* 1. **INSTITUTIONAL BASIC INFORMATION**
1. **Institutional Identity:**

Name of the Institution : **College of Engineering & Technology, Bhubaneswar,**

 **ODISHA**

Is the Institution AICTE approved : Yes

Furnish AICTE approval No. : F.No. Eastern/1-2449872140/2015/EOA Date: 07-Apr-2015

(Copy enclosed in **Annexure-I)**

Type of Institution : Govt. funded

Status of Institution : A Constituent College of Biju Patnaik University of Technology,

 Odisha and also an Odisha State Government Engg. College

Name of Head of Institution : Prof. P.K. Patra, Principal

Name of Head of the Institution & Project Nodal Officers:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Head and Nodal Officer | Name & Designation | Phone Number | Mobile Number | FAX Number | E-mail Address |
| Head of the Institution(Full time appointee) | Prof. P.K. Patra, Principal  | 0674-2386075 | 9437189863 | 0674-2386182 | principalcet@cet.edu.in  |
| TEQIP Coordinator | Prof. L.N. Panda,Professor, Mechanical Engg. | 0674-2386075 | 9861232953 | 0674-2386182 | lnpanda@cet.edu.in  |
| Project Nodal Officers for: |
| Academic Activities | Prof. P.K. Parhi, Professor, Civil Engg. | 0674-2386075 | 9437176889 | 0674-2386182 | pkparhi@cet.edu.in  |
| Civil Works including Environment Management | Prof. F. Baliarsingh, Professor, Civil Engg. | 0674-2386075 | 9437136441 | 0674-2386182 | fbaliarsingh@cet.edu.in  |
| Procurement | Prof. R.K. Jena, Professor, Electrical Engg. | 0674-2386075 | 9437040077 | 0674-2386182 | rkjena@cet.edu.in  |
| Financial Aspects | Prof. K. N. Das, Textile Engg.  | 0674-2386075 | 9861234960 | 0674-2386182 | kndas@cet.edu.in  |
| Equity Assurance Plan Implementation  | Prof.  | 0674-2386075 |  | 0674-2386182 |  |

1. **Academic Information:**

**Engineering programmes offered in Academic Year 2014-15:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sl. No. | Title of programmes | Level(UG, PG, Ph.D.) | Duration | Year of Starting | AICTE sanctioned annual intake | Total Student Strength |
| 01 | Architecture | UG | 5 years | 1988 | 60 |  |
| 02 | Bachelor in Planning | UG | 4 years | 2015 | 60 |  |
| 03 | Biotechnology (SSP) | UG | 4 years | 2007 | 30 |  |
| 04 | Civil Engineering | UG | 4 years | 19812013 | 30120 |  |
| 05 | Computer Science & Engineering (SSP) | UG | 4 years | 2001 | 60 |  |
| 06 | Electrical Engineering | UG | 4 years | 19822013 | 45120 |  |
| 07 | Fashion & Apparel Technology (SSP) | UG | 4 years | 2007 | 30 |  |
| 08 | Information Technology (SSP) | UG | 4 years | 2007 | 60 |  |
| 09 | Instrumentation & Electronics Engineering | UG | 4 years | 19922013 | 30120 |  |
| 10 | Mechanical Engineering | UG | 4 years | 19812013 | 45120 |  |
| 11 | Textile Engineering | UG | 4 years | 2007 | 60 |  |
| 12 | Computer Science & Engineering (SSP) | PG | 2 years | 2005 | 18 |  |
| 13 | Information Technology (SSP) | PG | 2 years | 2007 | 18 |  |
| 14 | Structural Engineering. (SSP) | PG | 2 years | 2005 | 18 |  |
| 15 | Industrial Engineering & Management (SSP) | PG | 2 years | 2005 | 18 |  |
| 16 | Power System Engineering | PG | 2 years | 2013 | 18 |  |
| 17 | Electronic & Instrumentation Engineering  | PG | 2 years | 2013 | 18 |  |
| 18 | Biotechnology | PG | 2 years | 2013 | 18 |  |
| 19 | Water Resources Engineering | PG | 2 years | 2014 | 18 |  |
| 20 | Geotechnical Engineering | PG | 2 years | 2014 | 18 |  |
| 21 | Power Electronics & Drives | PG | 2 years | 2014 | 18 |  |
| 21 | Energy System Engineering | PG | 2 years | 2014 | 18 |  |
| 23 | Electronics & Communication Engineering | PG | 2 years | 2014 | 18 |  |
| 24 | Signal Processing Engineering | PG | 2 years | 2014 | 18 |  |
| 25 | Thermal Engineering | PG | 2 years | 2014 | 18 |  |
| 26 | Design & Dynamics | PG | 2 years | 2014 | 18 |  |
| 27 | Textile Chemical Processing  | PG | 2 years | 2014 | 18 |  |
| 28 | M. C. A  | PG | 2 years | 1993 | 18 |  |
| 29 | M. Arch. (SSP)  | PG | 2 years | 2007 | 20 |  |
| 30 | M. Plan | PG | 2 years | 2015 | 18 |  |
| 31 | M.Sc. in Applied Chemistry  | PG | 2 years | 2014 | 20 |  |
| 32 | M.Sc. in Mathematics and Computing  | PG | 2 years | 2014 | 20 |  |
| 33 | M.Sc. in Applied Physics  | PG | 2 years | 2014 | 20 |  |
| 34 | Integrated M.Sc. in Applied Chemistry  | PG | 5 years | 2014 | 30 |  |
| 35 | Integrated M.Sc. in Mathematics and Computing  | PG | 5 years | 2014 | 30 |  |
| 36 | Integrated M.Sc. in Applied Physics  | PG | 5 years | 2014 | 30 |  |

\*Total student strength includes 5% lateral entry and branch change in 3rd semester of UG programmes.

**Accreditation Status of UG Programme**

|  |  |  |  |
| --- | --- | --- | --- |
| Title of UG Programmes being offered | Whether eligible foraccreditation or not | Whether accreditedas on 31st Mar,2014 | Whether “Applied for”as on 31st Mar, 2014 |
| Civil Engineering | Yes | No | Yes (pending at NBA level) |
| Electrical Engineering | Yes | No | Yes (pending at NBA level) |
| Instrumentation & Electronics Engineering | Yes | No | Yes (pending at NBA level) |
| Mechanical Engineering | Yes | No | Yes (pending at NBA level) |
| Computer Science & Engineering (SSP) | Yes | No | Yes (SAR submitted) |
| Information Technology (SSP) | Yes | No | Yes (SAR submitted) |
| Textile Engineering | Yes | No | Yes (SAR submitted) |
| Biotechnology (SSP) | Yes | No | Yes (SAR submitted) |

**Accreditation Status of PG Programme**

|  |  |  |  |
| --- | --- | --- | --- |
| Title of UG Programme being offered | Whether eligible foraccreditation or not | Whether accreditedas on 31st Dec.2014 | Whether Applied foras on 31st Dec 2014 |
| Computer Science & Application  | Yes | No | Yes (SAR submitted) |

1. **Faculty Status (Regular/on-contract faculty as on March, 2015) :**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Faculty Rank | No. of sanctioned regular post | Present Status: Number in Position by Highest qualification | Total no. of regular faculty in position | Total no. of vacancies | Total no. of contract faculty in position |
| Doctoral Degree | Masters Degree | Bachelor degree |
| Engg. Discipline | Other Discipline | Engg. Discipline | Other Discipline | Engg. Discipline | Other Discipline |
| R | C | R | C | R | C | R | C | R | C | R | C |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15=(3+5+7+9+11+13) | 16= (2+15) | 17=(4+6+8+10+12+14) |
| Prof | 23 | 06 | - | - | - | - | - | - | - | - | - | - | - | 06 | 17 | 0 |
| Asso Prof | 44 | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 44 | 0 |
| Asst Prof / Reader (To be redesignated as Associate Prof. as per revised 3tier structure) | 24 | 14 | - | 1 | - | 03 | - | - | - | - | - | - | - | 18 | 6 | 0 |
| Asst. Professors | 89 | 16 | 2 | 4 | 1 | 45 | 70 | - | 18 | - | 4 | - | - | 65 | 24 | 95 |
| Total | 180 | 36 | 2 | 5 | 1 | 48 | 70 | 1 | 18 | - | 4 | - | - | 89 | 91 | 95 |

Prof = Professor, Asso Prof = Associate Professor, Asst Prof = Assistant Professor, Lec=Lecturer, R=Regular, C=Contract

\* includes faculty under CAS

\*\* Advertisement has been made for filling up the post.

**1.4 Baseline Data (all data given for the following parameters must be restricted to engineering disciplines/fields only)**

|  |  |  |
| --- | --- | --- |
| Sl. No | Parameters |  |
| 1 | Total strength of students in all programmes and all years of study in the year 2014-15 | 2859 |
| 2 | Total women students in all programmes and all years of study in the year 2014-15 | 1031 |
| 3 | Total SC students in all programmes and all years of study in the year 2014-15 | 187 |
| 4 | Total ST students in all programmes and all years of study in the year 2014-15 | 249 |
| 5 | Total OBC students in all programmes and all years of study in the year 2014-15 | - |
| 6 | Number of fully functional P-4 and above level computers available for students in the year 2014-15 |  |
| 7 |  Total number of text books and reference books available in library for UG and PG students in the year |  |
| 8 | % of UG students placed through campus interviews in the year 2014-15 | 97.33 |
| 9 | % of PG students placed through campus interviews in the year 2014-15 | - |
| 10 |  % of high quality under Graduates (>75% marks) in the year 2014-15 | 85 |
| 11 |  % of high quality postgraduates (>75% marks) in the year 2014-15 | 75 |
| 12 |  Number of research publications in Indian refereed journals in the year 2014-15 | 25 |
| 13 |  Number of research publications in International refereed journals in the year 2014-15 | 100 |
| 14 |  Number of patents obtained in the year 2014-15 | - |
| 15 |  Number of patents filed in the year 2014-15 | - |
| 16 |  Number of sponsored research projects completed in the year 2014-15 | 2 |
| 17 |  The transition rate of students in percentage from 1st year to 2nd year in the year 2014-15for :1. all students
2. SC
3. ST
4. OBC
 | 95%80%85%90% |
| 18 | IRG from students fee and other charges in the year 2014-15 (Rs. In lakh) | 834.81 |
| 19 |  IRG from externally funded R&D projects, Consultancies in the year 2014-15 (Rs. In lakh) | 12.40 |
| 20 |  Total IRG in the year 2014-15 (Rs. In lakh) | 846.21 |
| 21 |  Total annual recurring expenditure of the applicant entity in the year 2014-15 (Rs. In lakh) | 1720.84 (Provisional) |

\***There is no reservation in annual intake of UG/PG programme for OBC students, they are included in general category.**

**INSTITUTIONAL DEVELOPMENT PROPOSAL (IDP)**

 **2.1 Executive Summary of the IDP.**

Institutional Development Proposal of College of Engineering and Technology, Bhubaneswar is based on feedback from different departments of the institution. The methodology consists of a detailed departmental level SWOT Analysis in view of learning outcomes and employability of graduates. Detailed Action Plan is prepared and summarized here combining Department level Development Plans and their requirements quantified as per their weakness, research and development, training need analysis and consultancies, etc. taking into account actual existing information. Emphasis is put on Central Library and Central Computer Centre as some of the major expenditure apart from laboratory equipments. Major weaknesses are advance level equipment, full-fledge faculty/staff training system and organized finishing schools. Though we have highly qualified faculty (compared to those in other engineering colleges of Odisha), young faculty needs to be trained. Subsequent pages explain the strategic plan.

**2.2. SWOT analysis (as per Annex-V to PIP) carried out with respect to strengths, weaknesses, opportunities and threats of the College**

STRENGTHS

* + College of Engineering & Technology (CET), Bhubaneswar, is the only Govt. Engineering College in capital and is the prime constituent college of the State Technical University of Odisha (i.e. Biju Patnaik University of Technology)
* The third technical institution of Odisha having more than 25 yrs of excellence in technical education and research.
* Adequate infrastructure spread over 100 acres of land in terms of laboratory, class rooms, library, administrative area, student activity area and residential area for student, faculty and other supporting staffs.
* Availability of required no. of laboratories and important equipment/ instruments required for traditional engineering.
* Most of the UG courses of the college are ready for accreditation by AICTE.
* Highly experienced faculty with vast experience in teaching, research and industrial consultancy.
* All regular faculty members are having PG or Ph.D. degree.
* Ongoing research activities guiding many scholars for PG and Ph.D. degrees and publishing research papers in various national and international journals of repute.
* The student input to the college is of top order from the OJEE merit list.
* The college has created a brand name in the employment sector as a result of performance of students in CAMPUS/Off-Campus selection process.
* Academic calendar is strictly as per university calendar (BPUT). The results of all examinations are declared well in time.
* Pass percentage of students is more than 95%. Most of the gold medalists of the University are from CET.
* Sufficient experience in executing large no. of sponsored projects funded by AICTE (MODROBS, TAPTEC, R&D), DST, AERB
* Variety of consultancy work executed by the faculty (eg. PMGSY, AIRTEL Towers, KBK Roads, NALCO Ash Pond, Campus Connect Programs, SC/ST Graduate Engr. Employability program)
* Strong Alumni network helps in resource generation, placement activities and knowledge dissemination.
* Provision of deputation of faculty to other reputed institutions like IITs for obtaining higher qualifications.

WEAKNESSES

* Insufficient funds and Infrastructure restricts from being 100% residential institution.
* Insufficient funds for up-gradation/ modernization of the existing laboratories.
* Lack of Accreditation of UG and PG Courses.
* Lack of provision for financial assistance to faculty for participating in Seminars and conferences

abroad.

* Lack of infrastructure leading to insufficient space for departments and faculty chambers.
* Lack of facility for special care to socially and economically backward weak students.
* Lack of adequate teaching aids in the class rooms.
* Lack of adequate research facilities.
* Lack of adequate e-learning resources in the central library.
* Lack of office automation and e-governance for faster flow of data and information.
* Lack of sufficient continuing training programs for technical and supporting staff.

OPPORTUNITY

* Being in the capital city of the state the college is well connected by Road/ Rail/ Air, which allows creating growth opportunities in form of industry-institute interaction and potential for research and consultancy.
* Vicinity of national academic institutes like IIT, IIIT, NISER, Institute of Physics, IMMT, OUAT, NITTTR etc. offers scope for academic collaboration.
* Existence of the college within the hub of technical education creates opportunities for faculty and students to have better interaction and creative competition with counterparts in the form of seminars/ quizzes/ robocoms for technical growth.
* The institute is surrounded by number of industries such as INFOSYS, SATYAM, WIPRO, TCS, STPI, OCAC, NALCO, NTPC, CIL, EMAMI, a number of steel and power industries and organizations like CTTC, CIPET, CIFA, ILS, thus posing opportunities for technical collaborations.
* Future expansion may be easier and possible due to availability of free govt. land in the periphery.

THREAT

* Inadequate funding for rapid and successful growth. The grant-in-aid provided by the State Government is insufficient for growth of infrastructure and other amenities.
* Non-retention of quality faculty leaving the college to join NITs /IITs for better opportunities.
* **Strategic plan** developed for institutional development based on SWOT analysis, The activity plans shown are linked with individual action plans

**Strategic Action Plan for Institutional Development**

 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl | Activities/Month |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Detailed Pre action Review |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | BOG formation & achieving Autonomy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Procurement for Central Library & Computer Centre |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Procurement for Departmental Labs  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Creating/commissioning Facilities in item  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Modernising existing Labs  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Creating New labs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Creating Departmental Comp Labs for R & D |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Faculty & staff Training  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Opening New PG Programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Modernising Class Rooms + Teaching aids |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 | Prep Study materials |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 | Improving learning Process as per  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 | Running Finishing Schools |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | Improving/ achieving Employability as per plan in para  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | Industry Institute Interaction + product Development |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | R & D & Consultancy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | Internal Revenue Generation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 | Accreditation of 60% programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | Accreditation of 100 % programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21 | Achieving Self Sustainability |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22 | Student Counseling & Stress reduction |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23 | Coordination, Reporting/ MIS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

This strategic plan that has emerged from this reflection aims at making CET more able to serve identified national priorities. These include a vast increase in human resources capable of undertaking focused research and development for the industry in support of increased cost-effectiveness, international competitiveness, energy efficiency, environmental management, and the development of rural populations, disadvantaged sectors of the population, and the large non-formal sector of the economy. In light of these priorities, CET has decided to realign its program and focus its energies on the development of research and educational excellence in a broad domainand on developing its capacity. This requires the development of new physical and human capacities and adjustments to the curriculum, both in its technical aspects as well as in its human, management and service aspects, to create complete professionals capable of a high level of technical competence and innovation and a high capacity for responsible and committed social action. These ambitions outward thrust must be accompanied by a no less ambitious program of internal structural reform and organizational development. If it wishes to rise to the challenge, CET must be able to attract high quality students, recruit a large number of qualified faculty to fill its current vacancies, and substantially improve its administrative efficiency and effectiveness. This requires obtaining full autonomy under an independent Board of Governors/Management, achieving financial stability and vitality through a clear block funding agreement, coupled with dynamic generation of resources, and engaging in a systematic process of organizational change. CET’s strategic plan therefore has a main thrust: increased organizational viability through structural reforms and organizational development. TEQIP’s design is particularly well suited to support CET in these strategic directions.

* **How the key activities proposed in the Institutional Development Proposal are linked with the results of SWOT Analysis.**

The strategic Action plan is fully linked with the SWOT analysis. The Development plan for procurement of various equipment, computers, training needs of faculty and staff, R & D requirement and opening of PG courses are planned and listed as per detailed SWOT analyses at Departmental level itself and the final Action Plan and Budget proposals have been arrived at by summing them up. Separate Action plans have been provided for each activity in the Main Strategic Action Plan. As far as possible emphasis has been put on purchasing more number of mid order cost equipment than fewer number of costly ones. 100 % accreditation is expected to be achieved by end of third year.

To maximize utility of equipment and reduce idle time, the laboratories are planned to be converted in small manufacturing workshops serving industry and bringing revenue plus employment. This will also enhance hands on training and ensure full employability of the students. With the four funds and Internal Revenue Generation, we expect to sustain about 30% of the Institutional Development from third year onwards with increasing order of sustainability reaching upto 50 % at the end of 4 years.

Further a stress reduction programme in the curriculum too has been thought to be introduced, which would help reduce the stresses among the students.

* 1. **Specific objectives and expected results of our proposal in terms of “Institutional strengthening and improvements in employability and learning outcomes of graduates”. These objective and results are linked to the SWOT analysis.**

The specific objectives and the expected results are outlined below:

***(i) Academic Excellence***

Institutional Development for achieving academic excellence is one of the main objectives of the project. This can be achieved by carrying out all round reforms related to Academic and Non-Academic activities and improving various components of the system such as infrastructure facilities, faculty & supporting staff developments, learning resources etc. In addition, the existing curriculum needed revamping to enhance the academic quality. With these aspects in mind the following specific objectives are envisaged:

* Augmenting the infrastructure in the campus
* Construction and Establishment of Central Computing Facility
* Modernizing and strengthening of laboratories and workshops
* Enhancing the library facilities and establishing digital library
* Providing state -of - the art training to the faculty and staff
* Improving campus wide electronic connectivity (Wi-Fi) and high speed internet
* Revising the curriculum and syllabus
* Augmenting the postgraduate (masters and doctoral) programmes
* Increasing the admission capacity of the PG Programme
* Improving system of administrative and academic governance
* Accrediting UG and PG Programmes
* Achieving ISO 9001 Certificate or other quality standard certifications
* Augmenting Continuing Education Programmes
* Refurnishing the existing class rooms, labs, seminar halls, etc.
* Implementing programmes for improving the academic capability of weaker students
* Improving co curricular activities and community development
* Improving soft skills of students
* Increasing the industry institute partnership/ Interaction through Transfer and exchange programmes, consultancy and Technology/ Industrial Incubation Centers”
* Development of “Knowledge Centers” to cover a wider domain of knowledge
* Creating infrastructure and conducting research for indigenization
* Converting Labs in to small manufacturing centers
* Opening industrial development product Development cell
* Setting up of self sustaining/ maintenance cell

***(ii) Broad Base Sharing of Knowledge/ facilities and Networking***

A learning process on broad based sharing of knowledge and facilities is an important media to develop. Intra and inter sharing among all institutions develops the institute faster. Networking with other institutions and inculcating a training and re-training culture is another broad development parameter intended to provide mutual assistance and quality improvement and accordingly the respective objectives are outlined as:

* Effectively sharing knowledge, technology, infrastructure and expertise for improving the quality of the education and training programme of resources with other engineering colleges of BPUT and technical universities of the state/country
* Facilitate open and unconstrained interactions of faculty and staff.
* Create/facilitate the means for higher education of faculty.
* Develop/Provide help to develop learning resources, teaching aids, experimental set up etc. for educational purpose.
* Jointly organize seminars/conferences/workshops/technical meets etc. for students and faculty.
* Encourage faculty in writing books, technical papers, manuals, etc.
* Train/facilitate training of faculty and staff.
* Join/collaborate/associate in research and consultancy.
* Network libraries and laboratories (NPTEL, EDUSAT etc.)
* Conduct entrepreneurship development programmes for students.

**(iii) Service to weaker sections / community**

As a moral obligation to uplift the educational standards of the weaker sections of society and rendering other community services the following objectives are envisaged:

* To conduct special academic programs for weaker students including SC/ST students to bring their standard at par with others
* To disseminate the technical know-how and transfer of new technologies to the neighboring community
* To conduct training/awareness programmes, workshops, seminars, etc. for the organized/ unorganized sector

**2.4 Action plan for: (max 1 page each)**

CET has a vision to be a “Center of Excellence” in Engineering education, Research & Development and consultancy. This can be fulfilled in a phased manner. The strengths of the institute can be used to advantage of the opportunities by using the infrastructure and expertise. The weaknesses can be overcome by attracting national and international organization to support the institution by interactive and collaborative projects. In this way the strength and opportunity can be reinforced to combat the weaknesses and threats and implement the proposal to achieve the results. The specific action plans are as follows:

1. **Improving employability of graduates**

Action Plan for Improving Employability of Graduates

 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl | Activities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Review & Detailed plan for Teaching Aids & Modernising Class Rooms  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Improving Learning Process |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Increased exposure through Modern Labs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Skill Development labs & programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Language & Communication Programmmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Benefiting students from return of trained Faculty  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Introduction of hands on training |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Finishing schools |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Involving students in consultancy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Training in actual Project Handling  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Here the base line has been taken as 80 % employability as it is existing today. Finishing school and various facilities to be a improved under TEQIP, improvement of Work, language and communication skills have also been planned to taken up to ensure 100 % employability. Following are the backbone to the above.

* Establishment and maintaining quality infrastructure for engineering education.
* Periodic and suitable updating of the curriculum with a vision to accommodate the fast changing global milieu.
* Amalgamation of engineering knowledge of students and faculty with computer science, information technology, management, interpersonal communication, finance and accounting skills along with physical fitness.
* Stimulation of research & development activities on thrust areas.
* Development and sustenance of industry –institute interaction.
1. **Increased learning outcomes of the students**

Action Plan for Increased Learning Outcomes of the Students

 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| sl | Activities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Review & Detailed plan for Teaching Aids & Modernising Class Rooms  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Tendering for modern. class rooms |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  Placement of orders and installation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Prep. & purchase of teaching aids |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Updating & Prep of notes and special study materials |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Increased Tutorials |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Teacher –Student Interaction  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | CAD & software Expertise  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Introduction of hands on training |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Benefit from return of trained Faculty  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Finishing schools |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 | Involving students in consultancy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Quality of technical education can only be achieved through participation of students in actual consultancy, designs and hands on training, which has been emphasized here. Further, attention is given to increased Tutorial classes and teacher student interaction. Weekly full one day may be introduced in curriculum for tutorials, where students can pose any of their problems related to any subject. Teachers shall be available al the time for interaction through telephones, internet or direct face to face. Within 2 years the Learning outcomes are expected to increase by 20 %, which will be reflected by their results showing 85 % of the students securing over 80 % marks. The second part of technical learning through involvement/ participation of students in actual projects, which is reflected in the action plan of employability.

Following steps leads to the success of the above action plan.

***MODERNIZATION AND ADDITION OF DEPARTMENTAL LABORATORIES AND WORKSHOP***

 The institution has basic laboratories and workshop for various Engineering disciplines. Some of the equipments existing in the laboratories are obsolete now and it requires a complete renovation and modernization. In some cases complete new equipment have to be purchased.

***UPGRADATION OF CENTRAL COMPUTAIONAL FACILITY***

The College has more than 600 computers out of which there exists two nos. of Central Computing facility having 128 Computers each with Linux/ Windows LAN connectivity through, servers and structured cable networking, which will be used by students (UG, PG and Research scholars), faculties and staffs.

The college has 1Gbps connectivity through NKN with 10 Mbps connectivity through NMEICT.

***EXTENSION OF INTERNET FACILITY***

The college has been a member of INDEST, ERNET and DELNET program of AICTE. At present it has only 384 kbps radio link internet connectivity from STPI, Bhubaneswar. In order to extend this internet facility of the above program of AICTE all faculties, students and staffs should be provided with 24 hours internet connectivity along with the E- Library facility and online access to various international journals and study resources. The college proposes to extend such internet facility to all the hostels.

***DEVELOPMENT OF CAD LABORATORIES***

 It is proposed to develop departmental CAD laboratories in different departments to cater to the needs of teaching and research.

***DEVELOPMENT OF MEDIA CENTRE INFRASTRUCTURE FOR SEMINAR/ CONFERENCES***

The institute regularly conducts refresher courses, seminars, conferences and short term educational programmes sponsored by AICTE, ISTE, State Govt., etc. Further, being the prime constituent college of State Technical University (BPUT) and situated in state capital, it takes leading role in implementing different programmes of the university in order to develop quality technical education in the state. For this purpose, the institute requires two or three well furnished Seminar/Conference Halls with audio and video facilities and auditorium for mass programmes.

***DEVELOPMENT OF CENTRAL LIBRARY***

The college has a limited technical library facility which is insufficient for 2000 students. This facility is to be enhanced for benefits of students, faculties and staffs. Moreover one E-library is to be set up. Library computerization is required for maintaining a good database and networking to other departments for access.

***FACULTY AND STAFF DEVELOPMENT***

Considering the continuous up gradation of technical developments, faculties, technical staffs and other supporting staff should upgrade their technical knowledge in engineering technical field. They should be provided with extensive training at higher level institutes like IITs, IISc, etc. to excel in technical field. It may be summaries as follows.

One fifth of the faculties, technical staff and others supporting staff should be allowed to go on training in emerging technical areas to IITs, IISc, TIFR, etc. from time to time on need basis by the departments. Faculties and other staffs should be allowed to present their noble ideas through technical paper presentation in various conferences, symposia, etc. in India and abroad. They must be allowed to be members of professional academic bodies. Students should be allowed to evaluate faculties impartially through feed back system. This will enhance the quality of teachers.

***INTRODUCTION OF NEW COURSES***

The institute is applying for opening M.Tech. Courses in various emerging technical areas for concurrence of AICTE. The selected areas are placement oriented, industrial need and research oriented.

***IMPROVEMENT IN CURRICULAR PRACTICE***

New curriculum will be adopted at par with the new technical advancements in consultation with technical university of Orissa and AICTE.

***ENHANCEMENT OF POSTGRADUATE EDUCATION AND RESEARCH AND CONSULTANCY ACTIVITIES***

In developing countries like India, the development activities are to be taken up to increase the standard of living of the rural mass. In addition to this the urban areas need high-tech facilities for comfort in social and public life. This needs the knowledge dissemination to the engineers through higher level of learning such as Postgraduate courses, Doctoral programmes and Post-Doctoral programmes. Hence, it is proposed to introduce the PG courses as mentioned in article 3.8. in addition to this the college has sufficient infrastructure and environment for running Ph.D programmes in all existing branches of engineering and science. At present a good number of research scholars from faculty and outside have/are completed and carrying out their doctoral work inspite of stringent financial constraints. The financial assistance through proposed programme will ignite the spirit of the existing establishment to enhance the teaching quality, research and extension services.

1. **Obtaining autonomous institution status within 2 years**

Action Plan for Obtaining Autonomous Status for Institution

 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl | Activities/Month |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 |  Processing at Govt. Level |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  Formation of BOG |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  Creation of 4 funds |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Achieving Administrative autonomy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Revising & Restructuring Curriculum |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Introducing Academic autonomy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Revenue Generation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Amendment of Statutes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  Enhancement & Utilising Block grants |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Coordination, Reporting/ MIS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Achieving Autonomy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Our college CET is the prime constituent college of the State Technical University i.e Biju Patnaik University of Technology(BPUT), Orissa . The Board of Governors (as per the guidelines given in Pip) for the College has been constituted with the approval of Vice-Chancellor BPUT vide letter no. BPUT/12496 dtd. 23.04.2011

Since the Government is actively facilitating the implementation of TEQIP programme, the autonomy is expected to be granted.

1. **Achieving the targets of 60% of the eligible UG and PG programmes accredited within two years of joining the Project and 100% accreditation obtained and applied for by the end of the Project of the eligible UG and PG programmes**

 Already three departments (Mechanical Engg, Civil Engg and MCA) have applied for NBA accreditation and awaiting the visit of the AICTE team for the same with full preparedness. In addition, four more departments are shortly going to apply for NBA accreditation.Challenges are in the form of financial constraints for the infrastructure and equipments, which are being tried to be met through state funding.

**Action Plan for Achieving Targets for Accreditation**

 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl | Activities/Month |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 |  Initiation of Accredition Process based on current status |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  Addition of Labs  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  Addition of Libraries |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  Modernisation of Labs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  Accreditation of PG prorgrammes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Coordination, Reporting/ MIS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | 60% Accredition |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | 100 % Accreditation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. **Implementation of academic and non academic reforms (details given in Annex-I to PIP)**

Action Plan for Implementation of Academic & Non Academic Reforms

 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| sl | Activities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Detailed pre action review  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  Creating Central & Departmental Faculties as per IDP |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | BOG formation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Creating 4 funds |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  Achieving various Autonomy  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  Filling all vacancies |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  Faculty & Staff Training |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  Students perform evaluation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Increased Learning outcomes & Employability  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Industry Institute Interaction |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Increasing Research & development |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 | Consultancy & Revenue Generation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 | Results of Reforms |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

The academic and nonacademic reforms are envisaged to be carried out as follows:

1. Exercise of autonomies:

* + - Managerial autonomies (through formation/updation of BOG)
		- Administrative autonomy
		- Financial autonomy
		- Academic Autonomy

2. Governance system with participation of stakeholders: to be done with the help of a number of committees :

* Academic Committee
* Finance Committee :
* Building and Works Committee
* Purchase Committee
* Disciplinary Committee
* Institution Development Committee
* Students Affairs Committee
* Library Committee
* Grievance Committee
* Anti Sexual Harassment Committee (ASH)
* Training & Placement Cell Committee
* Industry-Institute Interaction Cell Committee

3. Use of Block Grant: as per TEQIP stipulations

4. Establishment of four Funds (for sustainability of the reform process): as per TEQIP norms

* Corpus Fund
* Faculty Development Fund
* Equipment Replacement Fund
* Maintenance Fund

5. Revenue Generation: through a number of activities, viz. Consultancy, sponsored projects, CEP

6. Filling-up Faculty and Staff Vacancies: as per AICTE / government norm

7. Student Performance Evaluation: both summative and formative

8. Performance appraisal of faculty by students and faculty counseling.

9. Faculty Incentives for Continuing Education, Consultancy, Research and Development, etc.

1. **Improving interaction with industry**

In order to establish good interaction with various industries like Infosys, Satyam, STPI, NALCO, FACOR, TISCO and others, it is required to develop a cell known as industry institute partnership cell “IIPC, which will be created new to take up industrial research, consultancy and extension services. Industrial professionals will be invited to exchange their novel ideas in technical fields. Their requirements will be satisfied by the institute for developing such collaborations. Students and faculties will be trained accordingly to meet the technical challenge. Regular industrial tour, symposia and seminars will be conducted in joint collaboration; faculties may be sponsored for a fixed duration to such industries on need basis.

Action Plan for Improving Interaction with Industry

 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SL | Activities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Study of current Industrial trends |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Study of Requirement of Industries |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  Creation of an Industrial chair in Institute |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Faculty Industrial training |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Special summer/ winter courses for professional  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Problem solution programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Periodical Curriculum modifications  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Results of Interaction |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. **Enhancement of research and consultancy activities**

Action Plan for Enhancement of Research & Consultancy Activities

 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl | Activities/Month |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Review of existing status on research & consultancy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  Introducing New M Tech & Ph.D Programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  Updating exsiting PG Programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  Establishing Full fledge central Library |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  Converting Labs into small manufacturing centers |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  Product Development & obtaining Patents |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Offering Design & Problem solving Consultancy in all departments |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Further Research with Industrial feedbacks |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Consultancy in Industrial Model tests |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Industrial Testing Center |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Results of R& D and consultancy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

This is envisaged to be done through the following actions:

* Strengthening of the existing postgraduate (M.Tech) programs in CET.
* Opening of new M.Tech programs in departments without such programs and increasing the number of M.Tech programs in departments with such programs.
* Registration of higher number of Ph.D scholars
* Opening “Centres of Advanced Post Graduate Studies” in niche areas (two such BPUT Centres are established in CET)
* Applying for sponsored research projects from AICTE, DST, AERB etc.
* Carrying out consultancy projects e.g. PMGSY, Architectural, industrial etc.
	1. **Action plan for organizing a Finishing School and for improving the academic performance of SC/ST/OBC/academically weak students through innovative methods, such as remedial and skill development classes for increasing the transition rate and pass rate with the objective of improving their employability.**

Weeks



* 1. **Action plan for strengthening of PG programmes and starting of new PG programmes.**

We have already the following six P.G. Programmes running in various departments. Proposals for opening of more PG Programmes in different disciplines are in pipeline. However, they are all self financing courses. Regular PG programmes are yet to be opened. Facilities and Additional Laboratories are to be created and finance is required for that. With the help of TEQIP-II, the same can be created. The Institute has already initiated the process of recruitment.

**Existing PG Programmes**

i. Structural Engineering

ii. Industrial Engineering & Management

iii Computer Science & Engineering

iv. Information Technology

v. Mechanical Systems Design & Dynamics ( under Center for Mechanics of BPUT run in CET)

vi. VLSI & Embedded Systems Design(under Center for Micro Electronics of BPUT run in CET)

**Action Plan for Strengthening of PG Programs and Starting of New PG Programmes.**

**Month 🡪** 0 4 8 12 16 20 24 28 32 36 40 44 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| sl | Activities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 |  Assesment of performance of Existing PG Programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  Review of Industrial Requirements |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  Assesment of opening for new PG Programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  Creation of new laboaratories  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  modernization of existing laboratories |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Strengthening of existing PG Programmes  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Starting and running of new PG Programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Assesment of new PG Programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Coordination, Reporting/ MIS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

* 1. **Summary of Training Needs Analysis carried out. Also, Faculty Development Plan for the first 18 months for improving their teaching, subject area and research competence based on Training Needs Analysis (TNA) in the following areas.**

As per the PIP suggestions, the Training Need Analysis for faculty of CET has been carried out in the following areas.

* **Basic and advanced pedagogy**
* **Subject / domain knowledge enhancement**
* **Attendance in activities such as workshops, seminars**
* **Improvement in faculty qualifications**
* **Improving research capabilities**

With the aspects of training addressed hereunder. These training need analyses have been carried out in detail for each department and has been summarized thereafter in the action plan.

Attitudinal and mind-set change, Personality development, Communication skills, Motivation, Qualification upgradation, Effective teaching – learning (pedagogy), processes, Advanced subject knowledge, Advanced R&D activities, lab/workshop, development, Quality management, Standard conferences, consultancy, other felt needs

This is planned to be implemented through a number of steps viz:

* Conducting workshops
* Organizing national and international conferences
* Training of faculty in different domains in outsides training institutes/universities (e.g.NITTTR)
* Sending faculty abroad to foreign universities and research laboratories for training
* Sponsoring faculty for short tem courses and refresher courses
* Quality upgradation programs through post doctoral research in India and abroad.

**2.8** **Action plan for training technical and other staff in functional areas.**

Action Plan for Training of Faculty & Supporting Personnel.

 **Month 🡪** 0 4 8 12 16 20 24 28 32 36 40 44 48

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| sl | Activities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Review & updating Detailed Training Need Analysis of Faculty |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | An informal Test and Analysis of Training needs of Supporting staff  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Formulating Training programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Scheduling with Institutions/ industry for such programmes |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Faculty Training |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Training of support staff |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Transforming training to Benefits of Institution |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Coordination, Reporting/ MIS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

The Training Need Analysis for technical and other staff of CET has been carried out. Based on this the following aspects of training have been addressed:

Attitudinal and mind-set change, Personality development, Communication skills, Motivation, Qualification upgradation, Operation and Maintenance of modern laboratory and advanced equipment, Advance learning in their relevant occupational areas, personality development, communication skills, motivation, office modernization, other felt-needs

This is planned to be implemented through a number of programmes as listed hereunder. The action plan provides additional details. The benefit of faculty training is planned to begin from 10th month of the initiation of the project.

* Conducting workshops
* Organizing in-house training programs in different areas
* Organizing quality circles and TQM practice
* Training of staff in different domains in outside training institutes/universities (eg.NITTTR)
* Sponsoring staff for short term courses

**2.9 Description of the relevance and coherence of Institutional Development Proposal with State’s/National (in case of CFIs) Industrial/Economic Development Plan.**

The successful implementation of TEQIP-II IDP in CET is a direct function of coherence of Institutional and state objectives. Institute’s objective is to project CET as a Center of Excellence in Technical Education and To & fro Transfer of technology to Industry in the eastern Zone and thereafter raising it to the National Level. The State of Orissa has a plan to develop CET into a University of National Repute. The state has been taking keen interest in providing increasing funds to the institution for Non plan and infrastructure. Sanctions have been granted for large scale recruitment of staff and orders delivered for filling up all vacancies.

CET through this Institutional Development Proposal (IDP) will greatly enhance the output of technical education both qualitatively and quantitatively leading to generation of highly skilled engineering graduates in diverse fields of engineering who can join in different engineering sectors in the state and contribute to their performance and growth. This will be a great value addition to the rapid industrialization drive taking place in the state of Orissa, which in turn will benefit it economically.

**2.10 Brief description on the participation of departments/faculty in the IDP preparation.**

The IDP has been prepared with full participation of the stake holders, viz. faculty, staff and students. Two Brain storming sessions and 5 meetings thereafter were organized. Each Departments conducted there SWOT analyses based on actual existing conditions, laboratory, faculty strength, training need analysis, Current Learning status/ outcomes of the students and finishing schools and prepared their individual development plans.

Separated joint exercises were carried out to analyse and prepare the requirement of central Library, Central Computer Center, Wi fi, network, Continuing Education Center.

**2.11 Describe the Institutional project implementation arrangements with participation of faculty and staff.**

The Institutional project implementation has been envisaged through a broad based faculty and staff participation. Tow tier implementation team shall play parallel for development – one at the Departmental level and another at the central level for creating and commissioning central facilities. However, the processing and necessary approvals for departmental procurement be granted through the main committees. For proper and faster implementation, following committees have been formed to take care of different aspects.

* Academic Committee
* Finance Committee :
* Building and Works Committee
* Purchase Committee
* Disciplinary Committee
* Institution Development Committee
* Students Affairs Committee
* Library Committee
* Grievance Committee
* Anti Sexual Harassment Committee (ASH)
* Training & Placement Cell Committee
* Industry-Institute Interaction Cell Committee
* Research and Development Cell

Out of the above fourteen committees the central coordination committee shall coordinate the TEQIP project and see overall functioning of the various committees. This will serve as the interface between the institution and the NPIU, MHRD and the SPFU. A full fledge TEQIP management cell has been created. The supporting personnel shall be recruited/ deputed after the sanction of TEQIP funds in favour of CET.

Special schedule of powers of BOG, committee chairman and the members of the committee etc shall be formed and approved for achieving the targets of the TEQIP.

Special manuals shall be prepared for approval of various affairs and things with concurrence of BOG. Work manuals shall be prepared for clear functioning and implementation of the project exercising autonomy at level of BOG.

**2.12 Provide an Institutional project budget in Table-29**.

Based on the Detailed SWOT and planning of procurement of equipment and creating other facilities, the Institutional budget is projected as follows in table 29.

**Institutional Project Budget for Sub- Component 1.1 (Rs. in crores)**

**Table-29**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No** | **Activities** | **Project Life****Allocation** | **Financial Years** |
| **2012-13** | **2013-14** | **2014-15** | **2015-16** |
| **1.** | Infrastructure improvements for teaching, training and learning through: | **5.00** |  |  |  |  |
|  | (i) Modernization and strengthening of laboratories |  |  |  |  |  |
| (ii) Establishment of new laboratories for existing UG and PG programmes and for new PG programmes |  |  |  |  |  |
| (iii) Modernization of classrooms\* |  |  |  |  |  |
| (iv) Updation of Learning Resources |  |  |  |  |  |
|  (v) Procurement of furniture |  |  |  |  |  |
| (vi) Establishment/Upgradation of Central and Departmental Computer Centers\* |  |  |  |  |  |
| (vii) Modernization/improvements of supporting departments\* |  |  |  |  |  |
| (viii) Modernization and strengthening of libraries and increasing access to knowledge resources |  |  |  |  |  |
| (ix) Refurbishment (Minor Civil Works)\* |  |  |  |  |  |
| **2** | Providing Teaching and Research Assistantships to increase enrolment in existing and new PG programmes in Engineering disciplines |  |  |  |  |  |
| **3** | Enhancement of R&D and institutional consultancy activities\* |  |  |  |  |  |
| **4** | Faculty and Staff development (including faculty qualification up gradation, pedagogical training, and organizing /participation of faculty in workshops, seminars and conferences) for improved competence based on TNA |  |  |  |  |  |
| **5** | Enhanced Interaction with Industry |  |  |  |  |  |
| **6** | Institutional management capacity enhancement |  |  |  |  |  |
| **7** | Implementation of institutional reforms |  |  |  |  |  |
| **8** | Academic support for weak students under the aegis of Finishing School |  |  |  |  |  |
| **9** | Technical assistance for procurement and academic activities |  |  |  |  |  |
| **10** | Incremental Operating Cost |  |  |  |  |  |
|  | **Total** |  |  |  |  |  |
|  |  |  |  |  |  |  |

**2.13 Provide the targets against the deliverables listed in Table-30**.

**Table-30**

**Project Targets4 for Institutions under Sub-Component 1.1**

|  |  |  |  |
| --- | --- | --- | --- |
| Sl. No. | **Deliverables** | **Base-line** | **Targets to be achieved** |
| **At the end of 2 years of joining the Project** | **By project closing** |
| 1 | Number of students registered for(a) Masters in Engineering programme(b) Doctoral programme in Engineering | 67Nil | 12010 | 15020 |
| 2 | Revenue from externally funded R&D projects and consultancies in total revenue (Rs. in lakh) | 15 | 30 | 50 |
| 3 | Number of publications in refereed journals(a) National(b) International | 1012 | 1520 | 2535 |
| 4 | IRG as % of total annual recurringexpenditure | 15 | 25 | 35 |
| 5 | Number of co-authored publications in refereed journals(a) National(b) International | 1012 | 1520 | 2535 |
| 6 | Student credentials(a) campus placement rate of • UG students • PG students(b) average salary of placement package for (Rs. in lakh) • UG students • PG students | 80nil3.0- | 90253.54.0 | 95503.54.5 |
| 7 | Number of collaborative programmeswith Industry | 01 | 04 | 06 |
| 8 | Accreditation status (obtained and applied for\*) | 03\* | 08 | 08 |
| 9 | Vacancy position for faculty and staff | 16% | Nil | Nil |
| 10 | Percentage of regular faculty having a Masters Degree or a Doctorate Degree in Engineering disciplines | 100% | 100% | 100% |
| 11 | Transit rate from 1st to 2nd year for the following: • All Students • SC and ST Students • OBC Students • Women Students | 95%80%85%90% | 100%85%90%95% | 100%85%90%95% |
| 12 | Autonomy status | No | Yes | Yes |
| 13 | Enrolment of faculty with only BachelorDegree for qualification upgradation | Nil  | N.A. | N.A. |
| 14 | Any other academic deliverables (maximum 3) |
| (i) |  |  |  |  |
| (ii) |  |  |  |  |
| (iii) |  |  |  |  |

These pertain to the entity participating in the Project which may either be the whole stand alone institution or the Faculty /Department / constituent institution of a University or Faculty/Department of a Technical Deemed University.

**2.14 An action plan for ensuring that the project activities would be sustained after the end of the Project.**

We have a concrete plan for ensuring sustainability of the TEQIP-II Development Programmes Activities after end of four (04) years. Within these four years, we have planned to build-up a total fund of Rs. 4.145 Crores under the 4 funds – Corpus, Maintenance, Faculty Development and Equipment replacement and through Revenue Generation. Interest on these capitals is further added to these funds

Further, regular contribution of 2% of the annual recurring expenditure shall be included in the Annual Budget starting form the year 2012 onwards. Thus, the above 4 funds go on increasing every year. To ensure sustainability and a mid order development, we plan to spend a development expenditure to the tune of Rs. 1.50 Crores ( gradually increasing as shown in bar chart) each year. For additional development, additional funds from other sources shall be roped in. As can be seen the Reserve funds continues to build up ensuring sustainability. For additional development, additional funds from other sources shall be roped in. `

**Action Plan for Sustainability of Development**

|  |  |
| --- | --- |
| Particulars / nth year  | Funds in Crores of Rupees |
| 1st yr | 2nd yr | 3rd yr | 4th yr | 5th yr | 6th yr | 7th yr |
| 1. Annual Recurring Expenditures( Approx) | 15 | 15 | 18 | 20 | 22 | 24 | 26 |
| 2. Amount to corpus funds | 0.1 | 0.11 | 0.13 | 0.15 | 0.175 | 0.20 | 0.24 |
| 3. Amount to Maintenance funds | 0.1 | 0.11 | 0.13 | 0.15 | 0.175 | 0.20 | 0.24 |
| 4. Amount to Faculty Development funds | 0.1 | 0.11 | 0.13 | 0.15 | 0.175 | 0.20 | 0.24 |
| 5. Amount to Equipment Replacement funds | 0.1 | 0.11 | 0.13 | 0.15 | 0.175 | 0.20 | 0.24 |
| 6. Revenue Generated through Consultancy | 0.20 | 0.40 | 0.60 | 0.60 | 0.60 | 0.70 | 0.70 |
| 7. Interest over funds | 0. | 0.048 | 0.119 | 0.218 | 0.33 | 0.462 | 0.492 |
| 8 Total sustainable funds available for IDP | 0.60 | 1.488 | 2,727 | 4.145 | 5.775 | 6.237 | 6.639 |
| 9. Requirement for Institutional Development after 4 years |  |  |  |  | 1.50 | 1.75 | 1.80 |
| 10. Net Balance available |  |  |  |  | 4.275 | 4.487 | 4.839 |

**2.15 Procurement Plan for the first 18 months for Goods and Civil Works in Table-31 and Consultant Services in Table-32 with budget and timeframe.**

**Table-31**

**18-month Procurement Plan for Works and Goods\* for Sub-Component 1.1**

Name of the institution with location: College of Engineering and Technology, BPUT, Bhubaneswar

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Package No. | Sl No. | Activities | Description ofWorks/Goods | Estimated Cost(Rs) | Method of Procurement | Design/ InvestigationCompletion/SpecificationFinalization(Date) | EstimateSanctioned(Date and Value) | Preparation of BidDocument(Date) | Receipt of Bank’s NoObjection toBidding Document(Date)\* | Bids | Contract Award(Date/Value) | Date of Completionof Contract |
| Invitation(Date) | Opening(Date) |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 |  |  | Machines & Equipment, furnitureand accessories | 7.4 crores | Open tender/DGS&D | Within 6 months from sanction of funds | Within 2 months from sanction of funds | Within 1 months from sanction of funds |  |  |  |  |  |
| 2 |  |  | Books and Journals | 2.0 crores | Quotation call/AICTE-INDEST | Within 6 months from sanction of funds | Within 2 months from sanction of funds | Within 1 months from sanction of funds |  |  |  |  |  |
| 3 |  |  | Civil and other works | 0.50 lakhs | Tender/Govt agency | Within 6 months from sanction of funds | Within 2 months from sanction of funds | Within 1 months from sanction of funds |  |  |  |  |  |

\* Goods cover Equipment, Furniture and Books and Learning Resources

\*\* Applicable in case of ‘Prior Review’ by the World Bank.

Note: For Column 6, state ICB/NCB/Direct Contracting/Shopping method as appropriate

**2.16 Provide any other information related to special academic achievements as given in Eligibility proposal of the institution.**

* The college has been awarded the best ISTE chapter in Orissa on a number of occasions
* The college has been awarded with National Udyog Excellence Award in the year 2002 by International Institute of Education and Management.
* A large number of AICTE/DST projects have been completed/in progress in the college.
* A number of international and national conferences have been organized in CET.
* A special training program for the upgradation of unemployed SC/ST graduate engineers was conducted in 2008-09 in collaboration with INFOSYS and Govt. of Orissa with a total budget of Rs 1.0 crore.
* Collaboration and student exchange programs with foreign universities like University of Siegen, Germany was undertaken
* Implementation of e-administration is in progress.
* Eight number books have been published by the faculty of CET.
* 23 software packages have been developed and 3 patents filed by its faculty.
* A number of faculty members have visited countries like France, Japan, Denmark, Germany, Sweden, Austria, Saudi Arabia, UK, Ethiopia and Libya with different assignments.
* Faculties of CET have undergone rigorous academy-Industry interaction. They have designed number of bridges and towers.
* The faculty of CET have taken up prestigious assignments like General Manager in RITES, Visiting Professorships in Saudi Arabia, Libya and Etiopia
* A number of technical collaborations have been taken up with other reputed organizations like CIPET, CTTC, IIT, Kharagpur in various thrust areas like composite materials, TQM, CAD/CAM, Robotics etc.
* In keeping with the dynamic needs, and under initiation of AICTE and BPUT, a number of workshops were organized in the college in presence of eminent experts from academics and industries, to develop model curriculum/syllabi for B.Tech in the area of Mechanical Engineering, Civil Engineering, Computer Science and Information Technology (B.Tech and M.Tech), Business and Communicative English etc. The models are likely to be implemented in BPUT and AICTE.
* A number of campus connect programs were organized with IT majors like INFOSYS, WIPRO, Satyam etc.
* Students regularly participate in Techfests and competitions all over India and earned laurels
* Several students earned scholarships/awards like NALCO and POSCO scholarship.
* MOU has been signed with NITTTR, Kolkata for developing special training modules in the area of VLSI design etc.