other			/entrance exam)
	D 1 '4'		T () 1
Expanding	Proposal writing		International
campuses in	funds		standard entrance
mid- & far-			exam process
western region			(GRC/TOEFL
of the country	1.01.0		model)
	Master and PhD		Incorporating
	programs are to be		software for the
	focused on the		processing of the
	problem based		results
	research		
	Researches on		Decentralization of
	emerging issues		exam (final exam)
			Building for exam
			office
			Continuous
			monitoring and
			feedback
			Improvement of the
			exam processes
			Committee to
			feasibility and detail
			study to develop
			int'l system of
			entrance exam

Vision	To be a premier engineering education institution at par with world-class role models				
Mission	Quality Engineering Education & Research in the Frontier Engineering Areas Relevant Primarily to Nation				
Goals	2. Think Tank				
Objectives	Advocacy on engineering policies	Leadership in emerging engineering issues	Addressing national development issues		
Activities	Seminars & conferences on national engineering	Inventory of infrastructures in the country	Study of development issues with special relevance to Nepal and Nepali characteristics		

1001100		
Innovation and development based on character of Nepali location, formation, resource dynamics	Nepal's development and growth potentials is a via surroundings and world markets	Workshops and exhibitions
Interactions with NPC/Govt. line agencies	Programs and research in national & international relevance areas	
Leading infrastructure character and development issues characteristics to Nepal		
Discussion forum		

Vision	To be a premier engineering education institution at par with world-class role models				
Mission	Quality Engine Engineering A	ering Education & Areas Relevant Pr	Research in the imarily to Natio	e Frontier n	
Goals	3. Improved w	orking environm	ent		
Objectives	Structural & regulatory	Management & leadership	Faculties & staffs	Students	Infrastructures
Activities	Regulation for use of internal resources generated from full fee programs	Activities for the governance (discipline of students/ staffs/ faculties)	Capacity building plan (training and refreshing for staffs and faculties- adm. / exam staffs/ accounts/ managers/)	Scholarship and its provisions	Sanitation system demonstration lab in Pulchowk campus
	Regulation for monitoring and evaluation of colleges	Management information system(MIS) to be implemented	Recruitment process based on meritocracy &academic requirements (Part- Time & contract)	Student welfare, counseling , Student feedback	Water treatment plant in Pulchowk campus

Regulation for entrance examinations Regulations for M.Sc. &	Periodic Monitoring & evaluation of colleges Management of emotional	Retention of faculties and staffs Upgrading of faculties	Student residence & study environmen ts Student extra-	Transportation lab. in Pulchowk campus Periodic repair and
Ph.D. programs	manifestation of student/staffs/ teachers (political problems)	(professor/ reader / chief instructor /senior instructor /instructor/ deputy instructor)	curricular activities: (sports / yoga / literature writing/ arts)	maintenance & upgrading of laboratories
Status of campuses to be redefined	Security management	Permanent to contract faculties (lecturer/ teaching assistant/ instructors / assistant instructors)	Exploration of best students from the span of the country (exam/ centers/aut hority)	Library upgrading (physical facilities/ e- facilities/journ al subscriptions etc.)
Autonomy of IOE	Phase out of Diploma	Master and PhD programs focused to meet demand of faculties in campuses	Student equity & access	Industrial engineering lab in Thapathali Campus
	Management tools for effective delivery of faculties & staffs	Career building planning for faculties	Student loan provisions	Agriculture engineering lab. in ERC Dharan
	Establishment of quality management unit	Provision of lateral entry of professors	Student Fees structure	Mechanical engineering lab. in WRC Pokhara
			Student orientation	ICT building Pulchowk campus Center for graduate studies

Vision	To be a premier engineering education institution at par with world-class
	role models

Mission	Quality Engineering Education & Research in the Frontier Engineering Areas Relevant Primarily to Nation			
Goals	4. Financial sustainability			
Objectives	Resource planning	Fund management		
Activities	Policy on balancing full fee /sponsored students	Government grant		
	Financial policies	Endowment funds		
	Remuneration policies	Project grant/loans		
	Financial planning	Student fee		
	Sustainability of centers	Charity funds		
	Utility expenditure planning	Consulting services		
	performance based incentives	Augmentation programs		
	Maintenance and development fund	Savings from research &		
		development		
	system for service outsourcing	Affiliation fees		
	Cost sharing among branches and users	Cost sharing of exam expenses/		
	Inventory management	Infrastructure costs from colleges		

Vision	To be a premier engineering education institution at par with world-class role models				
Mission	Quality Engineering Education & Re	esearch in the Frontier Engineering			
	Areas Relevant Primarily to Nation				
Goals	5. Collaboration and cooperation				
Objectives	Technology transfer	International Collaboration			
Activities	Technology needs & needs	Recognition & accreditation			
	assessments				
	Technology information	Joint programs/ research works			
		(MSc./Ph.D.)			
	Enabling environments	Exchange of faculties & students			
	Capacity building	Publications of research works &			
		journals			
	Mechanisms for technology transfer				

Details of Action Packages

	Activities (detail action plan)	Tentative cost ('000')	Source of financing	Time schedule & Key responsible unit
	Academic excellence			
1	Academic programs			
1.1	Introduce market relevant courses in B.E. and Master programs			
	B.E. in Aeronautical engineering in Pulchowk Campus		Internal	2014 September Dean office
	Hydropower/ applied math/ material		Internal/	2014

	science etc. in Pulchowk Campus	NORAD	September Dean office
	B.F. in Chemical engineering/B	Internal	2014
	Arch in Architecture in Thanathali	internal	September
	Compus		Deen office
	DE in	Nanal Cay /	
	D.L. III Machanical/Civil/Electrical/Electron	A DB grant/loon	2013 Soutombou
	Mechanical/Civil/Electrical/Electron	ADB grant/loan	September Deer office
	Ensingering in MWDC Kellenger (Dean office
	Engineering in MWRC-Koinapur/		
1.0	F W KC-Ataria		
1.2	Curriculum reforms (BE/MSc)		
	regularly in every two years	T	2015
	All B.E. programs	Internal	2015
	(civil/electrical/electronic/computer/		November
	mechanical/agriculture engg/		Dean office
	Industrial engg/ mechanical		
	engineering)		2012
	All M.Sc. programs course reforms	Internal	2013
			December
1.2			Dean office.
1.3	Ph.D. program		2014
	Regular annual enrolment of Ph.D.	Internal	2014
	programs		November
			onward
1.4			Dean office
1.4	Cooperation Programs with		
	Introducing industrial/ professional		2013
	attachment in B E /M Sc. programs		December
			onward
			Dean office.
1.5	Consistency in enrolment/		
1.0	evaluation & course structures of		
	B.E & M.Sc. programs		
	Preparation of concrete regulations		2011
	and guidelines		November
			Dean office
1.6	Joint programs (BE/M.Sc./Ph.D.)		
1.0	with other universities		
	BE aeronautical engineering in	Internal	20134onwar
	Pulchowk with Chinese university		d
			Dean office
1.7	Expanding campuses in mid- & far-		
	western region of the country		
	Opening two constituent campuses	Govt. / ADB	2013-2017
	in mid-western and far-western		Dean office
	region of Nepal		
2	Research Works		
2.1	Research policies to establish		
	research culture		

	Formulation of research policy	Internal	2013
	regarding involvement of professors		December
	in research work		Dean office
2.2	Research funds		
	Allocation of research fund in a	Internal/ Govt. /	2013
	separate account	other sources	December
	1		onward
			Dean office
2.3	Professors dedicated in research		
	(mandatory)		
	Motivating and encouragement to	Internal	2013
	professors to write research		December
	proposals and providing incentives		Dean office
	for this purpose		
2.4	Research publications (journals and		
	proceedings)		
	Annual IOE journal publication by	TUTA-IOE	Ongoing &
	TUTA-IOE on behalf of IOE		regular
			Dean office.
	Publication of proceedings and	Internal/ partners	Ongoing &
	research works	-	regular
			Dean office.
	Encouraging and motivating	Internal/ donors	Ongoing &
	students for publications of		regular
	academic works		Dean office.
	Publication of monthly newsletter of	Internal	Ongoing &
	IOE		regular
			Dean office.
	Publication of annual report of IOE	Internal	Ongoing &
			regular
			Dean office.
2.5	Proposal to UGC/NAST and other		
	national and int'l agencies		
	Encouraging faculties &	Internal	Ongoing &
	departments to develop research		regular
	proposals and apply in UGC/NAST		Dean office
	/EU/ NORAD & similar institutions		Academic
			Adm.
2.6	Exploration of fund for research		
	Approaching NPC and govt. line	Internal	2013
	ministries for allocation of research		onward
	budget for IOE		Dean
	Generating fund for research from	internal	2013
	the interest of students deposit		onward
			Assistant
			Dean(planni
			ng)
	Generating research funds from the	Internal	2013
	sale of publications		onward
			CIMDU
2.7	Proposal writing funds		

	Making available proposal writing	Internal	2013
	fund for professors		December
			onward
			Asst Dean
			Planning
2.8	Master and PhD programs are to be		
	focused on the problem based		
	research		
	Engineering	Internal	2013
	problems/issues/challenges		December
	emerging in the works are called		onward
	from NPC and Govt. line ministries		Asst Dean
			Planning
2.9	Researches on emerging issues		
	M.Sc./ Ph.D. thesis are directed on	Govt./Internal	20113Dece
	the identified engineering issues		mber
			onward
			Asst Dean
			Planning
3	Training Programs		
3.1	Continuous education & training		
	In-house training to faculties &	Internal	2013
	staffs		December
			onward
			Asst Dean
			Administrati
			on
	Professional trainings to	Participation fees	2013
	employees/managers of govt. and		December
	other institutions		onward
			Asst Dean
			Administrati
			on
3.2	Establishing training center		
	Establishing a well-equipped	ADB grant/loan	2013
	training center in the Pulchowk		December
	campus premises		onward
			Asst Dean
			planning
3.3	Academic & professional		
	institutions cooperation		
	MoU between IOE and different		2013
	institutions (Govt. depts. /project		December
	office/ INGO's/NGO's, etc.)		onward
			Asst Dean
			academic
			adm.
3.4	Exposure & experiences		
	Organizing field visit/ excursions/	Participation fees	2013
	observations etc. as per the need of		December
	training packages		onward

			Asst Dean Administrati on
3.5	Cooperation with industry and professional sectors		
	Exploring in the FNCCI/ industries/ trade &commerce areas/ for academic and professional cooperation by involving faculties and students	Industries & others	2013 December onward Asst Dean planning (industrial liaison officer)
4	Exam and Evaluation		
4.1	Calendar of operation Irregular calendar of operation brought to fix time line	Internal	2013 December Asst Dean planning
	Formulation of calendar of operation of academic works for coming 5 years	Internal	2013 December Asst Dean planning
4.2	Assessment guidelines for consistency		
	Preparation of guidelines for internal exams in different programs	Internal	2013 December onward Asst Dean planning
4.3	Regular corrective measures to improve pass rates (subject/teacher/ exam/ mgmt.)		
	Organizing seminars/ workshop/ consultation of teacher /management for the improvement in the shortcomings and seek consistency in the subject matters	Internal /partners	2013 December onward Asst Dean planning
4.4	Publication of result from internet/ SMS etc.		
	Setting the exam dates & result dates and publication of result from internet and SMS	Internal	2013 December onward Asst Dean exam
4.5	Parity in student's exam evaluation (question setting, moderation, copy checking & marking, scrutiny, etc.)		
	Developing guidelines and processes for question setting, moderation, copy checking & marking, scrutiny,	Internal	2013 December onward

	etc. to bring parity in the exam		Asst Dean
16	Paliability of avery contern (final		exam
4.0	exam /entrance exam)		
	exploring reliable alternatives for exam centers for final exam and entrance exam visualizing growing complexities in the exam, also organizing discussion with stakeholders	Internal	2013Decem ber onward Asst Dean exam
4.7	International standard entrance exam process (GRC/TOEFL model)		
	Formation of committee to explore & suggest on the new mode entrance exam	Internal	2014 January - April Asst Dean exam
	Discussions with stakeholders on the reliability and possibility of new mode of entrance exam	Internal	2014 May Asst Dean exam
4.8	Incorporating software for the processing of the results		
	Updating of exam division in the process/results/ software etc.	ADB grant/loan	2013 March Asst Dean exam
4.9	Decentralization of exam (final exam)		
	Exploring for the decentralization of final exams and discussion with stakeholders and experts	Internal	2014 January onward Asst Dean exam
4.10	Building for exam office		
	Extension of building for exam division	Partners/internal	2014 March Asst Dean exam
4.11	Continuous monitoring and feedback		
	Continuous monitoring of exam processes/ results etc. and data analysis	Internal	20104July onward Asst Dean exam
4.12	Improvement of the exam processes		
	Improvements in exam schedule, administration process, distribution and collection of papers etc.	Internal	2014 July onward Asst Dean exam
	Think Tank		
5	Advocacy on Engineering Policies		
5.1	Seminars & conferences on national engineering issues		

	National seminars and workshops on engineering issues, jointly with other institutions/	Internal/ participation	2013 December onward Asst Dean planning
	International seminars and conferences by departments/ centers etc. (Retrud-11, power engg-11 etc.)	Internal/ participation/ partners	2013 December onward Asst Dean planning
5.2	Innovation and development based on character of Nepali location, formation, resource dynamics		
	Research and data base on special character of Nepal and finding appropriate engineering alternates for the national development	Internal/ Govt./ partners	2013 December onward Asst Dean planning
5.3	Interactions with NPC/Govt. line agencies		
	Approaching and interactions with NPC/ Govt. ministries/depts./ directorates/ authority etc. for collection of issues/problems in engineering areas and for research budgets	Govt./ partners	2014 July onward Dean
5.4	Leading infrastructure character and development issues characteristics to Nepal		
	Discussing and suggesting appropriate infrastructure character for Nepal	Internal/ partners	2014 January onward Asst Dean planning
5.5	Discussion forum		· · · · ·
	Formation of discussion forum and regular discussion on the engineering issues	Internal /partners	2014 July onward Asst Dean Academic adm.
6	Leadership in Emerging Engineering Issues		
6.1	Inventory of infrastructures in the country		
()	Exploring inventory of infrastructures in the country through master thesis research and suggesting govt. development plan of the country	Internal /govt.	20124July onward Asst Dean Academic adm.
0.2	Nepal's development and growth		

	potentials, neighboring market		
	condition and World markets		001471
	Discussing on the engineering	Internal/ partners	2014 July
	component of development and		onward
	economic growth of the country		Asst Dean
			academic
			adm
6.3	Programs and research in national &		
	international relevance areas		
	Identification and direction on the		2014
	relevant programs and research areas		January
			onward
			Asst Dean
			planning
7	Addressing National		
	Development Issues		
7.1	Study of development issues with		
	special relevance to Nepal and		
	Nepali characteristics		
	Involvement of master's and doctoral	Internal	2014 July
	students in the study of development		onward
	issues in Nepal		Asst Dean
	1		academic
			adm
7.2	Workshops and exhibitions		
	Exhibition of engineering	Internal	2014 July
	achievements from students and		onward
	faculties		Asst Dean
			academic
			adm
	Improved working environment		
8	Laws & Regulations		
8.1	Regulation use of internal resources		
	generated from full fee programs		
	Formation of committee to study	Internal	2014
	and report on the full fee program		November-
	and funds generated from full fee for		December
	their effectiveness		Asst Dean
			planning
	Regulation on the use of internal	Internal	2014
	resources generated from full fee		January
	program basing on the committee		onward
	report		Asst Dean
	*		planning
8.2	Regulation for monitoring and		
	evaluation of colleges		
	Revision regulation for the	Internal	2014 July-
	monitoring & evaluation of affiliated		December
	colleges		Asst Dean
	-		planning

	Monitoring of affiliated colleges (by a team of experts)- regular process annually	Internal/colleges	2014 January- February Asst Dean
	Notice for the application of new colleges/ addition of programs/	Internal/colleges	planning 2014 March Asst Dean
	Numbers of students Observation of colleges by team of experts and reporting	Internal /colleges	planning 2014 April Asst Dean
	Decision regarding granting of affiliation/ adding programs/ adding numbers of students	Internal	2014 June Asst Dean planning
8.3	Regulation for entrance examinations		
	Revision of regulation for entrance exam	Internal	2014 May Asst Dean planning
8.4	Regulations for M.Sc. & Ph.D. programs		
	Revision of M.Sc. program regulation	Internal	2013 December Asst Dean planning
	Revision of Ph.D. program regulation		2013 December onward Asst Dean planning
8.5	Status of constituent campuses to be redefined		
	Pulchowk campus to be defined as central engineering campus and departments as central departments (campus with B.E., M.Sc. and Ph.D. programs)	Internal	2014 January- July Asst Dean planning
	Other constituent campuses to be defined as B.E. campuses(WRC/ERC/MWRC/FWR C)	Internal	2014 January- July Asst Dean planning
8.6	Autonomy of IOE	Internal	2014
	of autonomy in the Tribhuvan University		August Asst Dean planning
	Discussions within the stakeholders on the essence of autonomy of IOE	Internal	2014 January- July Asst Dean

			planning
	Application and adoption of	Internal	2014
	proposal of autonomy for Institute		August
	of engineering from TU		Asst Dean
			planning
	Getting approval of IOE autonomy	Internal	2014
	Setting approval of foll autonomy	Internur	October
			Asst Dean
			Planning
0	Managamant & Laadarshin		Taining
9	A stivities for the governmence		
9.1	(discipline of faculties/staffs/ students)		
	A committee formed to study and	Internal	2014 July -
	recommend on the Administration		2015 July
	reform in IOE		Asst Dean
			administrati
			on
	Administration reform- job	Internal	2013
	descriptions of all staffs		December
	descriptions of an starts		Asst Dean
			administrati
			on
-	Management measures for the	Internal	2014 July
	control of documentation and	internar	onwards
	records (a continuous process)		Asst Dean
	records (a continuous process)		administrati
			on
	Control on definet works not	Internal	2014 July
	working and applying corrective	Internal	2014 July
	mansures		A set Deen
	lineasures		Assi Dean
			on
	Technical and financial audits of the	Internal	2014 July
	administrative and financial works	Internal	2014 July
	administrative and financial works		onwards
			Asst Dean
			administrati
			on
0.2			
9.2	Management information system(MIS) to be implemented		2014
	Adoption of MIS in the	Internal	2014
	administration		September
			Asst Dean
			administrati
			on
9.3	Periodic Monitoring & evaluation of colleges		
	Annually monitoring and evaluation	Internal/ colleges	2014
	of colleges		March-April
			Asst Dean

			planning
9.4	Management of emotional		
	manifestation of student/staffs/		
	teachers (political problems)		
	Identify the cause and effect of	Internal	2014 July
	events of students/ staffs/ teachers		onward
			Asst Dean
			administrati
			on
	Discussions and clarification of	Internal	2014 July
	regulations and procedures to		onward
	concerned groups		Dean/Asst
0.5	Security management		Deans
9.5	Security management	Internal	2014
	remises	Internal	2014 Jonuoru
	premises		January Asst Deen
			Assi Dean administrati
			on
9.6	Upgrading of Diploma programs		
,	into Bachelor programs in WRC.		
	ERC and Thapathali campus		
	Diploma programs in WRC, ERC	Internal	2015 July
	and Thapathali campus shall be		Asst Dean
	upgraded to bachelor programs, this		planning
	shall be completed before 2015		
9.7	Management tools for effective		
	delivery of faculties & staffs		
	Performance evaluation tools shall	Internal	2014
	be applied		January
			onward
			Asst Dean
			aummstrati
9.8	Establishment of quality		
2.0	management unit		
	Ouality control, quality assurance	Internal	2014
	and quality improvement tools to be		January
	applied in the delivery of services in		onward
	the institution		Asst Dean
			administrati
			on
	Establishment of quality	Internal/ ADB	2014 July
	management unit for regular	grant/loan	onward
	monitoring of performances		Asst Dean
			administrati
10			on
10	Faculties & Statts		
10.1	capacity building plan (training and refreshing for steffs and feaultics		
	adm / even staffs/ accounts/		
	auni. / Urani Stans/ auounis/		

	managers/)		
	Formulation of capacity building plan for faculties and staffs	ADB grant/loan	2014 January onward Asst Dean administrati on 2014
	upgrading of faculties (HRD policy)		January onward Asst Dean administrati on
10.2	Recruitment process based on meritocracy &academic requirements (Part-time/contract)		
	Formulation of guidelines for the recruitment of faculties and staffs(part time/ contract basis)	Internal	2014 July onward Asst Dean administrati on
	Faculties on part time and contract basis shall be made permanent through a service commission procedure	TU central office	e 2014 July onward Asst Dean administrati on
10.3	Retention of faculties and staffs Job satisfaction by upgrading and incentives based on performance	Internal	2014 July onward Asst Dean administrati
	Research opportunities shall be created	Internal/partners	on 2013 December onward Asst Dean planning
10.4	Upgrading of faculties (professor/ reader / chief instructor /senior instructor /instructor/ deputy instructor)		
	All faculties having minimum eligibility qualifications shall be upgraded to higher position through TU service commission	Internal/TU	2014 July onward Asst Dean administrati on
10.5	Permanent to contract faculties (lecturer/ teaching assistant/ instructors / assistant instructors)		
	All faculties in contract basis shall be made permanent through TU	Internal/TU	2014 July onward

	service commission in the appropriate position meeting minimum requirements		Asst Dean administrati on
	New positions are created for new constituent campuses and recruited from TU service commission	Internal/ TU	2014 July onward Asst Dean administrati on
10.6	Master and PhD programs focused to meet demand of faculties in campuses		
	Growing demands of the faculties in the engineering colleges/campuses shall be procured by introducing more master degree in Pulchowk Campus	Internal	2013 December onward Asst Dean planning
10.7	Career building planning for faculties		
	Continuous professional development programs of training and refreshing to faculties	Internal	2013 December onward Asst Dean planning
10.8	Provision of lateral entry of professors		
	Highly qualified scholars from different parts of the world meeting more than minimum qualification requirements shall be given entry into the position of professors(lateral entry) through appropriate decision from TU	Internal/TU	2013 December onward Asst Dean planning
11	Students		
11.1	Scholarship and its provisions Discussion shall be made with govt. officials and other concerned authorities for the appropriate scholarship provision for deserving students (needy and emeritus students)	Internal	2014 July onward Asst Dean planning
	Guidelines and regulations shall be formulated to identify needy and emeritus students	Internal/govt.	2014 July onward Asst Dean planning
11.2	Student welfare, counseling, Student feedback		
	A mechanism of students welfare/ counseling/ and feedback shall be adopted from student's organizations and unions	Internal	2014 august onward Asst Dean academic administrati

			on
11.3	Student residence & study		
	environments		
	Lobbying shall be made to govt.	Govt.	2014 august
	students hostel for engineering		Asst Dean
	students		academic
	stutents		administrati
			on
	Provision of peace, harmony and	Internal	2014 august
	fraternal environment shall be		onward
	developed for conducive		Asst Dean
	environment for study in the		academic
	campuses and hostel		administrati
			on
11.4	Student extra-curricular activities:		
	(sports / yoga / literature writing/		
	arts)		
	The activities for mental and	Internal	2014 august
	physical wellbeing of students shall		onward
	be encouraged; such as, sports, yoga,		Asst Dean
	interature works and time arts etc.		administrati
			on
11.5	Student Fees structure		
	Review of fee structure shall be	Internal	2014 august
	made from vigorous discussion with		onward
	stakeholders, especially with		Asst Dean
	students leaders		planning
11.6	Student equity & access		
	Provision of entry of competent and	Internal /govt.	2014
	capable students from deprived		January
	areas(remote/Dalit/madheshi/		Asst Dean
	janajati/economically deprived, etc.)		Planning
	shall be formulated		
117	Student loan provisions		
11./	Provision of loan to needy students	Govt / ADR	2014 august
	shall be explored and funds shall be	grant-loan	onward
	made available	Brane roam	Asst Dean
			academic
			administrati
			on
11.8	Exploration of best students from		
	the span of the country (exam/		
	centers/authority)		2014
	A mechanism of selecting student	Govt./ internal	2014 august
	shall be explored for the entry in the		onward
	bachelor level of engineering		academic
	bachelor level of engineering		administrati
L			uammistiati

			on
11.9	Student orientation		
	Regular orientation shall be made to new students in all departments in all campuses	Internal	2014 November onwards Asst dean academic administrati on
12	Infrastructures		
12.1	Sanitation system demonstration lab in Pulchowk Campus		
	A lab on sanitation system demonstration shall be set in Pulchowk campus as a part of master degree study in sustainable water sanitation health and development	NOMA	2014 July Pulchowk campus chief
12.2	Water treatment plant in Pulchowk Campus		
	A water treatment plant shall be installed in the Pulchowk campus	Korean grant assistance	2014 November Pulchowk campus chief
12.3	Transportation lab. in Pulchowk Campus		
	Transportation lab shall be established in Pulchowk campus	World bank	2014 February Pulchowk campus chief
12.4	Repair and maintenance and upgrading laboratories		
	Periodic repair & maintenance of laboratories(annually)	Internal	Campus chief of all campuses
	Repair maintenance upgrading of laboratories in all campuses	ADB grant/ loan	2013 July- 2015 July Campus chief
12.5	Library upgrading (physical facilities/ e-facilities/journal subscriptions etc.)		
	Periodic upgrading of libraries in all campuses	Internal	Campus chief
	Upgrading of libraries infrastructures, e-library in all campuses	ADB grant/loan	2013 July- 2015 July Campus chief
12.6	Industrial engineering lab in Thapathali campus		

	Upgrading of industrial engineering laboratory in Thapathali campus	ADB grant/loan	2013 July- 2015 July Campus chief
12.7	Agriculture engineering lab. in ERC Dharan		
	Upgrading of agriculture engineering laboratory in ERC Dharan	ADB grant/loan	2013 July- 2015 July Campus chief
12.8	Mechanical engineering lab. in WRC Pokhara		
	Establishing mechanical engineering laboratory in WRC Pokhara	ADB grant/loan	2013 July- 2015 July Campus chief
12.9	ICT building Pulchowk campus		
	Establishing ICT building in Pulchowk campus	KOICA grant	2013 April- 2014 November Asst Dean planning
12.10	Center for Graduate Studies		
	Establishing center for graduate studies for M.Sc. & Doctoral studies	ADB grant/loan	2013 July- 2015 July Campus chief
12.11	Up grading IOE Dean's office		
	Construction of Dean's office	Internal/ ADB grant/loan	2015 Jan onward Asst Dean administrati on
	Developing infrastructures for examination section (building/ software/hardware etc.)	Internal/ ADB grant/loan	2015 Jan onward Asst Dean administrati on
	Financial Sustainability		
13	Resource Planning		
13.1	Policy on balancing full fee /sponsored students		
	Discussions with stakeholders and formulation of policy	Internal	2014 July- 2015 December Asst Dean planning
13.2	Financial policies		
	Review of the policies and petition for amendment to TU	Internal	2014 July- 2014 December

				Asst Dean administrati on
13.3	Remuneration policies			
	Review of the policy and discussion with stakeholders and formulation of policy	Inte	rnal	2014 July- 20124Dece mber Asst Dean administrati on
13.4	Financial planning			
	Financial planning of IOE	Inte	rnal	2014 July- 2014 December Asst Dean administrati on
13.5	Sustainability of centers			
	Formulation of new guidelines for the financial sustainability of IOE centers	Inte	rnal	2014 January- 2014 July Asst Dean administrati on
13.6	Utility expenditure planning			
	Formulation of guidelines for the utility expenditures	Inte	rnal	2014 January- 2014 July Asst Dean administrati on
13.7	performance based incentives			
12.0	Formulation of guidelines for the management of performance based incentives	Inte	rnal	2014 January- 2014 July Asst Dean administrati on
13.8	Maintenance and development fund			2014
	Provision shall be made for the allocation of fund through income from full fee for maintenance and development in all campuses	Inte	rnal	2014 January- 2014 July Asst Dean administrati on
13.9	System for service outsourcing			2014
	Exploring special nature of work and regulation shall be formulated for outsourcing of service to such works in all campuses	Inte	rnal	2014 January- 2014 July Asst Dean administrati
			on	
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13.10	Cost sharing among branches and users			
	Policy shall be made for cost sharing among the users (departments/centers etc.) in all campuses	Internal	2014 January- 2014 July Asst Dean administrati on	
13.11	Inventory management			
	Updating of inventory data periodically (annually)	Internal	2014 January- 2014 July Asst Dean administrati on	
14	Fund Management			
14.1	Government grant	UGC/TU	Regular basis Asst Dean administrati on	
14.2	Endowment funds	Donors	Asst Dean administrati on	
14.3	Project grant/loans	ADB	Asst Dean planning	
14.4	Student fee	Internal	Regular basis Asst Dean administrati on	
14.5	Charity funds	Donors	Asst Dean administrati on	
14.6	Consulting services	Internal	Regular basis Asst Dean administrati on	
14.7	Augmentation programs	Internal	Asst Dean administrati on	
14.8	Saving from research & development	Internal	Regular basis Asst Dean administrati on	
14.9	Affiliation fees	Internal	Regular basis Asst Dean	

			administrati
			on
14.10	Cost sharing of exam expenses	Internal	Regular
			basis
			Asst Dean
			exam
14.11	Infrastructure costs from colleges	Internal	Asst Dean
			exams
	Collaboration and cooperation		
15	Technology Transfer		
15.1	Technology needs & needs		
	assessments		
	Study and research for the need	Internal	Regular
	assessment of technology in IOE		basis
			Asst Dean
			academic
			administrati
15.0			on
15.2	Technology information		D1
	through research and development	Internal	hogia
	unough research and development		Jasis
			Assi Deall
15.3	Enabling environments		plaining
15.5	Study of factors affecting	Internal	Regular
	technology transfer in IOE	Internut	basis
			Asst Dean
			academic
			administrati
			on
15.4	Capacity building		
	Training, exposure and observation	Internal/partners	Regular
	of technology for faculties and		basis
	staffs		Asst Dean
			administrati
			on
15.5	Mechanisms for technology		
	transfer		D 1
	Exploring and setting mechanism	Internal/ partners	Regular
	of technology transfer in IOE		basis
			Asst Dean
16	International Collaboration		plaining
16.1	Recognition & accreditation	Internal/northers	Regular
10.1		mornal/partiters	hasis
			Asst Dean
			academic
			administrati
			on
16.2	Joint programs/ research works	Internal/partners	Regular
	(MSc./Ph.D.)	1	basis

16.3 Exchange of faculties & students Internal/partne	Asst Dean academic administrati
	rs Regular basis Asst Dean academic administrati on
16.4 Publications of research works & journals Internal/partne	rs Regular basis Asst Dean academic administrati on

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इन्जिनियरिड.ग अध्यायन संस्थान पुल्चोक क्याम्पस स्वर्च विवरण २०७२ । २०७३

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इन्जिनियरिड.ग अध्यायन संस्थान पुल्चोक क्याम्पस खर्च विवरण २०७३ । २०७४

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001	वर्षतप अध्यत्म		419455.00			143930.00		61698.00			625084.00			0.00	625084.00		
man	Sefer:		113271 76	38744 40	105714 84	138165.00		45540.00	3785 50	36800.00	478321 50		1014780.00	1014780.00	1493101.50		
different and		0.00	8569311 88	154052 78	114359 14	280680.00	204987.0	169947.00	3785.50	162300.00	9859423.50		7736586.00	7736586.00	17596009.50		
01/001 1	eres ferrer	26120448.47	11393205.91							10,000,000	107589054 38			0.00	107589854.38		
0*/001 #	व त्या विकास		29631631 22					-		615 600 00	30247231 22			0.00	30247231 22		
009	AND STREET	49298782 04	6487087 64	7620.00		<u> </u>				010,000,00	55793490 58			0.00	55793490.58		
003	ADMT.	7249092 53	1001241 21	10302.00	9600.00	9500.00	9.600.0	9600.00	9500.00	134400	11405035 74			0.00	11405035 74		
007	क सं कोग कलपात	11827430.03	500324121	10302.00	2000.00	0000.00	0,000,0				11827430.03			0.00	11627430.03		
0.03	aners are feelinger	11021450.00									11021-00100			0.00	0.00		
0.01	क्षेत्रेस संस (स्पूर्णसंस)		2128474.00	121000.00	70109.00	12635.00	345 726 0	105736.00	27795.00	4.520.00	2825995.00			0.00	2625995.00		
000	fama and mat		6533751 60	15050.00	24200.00	3080.00	343,720.0	4800.00		62 514 50	0842508 10			0.00	6642506 10		
000	de ra		930467 #7	10007.00	24500.00	80904 30	28 303 00	51308.00	20000.00	02,014.00	1181203.69	100000.00		300000.00	1481203.69		
000	are the		030407.07	30311.22	33333.31	0000420	20,303.00	51300.00	2000.00					0.00	0.00		
000														0.00	0.00		
010			5828348 43	211107 70	22420.00	383081.05	31 142 00	227055.00	1	01 103 15	6701227 13	2758652 87		2758652 87	9551880 20		
011	and and		844318.00	17340.00	23420.00	302001.03	51,142.00	4050.00		\$1,155,15	872067.08	186406 63		196406.63	1038464 61		
011	france and and	<u> </u>	674510.00	17.548.00			3,440.00	40.00.00			639109 48	100100.00	10110 50	16136.50	654242.08		
014	dar met	-	638106.48								500.00		10730.30	0.00	590.00		
014	mafe and				-									0.00	0.00		
014	61714 G.4		1			60007.00		-	-		50047.00			0.00	50287.00		
011	Sain un desaus		813363.00	202864 20	100740 18	20207.00	40 507 00	88543.00	252128 10	8 400 00	1034113 35			0.00	1934113 35		
010			613202.90	302051.20	136/43.13	207000.00	62,507.00	60513.00	252130.10	6,490.00	200077.00			0.00	205077.00		
are	414(14)		130200.00	15502.00	18620.00	9075.00	10,420.00	6800.00	8600.00	6,000.00	200077.00			0.00	2101155 80		
010	Tana an and		177840.46	1736190.00			141 000 0	68043.00		500.00	2101133.00			0.00	319376 15		
0.00	under an and		177010.15	17100.00	153133.00	210011 00	141,000.0	20441.00	60030.00	16 201 00	042140.00		9060.00	9050.00	951209.00		
000	aton and		198/14.00	47406.00	133423.00	210011.00	191,033.00	20001.00	660.30.00	10,291.00	H2149.00		5000.00	0.00	0.00		
044	414-6154		2620070.00	100441.00	87000.00	(12025.00	28 800 00	20200.07	44400.00		1201011 00			0.00	3163933.00		
	age an		2029979.00	120411.00	67049.00	413935.00	20,000,00	00000.00	00000076	10020440	44700004.04		1483848 44	1487848 14	12243410.45		
			6937697.04	330010.07	222000.00	170000.23	02,003.00	65505.00	230000.70	1,002,000.0	1170001,31		1402010.14	0.00	0.00		
017 (4)	and very				-	-			1		0.00			0.00	0.00		
041 (4)	*j4:2 •4										0.00			0.00	0.00		
048 (8)	विद्यूत नामादा													0.00	0.00		
092	ক্ষে সম্পান্য ৰখ													0.00	0.00		
390								<u> </u>	0.00	0.00	0.00			0.00	0.00		
070	विषायी कल्पाण		1350168.25				8,000.00				1358166.25			0.00	1358169.25		
034	ৰণুহতাৰ ৰখ		2954978.50	846000.00		215000.00	213,000.0	216520.00	432000.00	1 1	4880498.50			0.00	4680490.50		
071	स्वमान्ति	343197.00	4074783.00		-						4417980.00		244790.00	244790.00	4062770.00		
oto	रांशिक नामायी			166952.85	421876.30	60162.30			333281.25		962272.70			0.00	982272.70		
0 11	तामीय त्रीयितार		120783.59	57000.00	18000.00	36000.00	23,500.00				255283.59		544881.00	544861.00	800144.59		
মন্দ্রনের সম	भा	164714950.97	90100890.97	4072204.64	1221351.70	1943337.89	1161340.00	960878.00	1450915.10	2633152.65	268268621.98	3225059.50	2277665.64	5502725.14	273771347.12		
कुन जम्मा	L	164714950.97	98670202.85	4426257.42	1335711.10	2224017.69	1366327.00	1130825.00	1454700.60	2795452.65	278128046.48	6450119.00	10014251,64	16464370.64	294592416.12	IADAOKLANN	(1500) ACIC

278128045.48

इन्जिनियरिड.ग अध्यायन संस्थान पुल्चोक क्याम्पस खर्च निवरण २०७४ । २०७५

								-									
मेखा शीर्थक कोड न	मेवा सिर्यक	नियमित	आन्तरिक	सिमिल	मानविकि	मेकानिकल	आर्किटेक्चर	इलेक्टीकल्स	इलेक्ट्रोनिकस तथा कम्प्युटर	सि.आइ.टि	वम्मा	বিকায	विण्हो	जन्मा	कूल जम्मा	आय	बचत । न्युन
01/001		9	2	3	¥	X	1		E	8	90						
003	-																
001	रवारी साधन																
001	क्षत्रिंचर		408171 72		221287 9			6215.00			633674.62	219999.87		219999.87	853674.49		
003	विद्यत तथा पानी										0.00				0.00		
oot	are frate			109344.00							109388.00	A806113.13		A806113 13	8915501.13		
000	रे तथा है उपकरण		12508542.00	344316.60			1			67800.00	12018658.80	4578122.38	1602789.54	6270911.92	10189570.72		
006	-		466243.00			750.00	5040.00				472033.00				472033.00		
00*	कार्यलय प्रयतन्त्र		593224 10	43166.00				6780.00	72037.50		715207.60				715207.60		
010	fating		242031 57	40100.00	203461.62	98197.00		16100.00	20586.00		580356 19	80456.00		80456.00	660812.19		
र्प्रतेलल जन्म		0.00	14214212 39	495870 80	424749 52	98947.00	5040 0	29095.00	20565.00	57800.00	15429318.21	13654691.38	1692789.54	15377480.92	30806799.13		
01/001 8	हतर जिल्ला	92496871.52	15286501.46	22000.00							107805372.98				107805372.98		
0*/001 *	a star fraget		15614581 56	1100.00						583 100 00	34217881.56				36217681.58		
003		35436235 32	7824483.84	18405.00							43077524.16				43077524.16		
001	NWI .	6839089.54	4459945 72	9600.00	9600.00	9600.00	9.600.0	9600.00	9600.00	114600	11471215.56				11471215.58		
007	क संग्रेष अनगर	10825188.55	1130013.72			-		-			10825188.55				10825168.55		
000	autra mer fasfaurer	12910515 21			•						12910515.21				12910515.21		
001		12010010.21	2121457 80		84610.00	46020.00	290 142 0	148999 00	57710.00		2758036.80				2758938 89		
000	किसल तथा पाली		6820032.02	11880.00	22980.00	10200.00	200,142.0			4 270.00	6878382.02				6578362.02		
000	जेवा साम		640534 73	20363.03	28472 50	64184 64	22 681 00	16155.00	20000.00	80 531 25	803102.15	1829725 35	150000.00	1979725 35	2782827 50		
000	111 1210		540534,73	28303.03	20472.00	01301.04	23,001.00	30133.00	20000.00	00,00120	003102.13	1020120.00	10000.00	1070720.00	0.00		
001	Ann ann								-						0.00		
010	and the	··· ·	2005110.00	120010.00	(0010.00	207464 00	12 700 00	222602.00		27 550 00	2047741 88	10183330 78		10161330 78	12011071 84		
011			2000110.00	11718.00	10010.00	207434.00	12,700.00	232000.00	13046.00	21,550.00	026004 70	10103328.70		10105520.10	936904 70		
(11)	Severa and used		536865.63	11710.00		1.	10,000.00	-	1343.00	72 640 71	601726 33	90222 12		90222 12	601948.45		
014	An mai		520005.02						-	72,040.71	001720.33	00222.12		00222.12	0.00		
011	and and					l		-	<u> </u>		0.00				0.00		
014	eife es					63578.00		<u> </u>		1005	56243.00				50241.00		
014	Build Gal Joseph		473031 74	101728.00	226971.00	187848.00	82 007 00	101084.00	349758 50	6 800.00	1513106 24				1513106 24		
010	क्याइ तथा मसलय		473031.74	104720.00	12000.00	107040.00	02,697.00	101004.00	8400.00	6,000.00	190560.00				190560.00		
016		<u> </u>	1885808 26	220200.00	710114 80		0,000,00	215480.00			3091793.05				3091793.06	**	
020			25495.00	48520.00	710114.00		142 132 0	35000.00		500.00	251847.00				251847.00		
0.0	within mour		367536.00	49411.00	105538.00	132121.00	205 424 00	24754 0	60975.00	25 453 00	972212.00				877212.00		
033	aburren		30,350,00	40411.00	100000.00	102121.00	200,121.00		19800.00	20,100.00					0.00		
023			1055110.00	87410.00	132660.00	397670.00	38 400 00	54213.00		31 200 00	1799472 00	78375.00		78375.00	3875047.00		
03Y (19)	andram Salars	1277071 88	8058890 70	314818 25	42510.00	80683.50	159,990,00	102141.0	641476 80	2 430 941 9	13088522.02	67532.45		87532 45	13156054 47		
014 (B)		12/10/1.00	0030080.70	514010.25	42010.00		130,000.00	102147.04		2,450,641.0	100002.02	0,002.40		01002.40	0.00		
011 (B)	unde sai							-			0.00				0.00		
01119	ajvis av					l		+ ···			0.00				0.00		
041 (8)	rege erenge					<u> </u>									0.00	1	
014	कृत्य सन्दान्त सम	<u> </u>						+			0.00				0.00		
044			4470007.00			74400.00				<u> </u>	1122222.20				4433637.30		
040			4338227.30			74400.00	014 500.0	260300.0	122000 00		2004010 62				2004040 52		
0.14	-1	100000.00	1725610.52	659500.00		210000.00	211,500.0	200300.00	432000.00		3694910.52				2887222 00		
1044	wayn -	166909.00	2/18313.00	1.000	401543.04	05522.07			Secore or		1450505 54	68444.00		86444.00	1518040 58		· · · · · · · · · · · · · · · · · · ·
010	राजन मामादा		296362.68		491562.90	400.22.97	10 472 00		505016.93	1 1	1400005.56	175434.00		175424.00	872305 30	-	
	Contrast alliabativ		6/6454.30	2020040.00	1000.00	1013000.01	10,428.00	1210205 0	2177000.00	2240451 45	271260444.03	12480050 70	150000.00	12610053 70	285870407 #7		
	1	150953639,32	144005055 10	2030949.28	1004057.20	1043002.91	1203034.04	1210205.0	211/062.20	3437351.63	21 3200444.87	12405032.70	1843700.00	12010052.70	2166963964 80	25999955+140	YYY2Y3HOK
जुल जम्भा		159953839.32	114005355.49	2533820.08	2306606.78	1/42029.91	1208674.0	1248300.0	2196248.25	343/251.55	200009/93.18	20153/44.08	1042/89.84	2/996033.62	310000196,80	******	

इन्जिनियरिड.ग अध्यायन संस्थान पुल्चोक क्याम्पस आय बिवरण २०७२ । २०७३

लेखा शीर्षन कोड नं.	5 लेखा शिर्पक	नियमित	आन्तरिक	सिभिल	मानविकि	मेकानिकल	आर्किटेक्चर	इलेक्ट्रीकल्स	इलेक्ट्ोनिकस तथा कम्प्युटर	सि.आइ.टि	जम्मा	विकाश	विण्डोUGC High er	जम्मा	कल जम्मा
900/20	निकाशा थू.जि.सि.	936293958189									936293958189	16439299.09	j	16439299.09	153032483.58
	Some Star 1														0.00
500	क्वामपस प्रवेश शूल्क	558658100									258858100				225625.00
600	f			· · · · · · · · · · · · · · · · · · ·				1.000		2.00	000				0.00
004	शिक्षण शूल्क	3002 9 30100	000£0XX3100	2900200100	9998000100	1110000000	9,855,0000	2360000100	5888000000	2500000100	5503503603100				88703873.00
DOOX	परीचयपत्र शूल्क	95020100									950%0100				18050.00
005	ষ্টলকুর যুক্ত	20002100								•	20098100				27075.00
600	प्रयोगशाला शूल्क	60580100									605X0100		100.000		90250.00
004	पूस्तकालय शूल्क	\$U\$CUXO									EUECUXO				67687.50
090	ख्वत्रयास शूल्क	082 20100									988 20100				74520.00
94	अन्य थाय	242905145	94496003143	1500 3500		0000190	269.029193	eeseuwe	85,000,00	UX 3, X X EIX9	95893235158				18413238.69
095	अन्य आयUGC HIG												23208276.77	23208276.77	23208276.77
जम्मा		141434430.67	87458447.64	3186282.000	1174000.00	1338000.97	1749721.13	2456367.76	2462707.00	2953546.51	2882938031650	16439299.09	23208276.77	39647575.86	283861079.54
									-		SARSASKOSIA		1		

इन्जिनियरिड.ग अध्यायन संस्थान

पुल्चोक क्याम्पस आय बिबरण २०७३ । २०७४

तेखा शीर्पव कोढ नं	सेखा शिर्षक	नियमित	आन्तरिक	सिभिल	मानविकि	मेकानिकल	आर्किटेक्चर	इलेक्ट्रीकल्स	इलेक्ट्रोनिकस तथा कम्प्युटर	सि.आइ.टि	जम्मा	विकाश	विण्डोUGC High er	जम्मा	कुल जम्मा
061009	निकाशा के का	956300303129							1. A.		986800305188	52919945.57		52919945.57	219320248.16
	जावतरीक रे कि														0.00
900100	स्यामपस प्रवेश शूल्क	558000100									252000000				224000.00
603	1														0.00
001	शिक्षण शूल्क	3008535180	atstrattico	\$900000000	<i>4</i> ≸axx00100	9839000100	9,855,0000	2360000000	5292000000	2200000000	९४७१३४८८६१४०				94713588.50
00%	परीचयपत्र शूल्क	90920100									909790100				17920.00
200	स्रोलकूद शूल्क	24550100									7555000				26880.00
000	प्रयोगशाला शुल्क	53600100									58600100				89600.00
005	पूस्तकालय शूल्क	EU999120									5099991X0				67199.50
095	ধন্য প্রার্থ	506,8100	20090662190	9353943100	9902 989	1290132	£X ,555159	\$ 2555129	**84200	260220160	23969326160				23171329.90
બર	अन्य आयUGC HIG												9774928.25	9774928.25	9774928.25
जम्मा		170607798.59	97163418.90	4453662.00	1385557.69	1537210.320	1553888.81	2452668.21	2459168.00	3097447.970	258005501860	52919945.57	9774928.25	62694873.82	347405694.31
											25682368300				

इन्जिनियरिड.ग अध्यायन	ſ	संस्थान
पुल्चोक क्याम्पर	Ŧ	
आय बिवरण २०७४ ।	i.	SOGA

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लेखा शीर्षक कोड नं.	नेखा रिग्र्यक	नियमित	आन्तरिक	सिभिल	मानविकि	मेकानिकल	आर्किटेक्चर	इलेक्ट्रीकल्स	इलेक्ट्ोनिकस तथा कम्प्युटर	सि.आइ.टि	जम्मा	बिकाश	विण्डो UGC Higher	जम्मा	कुल जम्मा
061009	निकाशा के का	9602 839999185		1							9502239966185	26153744.08		26153744.08	186696943.54
	वानवरीक														0.00
500,00	क्यामपस प्रवेश शूल्क	5555X0100									258520100				226250.00
008	शिक्षण शूल्क	3053569100	63CREOEEIX0	3290902100	30668001188	20368CXIXE	9, x ३9,०२७४	5896896193	5898000000	ae soxxyiax	११९२२४१७अ८९				119225177.89
001	परीचवपत्र मूल्क	9⊏900100									୧ ୯୨୦୦୦୦				18100.00
005	खेलकूद शूल्क	20920100									29420100				27150.00
003	प्रयोगशाला शूल्क	60100100									60X00100				90500.00
005	पूस्तकालय शूल्क	EQC: OFIXO									<i>Eacae</i> ixo				67876.50
090	उग्रवथास शुल्क									· · · · · · · · · · · · · · · · · · ·					0.00
099	जरिवाना														0.00
093	বিবিশ্ব যুল্ক							and a state of the	a second and a second						0.00
092	त्रि.चि. जग्गाबाट आय														0.00
095	अन्य आय	9290562169	X6OJXXCJIJS	976395300	9902.0155	1290122	12,555159	6566=159	82955100	edax xaida	x ?९१६==१ । ९३			0	52916881.93
644	अन्य आयUGC HIG												1842789.54	1842789.54	1842789.54
जम्मा		166267632.57	142881349.82	4494067.00	2110559.24	2045395.900	1596916.20	2542147.34	2459168.00	8717899.710	\$\$\$999X93XIOCO	26153744.08	1842789.54	27996533.62	361111669.40
											₹₹₹99229₹%				