

REVISED INSTITUTIONAL DEVELOPMENT PROPOSAL (RIDP)

From



GOVT. COLLEGE OF ENGINEERING & TECHNOLOGY, BIKANER

Under

**SUB-COMPONENT 1.1: STRENGTHENING INSTITUTIONS TO IMPROVE
LEARNING OUTCOMES AND EMPLOYABILITY OF GRADUATES**

of

**TECHNICAL EDUCATION
QUALITY IMPROVEMENT PROGRAMME II**

of

**THE MINISTRY OF HUMAN RESOURCE DEVELOPMENT
GOVERNMENT OF INDIA**

Submitted to

**STATE PROJECT IMPLEMENTATION UNIT, DEPARTMENT OF
TECHNICAL EDUCATION, GOVT OF RAJASTHAN**

**Govt. College of Engineering & Technology, Bikaner
Sub-Component 1.1**

1. INSTITUTIONAL BASIC INFORMATION

(Note: Please insert the name of applicant institution and the Sub component number in the footer on each page of the proposal.)

1.1 Institutional Identity

- Name of the Institution : **Govt. College of Engineering & Technology, Bikaner**
- Is the Institution AICTE approved? : **Yes**
- Furnish AICTE approval No. : **06/01/RJ/ENGG/2007/65**
- Type of Institution : **Govt/Govt. Aided**
- Status of Institution : **Autonomous Institute of Govt. of Rajasthan.**
- Affiliating University : **Rajasthan Technical University Kota**
- Name of Head of Institution and Project Nodal Officers: **Dr. S. K. Bansal**

| Head and Nodal Officer | Name | Phone Number | Mobile Number | Fax Number | E-Mail Address |
|---|-------------------------------|---------------------|-------------------|---------------------|--|
| Head of the Institution (Full time appointee) | Dr. S.K. Bansal | 0151-2250948 | 9414131872 | 0151-2250948 | principal@cet-gov.ac.in |
| TEQIP Coordinator | Dr. Ajeet singh Poonia | 0151-2250949 | 9414241794 | 0151-2250948 | pooniaji@gmail.com |
| Project Nodal Officers for: | | | | | |
| Academic Activities | Dr. Alka Swami | 0151-2250948 | 9461470980 | 0151-2250948 | dev.g.tiwari@gmail.com |
| Civil Works including Environment Management | Ms. Akshita Choudhary | | 9462383685 | | Achoudhary85@gmail.com |
| Procurement | Dr. Prakash Singh | | 9460790676 | | psceramic@gmail.com |
| Financial aspects | Dr. Mamta Pareek | | 9784596925 | | cetmamtapareek@gmail.com |
| Equity Assurance Plan Implementation | Dr. Alka Swami | | 9461470980 | | swamialka@gmail.com |





Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1

Principal
Govt. College of Engg. & Technology
Bikaner
Page 2 of 39

1.2 Academic Information:

- Engineering UG and PG programmes offered in Academic year 20014-15

| S. No | Title of programmes | Level (UG, PG, PhD) | Duration (Years) | Year of starting | AICTE sanctioned annual | Total student strength |
|-------|---|---------------------|------------------|------------------|-------------------------|------------------------|
| 1. | Ceramic Engineering | UG | 4 | 2007 | 60 | 60 |
| 2. | Civil Engineering | UG | 4 | 2007 | 60 | 60 |
| 3. | Computer Sc. & Engineering | UG | 4 | 2007 | 120 | 120 |
| 4. | Electronics & Communication Engineering | UG | 4 | 2007 | 60 | 60 |
| 5. | Mechanical Engineering | UG | 4 | 2008 | 60 | 60 |
| 6. | Electrical Engineering | UG | 4 | 2011 | 60 | 60 |

- Accreditation Status of UG programmes:

| Title of UG and PG programs being offered | Whether eligible for accreditation or not | Whether accredited as on 31 st March 2015 | Whether "Applied for" as on 31 st March 2015 |
|---|---|--|---|
| Ceramic Engineering | Yes | NO | Yes |
| Civil Engineering | Yes | NO | Yes |
| Computer Sc. & Engineering | Yes | NO | Yes |
| Electronics & Communication Engineering | Yes | NO | Yes |
| Mechanical Engineering | Yes | NO | Yes |
| Electrical Engineering | NO | NO | NO |



Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1




Principal
Govt. College of Engg. & Technology
Bikaner
Page 5 of 39

- Acknowledgement regarding e-SAR has already been received and awaiting for NBA expert visit
- Accreditation Status of PG programmes: N.A.

1.3 Faculty Status (Regular/On-Contract Faculty as on March 31st 2015)

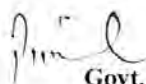
| Faculty Rank | No. of Sanctioned Regular Posts | Present Status : Number in Position by Highest Qualification | | | | | | | | | | | | Total Number of regular faculty in Position | Total Vacancies | Total Number of contract faculty in Position |
|--------------------|---------------------------------|--|---|-------------------|---|-------------------------|----|-------------------|----|-------------------------|----|-------------------|----|---|-----------------|--|
| | | Doctoral Degree | | | | Masters Degree | | | | Bachelor Degree | | | | | | |
| | | Engineering Disciplines | | Other Disciplines | | Engineering Disciplines | | Other Disciplines | | Engineering Disciplines | | Other Disciplines | | | | |
| | | 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 | 13 | - | - | - | - | - | - | - | - | - | - | - | - | Nil | 13 | Nil |
| Asso Prof | 24 | 2 | - | 3 | - | - | - | - | - | - | - | - | - | 05 | 19 | Nil |
| Asst Prof | 79 | 2 | 2 | 9 | 0 | 35 | 11 | 05 | 04 | 01 | 24 | - | - | 52 | 27 | 48 |
| Grand Total | | | | | | | | | | | | | | 57 | 59 | 48 |

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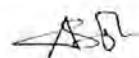
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1.4 Baseline Data (all data given for the following parameters must be restricted to engineering disciplines/fields only)

| S. No | Parameters | 2014-15 |
|-------|--|---------|
| 1 | Total strength of students in all programs and all years of study in the year 2014-15 | 1774 |
| 2 | Total women students in all programs and all years of study in the year 2014-15 | 208 |
| 3 | Total SC students in all programs and all years of study in the year 2014-15 | 105 |
| 4 | Total ST students in all programs and all years of study in the year 2014-15 | 66 |
| 5 | Total OBC students in all programs and all years of study in the year 2014-15 | 127 |
| 6 | Number of fully functional P-4 and above level computers available for students in the year 2014-15 | 640 |
| 7 | Total number of text books and reference books available in library for UG and PG students in the year 2014-15 | 20322 |
| 8 | % of UG students placed through campus interviews in the year 2014-15 | 07 |
| 9 | % of PG students placed through campus interviews in the year 2014-15 | Nil |
| 10 | % of high quality undergraduates (>75% marks) passed out in the year 2014-15 | 199 |
| 11 | % of high quality postgraduates (>75% marks) passed out in the year 2014-15 | 01 |
| 12 | Number of research publications in Indian refereed journals in the year 2014-15 | 05 |
| 13 | Number of research publications in International refereed journals in the year 2014-15 | 26 |
| 14 | Number of patents obtained in the year 2014-15 | Nil |
| 15 | Number of patents filed in the year 2014-15 | Nil |
| 16 | Number of sponsored research projects completed in the year 2012-13 | Nil |



Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1




Principal
Govt. College of Engineering & Technology
Page 5 of 39
Bikaner

| | | |
|----|--|--|
| 17 | The transition rate of students in percentage from 1st year to 2nd year in the year 2014-15 for : (i) all students (ii) SC (iii) ST (iv) OBC | All 85% SC 70% ST 65% OBC 75% |
| 18 | IRG from students' fee and other charges in the year 2014-15 (Rs. In lakh) | Rs 10,38,72,206/- (Approx) |
| 19 | IRG from externally funded R&D projects, consultancies in the year 2014-15 (Rs. in lakh) | Rs 38,000/- (Approx) |
| 20 | Total IRG in the year 2014-15 (Rs. in lakh) | Rs 10,39,10,206/- (Approx) |
| 21 | Total annual recurring expenditure of the institution in the year 2014-15 (Rs. In lakh) | Rs 6,11,43,820/- (Approx) |

Note: Academic Year for Academic data: July to June
Financial Year for Financial data: April to March



Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1




Principal
Govt. College of Engineering & Technology,
Bikaner

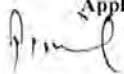
2. Institution Development Proposal (IDP)

2.1 Executive Summary of the IDP.

Govt. College of Engineering & Technology Bikaner is the foremost engineering college in the State. The college is an autonomous institution of Govt. of Rajasthan & has been granted with financial & administrative autonomy. Model of granting academic autonomy is being devised by State Govt. in consultation with Rajasthan Technical University and other Govt. funded institutes. The college is having its own Consultancy Cell, Entrepreneurship Development Cell, Examination Cell, Placement Cell and Monitoring system for Academic Audit and Evaluation. It is having an established Administrative and Financial Audit systems necessary for obtaining students feed back, organizing remedial classes, redressing the staff and students grievances and conduct of industrial training. However, there is some obsolescence in the labs as they are growing old with the college and most of the staff members require to be exposed to latest international technologies and the existing library needs to be modernized. The college wants to be flag bearer in the State on the road to implement Technical Education Quality Improvement Program.

Proposed line of action of the College to meet the Target:

- Regular revision of curricula and syllabi to keep pace with the emerging trends in technology.
- A comprehensive faculty development program through active participation in courses, workshops etc by faculties, officers as well as technical staffs
- Enhancement of facilities for research and development to augment postgraduate and doctoral level studies, which in turn will open up new areas for providing consultancy and carrying out industrial testing
- Identification of socially relevant problems and finding acceptable solutions keeping in view post crisis management
- A strategic plan for enhancing participatory management in academic, administrative and financial affairs
- Strengthening of departmental laboratories to keep up to the modern trends in technology
- Upgradation of campus wide networking



- A proactive effort for intensive interaction with industries for mutual exchange of ideas and possible ways to find effective and economic solutions
- Implementation of a well defined and time bound plan of cooperation with the networked institutions
- Providing flexible learning techniques including guiding, counseling etc for the benefit of SC/ST, backward classes and minorities

Long-term Objective for Institutional Development

- Generation of knowledge through analysis, experimentation and imagination
- Responsive management of institute for academic upliftment through efficient utilization of resources
- To become a role-model in India in providing quality education keeping in tune with its long heritage
- Creating awareness and understanding, improving skills and value orientation for globalized knowledge-based society

Project Period Objective

- To strengthen and upgrade all the laboratories and the workshops with a thrust on emerging areas and removal of obsolescence.
- Introduction of new courses and bringing in innovation in education keeping in view the technological development as well as demand and supply scenario
- To train the faculty and technical staff in advance institutions/organizations of the country/abroad for quality improvement
- To build up a strong academic network with other institutions
- To implement socially relevant projects for the benefit of SC/ST, backward classes and minorities
- To act as a hub of continuing and entrepreneurial activities.

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Financial Requirements

| S.No. | Activities | Project Life Allocation (Rs. in Lakhs) |
|--------------|--|--|
| 1 | Infrastructure improvements for teaching, training and learning through: | 500 |
| | (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 | 100 |
| 3 | Enhancement of R&D and institutional consultancy activities* | 20 |
| 4 | Faculty and Staff Development (including faculty qualification upgradation, pedagogical training, and organising/participation of faculty in workshops, seminars and conferences) for improved competence based on TNA | 100 |
| 5 | Enhanced Interaction with Industry | 40 |
| 6 | Institutional management capacity enhancement | 30 |
| 7 | Implementation of institutional reforms | 20 |
| 8 | Academic support for weak students under the aegis of Finishing School | 40 |
| 9 | Incremental Operating Cost | 100 |
| Total | | 1000 |

It is hoped that the TEQIP funding will enable in strengthening the institute & the desired outputs of improving learning outcomes and employability of graduates.

Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1

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Principal
Page 9 of 39
Govt. College of Engg. & Technology
Bikaner

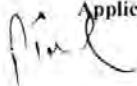
2.2 SWOT Analysis (in terms of methodology used, analysis and information and data as collected and inferences derived with respect to strengths, weaknesses, opportunities and threats).

Vision Statement of Govt. College of Engineering & Technology Bikaner is: "To promote higher learning and research in the field of Engg. & Technology."

The key findings of SWOT Analysis after having discussions/interaction with students of the all the courses, faculty & staff of all the academic departments of the college are reported as follows:-

Strengths

- Area covered 43 Acres of land.
- Engineering with specialization in 6 branches: Electronics and Communication, Electrical, Civil, Ceramic, Computer Science and Mechanical Engineering.
- PG Program in Management (MBA with specialization in Marketing, Finance, Human Resource and Information Technology).
- Only institute in Rajasthan which has conducted state level RMCAAT entrance examination for last three years.
- Ceramic Testing Centre in Campus.
- Top rankers in the university examination at state level.
- Civil Testing lab.
- Highly qualified faculties.
- More than 15 books 120 Research Papers published in Journals and Conferences by faculties at national and international level.
- Have organized 15 programs both International and National level
- Rare Branches like Ceramic is exclusive in Rajasthan
- More than 1500 students from various parts of India
- FDP, Seminars and Conferences organized for Faculty Members and Students on regular basis by institution.
- Excellent Infrastructure with state of art laboratories, instructional facilities, computational facilities, computer centre, library.



- All the departments are having their own computer lab equipped with DVD player, LCD projector, Smart board, Audio system for making presentations, delivering lectures/seminars with visual aids, group discussions etc.
- For increasing the employability of students, the College is running a center for self development to enhance over all personality & soft skills among students. Also, for improving communication skills of students, language lab has been setup in the college.
- Institute is running Entrepreneurship Development Cell (EDC) funded by MHRD to promote entrepreneurship among young technocrats.
- College is running Industry Institute Interaction Cell (III Cell) project to promote industrial interaction and exposure in early stage of study.
- Special Lecture by teachers of the college is arranged on every Saturday of week under Faculty Development initiative which is attended by all other faculty members.
- On-line feedback by students directly given to Principal about performance of faculty members.
- NCC, NSS wings for both girls & boys students are under full operation.
- Projects from Air Force, DST, Hospitals and other Govt. agencies are being undertaken jointly by faculty members & students to give them hands-on experience of live projects. Testing & fabrication facilities are also provided to other Public Sector Deptt.
- Faculty advisers have been appointed and they work as Mentor for a selected group of students through out their stay at college from first year to final year.

Weakness

- **Low level of corporate exposure:** - Since the city doesn't abode enough number of factories and corporate houses, there is significant dearth of corporate exposures for the students.
- **Poor Connectivity:** - The city doesn't have the privilege of an airport and for the past 2 years due to major shuffling of tracks is being done by railway; it is poorly connected with the national capital. These all leave much to be desired as major corporate and training agencies couldn't come.
- **Underdeveloped skill set in Students:** - Since most of the students come from rural and semi urban background, their proficiency on the language is low from the corporate standards.




- **Slow Curricular reforms:-** A relatively slow responding curricular process when set against the continual need for rapid program changes driven by external accrediting agencies.
- **Lack of Advanced Lab equipments** to meet global and industrial level exposure to students.
- **Lack of reference books, journals in library.**
- **Lack of Hi-tech libraries and class rooms**
- **Very few ongoing research projects due to non-availability of equipments and technology.**
- **Lack of internet connection bandwidth.** Current internet connection bandwidth is not sufficient for delivering and managing e-learning resources.

Opportunities

- Instead of being in remote area, it can cater the needs of remote as well as nearby students in the field of learning and education.
- Due to vast spread area of 43 Acres can introduce new branches in engineering like Petroleum Engg, Mining Engg. Etc. New streams in Management (MBA) as Banking, Insurance & Information Technology, Mass Communication etc. and new PG Programmes like MCA, M.Tech. by acquiring new technologies and equipments
- As dynamic faculties are also available, institution can also introduce Post PG Programmes (Ph.D.) and other research and consultancy projects by acquiring new required resources.
- By providing hi-tech library, class rooms and labs can give exposure to students to be tech-savvy and supporting them to represent themselves at national and international level in various programmes.
- Can enrich the profile of faculties by giving them opportunity and exposure to present themselves at national and international level in the field of academics as FDPS, Seminars, Workshops, Conferences.
- Growth of the organization: - Govt. College of Engineering & Technology Bikaner is one of the leading colleges of Rajasthan and this helps in attracting a large pool of talented faculties and students as well. If the college can keep its momentum, it will be able to attract corporate honchos as well.

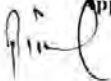
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- Probability of State Technical University: - The State govt. has initiated the actions to give our institute the status of State Technical University; soon after its realization the prospects of the institute will gain momentum.
- Growth of the City: - Of late, the city is being recognized by many corporate and govt. agencies as a growth centre. If the city achieves the special status, the institute will be able to put its best foot forward to address training and final placement needs.
- Likelihood to improve connectivity: - Recently the Central Govt. and Rajasthan govt. have initiated to open Airport in Bikaner. The city as well as institute will gain benefits by opening of the airport.
- Cross-Disciplinary Collaboration:- The institute is well placed to undertake cross-disciplinary collaboration (research, teaching, service) due to broad-based disciplinary focus of faculty and programs
- Partnerships with the Community:-We have the ability to connect and develop partnerships with the community and a diverse array of agencies (e.g., medical, fitness, schools, businesses).

Threats

- Growing Competition: - Though at present the institute enjoys a healthy position in the mind of students, the large number of openings of the technical colleges may change the rule of the game. Improving quality of education is the only solution to curb it.
- Examination Pattern and outdated syllabus:- The changes in the corporate world are fast and furious and this throws a major challenges in front of the institute to incorporate this changes but since the syllabus are a decision beyond the purview of the college thus it result into weakness which is difficult to overcome.
- Growing distance with Industry: Another challenge in the front of the institute sis how to align with the industry since the syllabus doesn't meet the industry standards and industries are not willing to cooperate enough.
- As an autonomous institution of Govt. of Rajasthan, it depends upon the financial grants and aids provided, which are not sufficient for ongoing development.
- As city is not connected with airways and Extreme climatic conditions sometimes create hurdles while outsourcing for industry delegates and academicians to share their knowledge.





Strategic Plan developed for institutional development (Based on SWOT analysis).

The elaboration of vision statement as well as the above assessments of current strengths and weaknesses and opportunities and threats in the environment of the institute leads to the identification of the main strategic directions that will have to be pursued over the next five years in order to move the institute closer to its vision.

The seven strategic directions that have been proposed for the development of our institute over the next 5 -10 years are summarized as follows:-

| | | |
|---|-----------------|---|
| 1 | Human Resources | Substantial improvement in the production of quality graduates & post-graduates capable of leading the creation of sustainable and cost-effective innovations for the industry and society |
| 2 | Excellence | Achievement of leadership in the development of selected emerging technologies to meet national economic, social and environmental needs |
| 3 | Quality | The creation of complete professionals through upgrading of curriculum, faculty and staffing patterns, facilities, equipment, learning resources and communication systems of the institute |
| 4 | Social Justice | Special attention to and active promotion of the full participation of women and socially disadvantaged groups |
| 5 | Autonomy | Achievement of academic, managerial, administrative and financial autonomy |
| 6 | Organization | Development of the organizational culture of the institution in the direction of increased administrative systemization, performance, efficiency and team work. |
| 7 | Outreach | Increased public visibility, networking and outreach of the institute to the community and industry |

 Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1




Principal
Govt. College of Engineering & Technology,
Bikaner

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

Following key activities are being proposed under Technical Education Quality Improvement Programme (TEQIP) of the Government of India to help our institute achieve its strategic objectives. They have been classified under the four heads, as follows:

| | | |
|---|--|---|
| 1 | Improvement in teaching, training and learning | <ul style="list-style-type: none"> ➤ Modernization and strengthening of Laboratories ➤ Establishment of new laboratories for existing UG and PG programmes and for new PG programmes ➤ Modernization of classrooms ➤ Updation of Learning Resources ➤ Establishment/Upgradation of Central and Departmental Computer Centers ➤ Modernization/improvements of supporting departments ➤ Modernization and strengthening of libraries and increasing access to knowledge resources ➤ Providing Teaching and Research Assistantships to increase enrolment in existing and new PG programmes in Engineering disciplines |
| 2 | R&D | <ul style="list-style-type: none"> ➤ Enhancement of R&D & institutional consultancy activities |
| 3 | Networking with Industry & Institutions | <ul style="list-style-type: none"> ➤ Industry Institute Interaction |
| 4 | Institutional Reforms | <ul style="list-style-type: none"> ➤ Structural Reforms ➤ Institutional management capacity enhancement ➤ Academic support for weak students |




2.3 Objectives and Expected Results of proposal in terms of, “Institutional strengthening and improvements in employability and learning outcomes of graduates”.

Specific Objectives

- To create additional infrastructure facilities to support the existing academic programmes in various disciplines like Mechanical, Electrical, Electronics and Communication, Electronics Instrumentation & Control, Information Technology and Computer Science Engineering.
- To enhance the research facilities in the areas of established expertise of the Institution.
- To restructure and reorient the undergraduate and postgraduate programmes in tune with needs of the Industry and Society.
- To start new Interdisciplinary P.G. programmes required for the present day needs of the society in the areas of proven expertise of the Institution.
- To provide better communication facilities for the faculty, staff and students through campus networking and Internet facilities.

The realization of the above objectives can be attained by focusing in two broad areas:

1. Focus at the development of common facilities for the institution

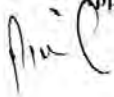
A high amount of importance is to be given to strengthen the following common facilities in the campus for achieving the overall academic excellence & improving learning out comes:-

- Digital Libraries & E-Resources
- Central Computing Facility
- Campus - wide Networking and Internet
- Faculty and Staff Development

2. Focus at the instructional level for the departments

At the instructional level, following reforms are envisaged:

- Elective subjects with technical writing
- Summer courses
- Lateral and multi-level entry
- Counseling and career guidance
- Student evaluation on future performance



- Periodic interaction with old students through alumni association
- Establishment of student clubs and forums
- Liberal assistance for faculty research activity
- Recognizing meritorious faculty and supporting their academic needs
- Maximizing the utilization of resources
- Periodic academic and administrative audits
- Methods such as incentives to faculty for attracting and retaining their quality

Expected Results

- The completion of project will enhance the quality of training to the students to the standards required in the age of globalization **& thereby improving their learning outcomes & employability.**
- The project will enable the institution to take up the advanced research required for the present day needs of the society and industry.
- The facilities created under the project will enable the institution to serve the society in the vicinity for improving the quality of living.



2.4 Provide an action plan for:

a) Improving employability of graduates

Employability skills are defined as skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions.

It is necessary that the skills would be prioritized and adapted to suit various job-roles. The eight skills identified for improving employability of our graduates are: -

- Communication skills that contribute to productive and harmonious relations between employees and customers
- Teamwork skills that contribute to productive working relationships and outcomes
- Problem solving skills that contribute to productive outcomes
- Self-management skills that contribute to employee satisfaction and growth
- Planning and organizing skills that contribute to long-term and short-term strategic planning
- Technology skills that contribute to effective execution of tasks
- Life-long learning skills that contribute to ongoing improvement and expansion in employee and company operations and outcomes
- Initiative and enterprise skills that contribute to innovative outcomes.



b) Increased learning outcomes of the students

Following action plan is hereby envisaged for increasing the learning outcomes of our student's vis-à-vis employability skills:-

| Employability Skill | Teaching strategies for increased learning outcomes of the students |
|----------------------------|--|
| Communication | Writing and presenting written and verbal reports Role plays Demonstrations Working in groups |
| Teamwork | Team or group projects Group discussion Problem solving in teams and networks |
| Problem solving | Case studies Simulations Investigative projects and research Using various problem solving tools and techniques Developing or designing models |
| Self-management | Development of portfolios Work plans Using log books to record time management skills and monitor own performance Career planning exercises |
| Planning and organizing | Research and data collection Developing action plans Planning and organizing events Time management activities Collecting and analyzing information |
| Technology | Using the Internet, Intranets Using ICT skills to complete activities Industry relevant software, technology and equipment |
| Learning | Reflective journals log books, diaries Mentoring and coaching activities Self-evaluation tools |
| Initiative and enterprise | Brainstorming activities Designing innovative and creative practices and solutions Initiating change / designing change processes Simulation activities |

Final

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c) Obtaining autonomous institution status within 2 years from 2014-15

Govt. College of Engineering & Technology Bikaner is an autonomous institution of Govt. of Rajasthan & it already enjoys Administrative, Managerial within the Department of Technical Education, Govt. Rajasthan. Principal of the college has been given the status of Head of Department of Govt. of Rajasthan & has been entrusted with sufficient administrative, managerial & financial powers for smooth conduct of operations of the college without much need of getting sanctions from Govt. except on major policy decisions such as faculty and staff recruitment. Within the college, sufficient managerial & financial autonomy has been given to HODs of academic departments as per their need.

However, one of the main challenges to the achievement of its vision is the lack of sufficient academic autonomy, as college operates under set of restrictions implied by affiliating university regulations. Careful planning and active pursuit of full autonomy is therefore one of Govt. College of Engineering & Technology Bikaner's strategic priorities. For the benefit of the technical education system in the State if the academic autonomy is granted to Govt. College of Engineering & Technology Bikaner then it will help in the pursuit of educational excellence, the preservation of academic standards, and the proper management of examinations. Model of granting academic autonomy is being devised by State Govt. in consultation with Rajasthan Technical University and other Govt. funded institutes.

Institute has already submitted its Detailed Project Report (DPR) to the affiliating University (RTU), Kota, for forwarding the same NOC to UGC for granting Autonomy.

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- a) **Achieving the targets of 80% of the eligible UG and PG programmes accredited within one years of joining the Project and 100% accreditation obtained before the completion of the project.**

In session (2014-15), the college has applied for Accreditation for all the eligible UG programmes as mentioned below

- B.Tech. (Computer Science & Engg.)
- B.Tech. (Civil Engineering)
- B.Tech. (Electronics & Communication Engineering)
- B.Tech. (Mechanical Engineering)
- B.Tech. (Ceramic Engineering)

In academic session (2015-16), the college is planning to apply for accreditation of programmes which have become eligible for accreditation namely:-

- B.Tech. (Electrical Engineering)
- MBA

Acknowledgement regarding e-SAR has already been received and awaiting for NBA expert visit.

The main challenges before the institution for getting accredited are:-

1. Strengthening of R&D projects
2. Availability of Senior faculties and Professors in each Department

For over coming above challenges college is focusing on improving R&D facilities. Keeping in view the shortage of senior faculty through out the nation, institution is taking services of retired senior Professors, Scientist, Engineers for making up the shortfall.



d) Implementation of academic and nonacademic reforms

Academic Reforms:

Reform the whole syllabus for UG & PG programs which meet today's challenges and requirements of industry at global Level. With grant of autonomy under TEQIP, we are aiming to introduce Elective Subjects in UG & PG Level as per market demand & accreditation of all eligible UG & PG programme at earliest. The courses will enjoy full autonomy except conducting examination and awarding degree. Evaluation of Teachers by students and teacher's counseling; encouraging institutes to develop synergic networking with institutes of repute through sharing of physical and human resources; Granting incentive to the Faculty & Staff to conduct continuing Education Scheme, Sponsored Research Programs etc. are another set of reforms to be introduced with utmost priority. Qualification and skill up-gradation of Faculty and Staff will be undertaken as a continuous programme.

Non-Academic Reforms:

In this category following reforms are proposed to be introduced:-

Financial Autonomy through Block Grant funding of non-salary non-plan expenditures with authority to appropriate and re-appropriate; Retention of Tuition and other fees for ensuring sustainability of the reforms process; Authority to generate, retain and utilize Internally Generated Revenue (IRG) through different academic and non academic activities; Establishment of Four Funds i.e. Corpus, Staff Development, Maintenance and Depreciation Funds to create financial strength of the institutes to sustain autonomy. Delegation of decision making powers to all senior institutional functionaries with accountability, Filling up all teaching and Staff vacancies.

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f) Improving interaction with industry

The identified employability skills are broadly consistent across all industry sectors and seen to apply to entry level and established employees working at all levels in the organization, with recognition that there will be different priorities for different roles and that there will be different levels of complexity required for skills, again depending on the job role.

In terms of the development of these employability skills, for imparting the vocational education and training; a systematic approach proposed as follows will be adopted linked to these employability skills in a framework; to accomplish mutual goals:-

- Our institute seeking to establish stronger ties with professional bodies, industries and enterprises.
- Industries & professional bodies working to help shape and inform up-to-date curriculum and course design
- T&P cell of our institute linking students with employers and facilitating events which bring employers on campus
- Our institute inviting business representatives to actively participate through formal structures and committees.

By adoption of above approach, we will be able to have an up-to-date description of what industry expects of our graduates and with the help of academic autonomy we will be able to immediately implement the inclusion of these competencies in curriculum and ensure that individual faculties provide as much industry contact and work experience as possible.

Industry persons will be invited to visit us and review documentation & speak with staff directly about their teaching and assessment practices; thereby providing us right feedback.



g) Enhancement of research and consultancy activities

Our institution is very much focused on every facet of Engineering Education – Teaching, Research and Consultancy. Under TEQIP one of the key priorities will be to develop culture for research and undertaking consultancy assignments in institution. The proposed steps in this direction are:-

- Modernization of labs with state of art equipments for high quality/demand driven research & development and publications. Full utilization of the major equipment would be accomplished by increase in research work and consultancy.
- Creation of better learning infrastructure such as world class 24X7 operational computer facilities, campus-wide networking, smart class rooms.
- High speed internet connection of bandwidth 1 Gbps to enable and support e-learning environment.
- Introduction of new post graduate & doctoral programmes in the institution.
- Periodic impact evaluation at institute level based on output parameters viz. improved quality of research, PhD offering and output, increase in research publications, patents, R&D performance, improved student learning (high quality graduates) etc.
- More efforts will be made by the institution to increase internal revenue generation by way of consultancy, testing/certifications and sponsored research projects etc.
- Efforts will be made to join/collaborate/associate with other research based organizations.
- Amount collected through consultancy/training programmes will be remitted in the IRG fund. This fund will be used for the development activities and faculty development.



2.5 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.

Proposed activities to be undertaken to improve the academic performance of SC/ST/OBC/academically weak students through innovative methods are as follows:-

- Conducting remedial teaching throughout academic sessions for improving transition rate and pass rate of students
- Conducting specialized soft skills and professional skills development training during semester-breaks and vacations (preferably starting from 5th Semester onwards) for increasing employability.
- Conducting high intensity training (of at least 4-weeks duration) for development of soft and professional skills in the students that graduate but fail to secure any employment, and
- Organizing campus interviews and making other efforts to secure employment for graduate engineers that complete the training under activity.

The activities of the Finishing School will be regularly supervised and monitored on following parameters:-

- the number of graduates participating in the 4-week training and
- the percentage of these participants securing employment within 3-months of completion of training.
- Transition rate from 1st –2nd year Pass rate
- Improved performance of individual students
- Increased satisfaction index of the students

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2.6 Provide an action plan for strengthening of PG programmes and starting of new PG programmes.

Strengthening of PG programmes:-

| Objectives | Priority |
|---|----------|
| Improving Postgraduate teaching/learning processes through better curricula, better faculty competence, better delivery, better interaction, development of proper attributes, and exposure to industrial practices | 1 |
| Improving post-graduate admission to M.Tech and Research programs through better structuring of offerings and increased facilities | 2 |
| Improving sponsored Research and Consultancy activities | 3 |
| Increasing efficiency and effectiveness of the education process through better academic discipline and improved governance | 4 |
| Increasing facilities for Postgraduate education, equipment, LRs, internet access, etc | 5 |
| Development of institutional management capability | 6 |

The following PG programmes have been identified to be started from session 2016-17:-

The following PG programmes have been identified to be started after the accreditation from AICTE (i.e as per the new guidelines of AICTE, new programmes will be started, after getting the accreditation from AICTE) :-

| S.No. | Course Name | Department | Intake | Affiliating University |
|-------|---------------------------------|--|--------|-------------------------------------|
| 1 | M.Tech. (Thermal Engg.) | Mechanical Engg. Department | 18 | Rajasthan Technical University Kota |
| 2 | M.Tech. (Digital Communication) | Electronics & Communication Department | 18 | Rajasthan Technical University Kota |
| 3 | M.Tech. (Power Systems) | Electrical Engineering Department | 18 | Rajasthan Technical University Kota |

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|---|------------------------------|------------------------------------|----|--|
| 4 | M.Tech (Software Engg.) | Computer Sc. & Engg. Department | 18 | Rajasthan Technical University Kota |
| 5 | M.Tech (Structural Engg.) | Civil Engg. Department | 18 | Rajasthan Technical University Kota |

Proposal to AICTE/University will be sent soon for grant of approval for commencement of above courses from session 2016-17. Adequate measures are being taken for arranging additional staff, new laboratories and workshops, civil works, books and learning resources, etc for these Programs.





2.7 Attach a summary of Training Needs Analysis carried out.

Summary of Training Needs Analysis:-

a) Faculty to be trained for

- Improved competence in teaching training
- Management of industry and community interactions
- New techniques in research

b) Faculty to be encouraged to

- Upgrade their qualifications
- Attend seminars and conference
- Interact with peer groups within India and abroad
- Establish linkages with academic institutions and industry etc.

c) For continuous improvement of faculty, competence, establish mechanisms for students, evaluation of teachers' performance combined with feedback to teachers and peer counseling for improvement, introduce incentives for participating activities and securing projects from industry and community.

d) Establish system of recognizing merit and out standing performance



Also, provide Faculty Development Plan for the last 16 months for improving their teaching, subject area and research competence based on Training Needs Analysis (TNA) (see Annex-VI to PIP) in the following areas.

Faculty Development Plan

| Area of Training | Training duration | | | |
|--|-------------------|--|----------------|--|
| | Within India | | Abroad | |
| | No. of Persons | Duration | No. of Persons | Duration |
| Basic and advanced pedagogy | 15 | 1 Month (each) in two spells | 5 | 1 Month (each) in one spell |
| Subject / domain knowledge enhancement | 20 | 2 Months (each) in five spells | 8 | 1 Month (each) in five spells |
| Attendance in activities such as workshops, seminars | 36 | 2 days- one week depending upon the programme duration | 8 | 2 days- one week depending upon the programme duration |
| Improvement in faculty qualifications | 7 | depending upon the course duration | 2 | depending upon the course duration |
| Improving research capabilities | 7 | minimum 6 months to 1.5 years | 5 | minimum 6 months to 1.5 years |




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

| Functional areas of training | Training duration | |
|--|-------------------|--------------------------------|
| | No. of Persons | In month |
| Student counseling | 25 | 1 (each) |
| Student performance evaluation | 20 | 1 (each) |
| Development of modern learning resources etc., | 20 | 1.5 (each) |
| Upgrade qualification | 20 | Depending upon course duration |
| Attend seminars and conferences | 36 | one week to two weeks |
| Establish linkages with academic institutions and industry | 25 | 1 (each) |
| Improved teaching competence | 20 | 2 (each) |




2.9 Relevance and coherence of Institutional Development Proposal with State's/National (in case of CFIs) Industrial/Economic Development Plan.

The economy of India is based in part on planning through its five-year plans, developed, executed and monitored by the Planning Commission. The economic reforms initiated in the country in 1991 brought about a paradigm shift in the approach to economic growth, industrialization and income distribution. A number of control regimes were dismantled in the areas of industrial policy, taxation, export-imports and foreign investment. The new Industrial Policy of Rajasthan mainly aimed at simplification of procedures and rationalization of rules and the Industry. A comprehensive Information Technology Policy has been announced, keeping in view the importance of the IT sector for employment generation, and its implications for industry and trade, the financial sector, media and entertainment, and health, education and research.

The new Industrial Policy has been formulated keeping in view the objectives of balanced & sustained growth and employment, and an expansion in livelihood opportunities. It supplements the provisions of the Information Technology. In the phase of second generation economic reforms, the objective of Rajasthan Industrial Policy is to further accelerate the flow of investment in industry and infrastructure, promoting IT, high-tech, knowledge based and biotech industries, augmenting exports from the industrial units in the State and creating large scale employment opportunities duly ensuring environmental planning. Adequate creation of internet connectivity, adequate number of satellite earth stations/ VSATs , strengthening the optical fiber network .

The proposed IDP conforms to the Governments objective of technical education and align with the States and Regional economic development plan. The action plan also ensures a pattern of economic and industrial development that would lead to economic growth and social cohesion. The objectives of the proposal cater to the requirement of the region so that the technology inputs of the institution could benefit the region.



2.10 Describe briefly the participation of departments/faculty in the IDP preparation.

The involvement of faculty and staff as a team has resulted in positive output of this proposal. As the action plan requires the proper coordination with faculties of various departments, a proper integrated and coordination mechanism was chalked out.

Following teams from different departments worked for the preparation of IDP as a unit:-

| S.No. | Department | Faculty & Staff |
|-------|----------------------------------|---|
| 1 | Electrical Engineering | Sh. Vikas Bhalla Sh. S.K. Baweja |
| 2 | Electronics & Communication Engg | Sh D.K.Sain Sh M.K.Mehra |
| 3 | Computer Science & Engineering | Sh. A.S. Poonia Smt. Sunita Choudhary |
| 4 | Ceramic Engineering | Dr. Prakash Singh Ms. Anu Sharma |
| 5 | Mechanical Engineering | Sh. Rajesh Ojha Sh. Amit Mathur |
| 6 | Civil Engineering | Ms. Akshita Choudhary Ms. Karanjeet Kaur |
| 7 | Physics | Dr. Y.N. Singh Dr. Sudheer Bhardwaj |
| 8 | Chemistry | Dr. Satish K. Mehla Dr. Gaytri Sharma |
| 9 | English | Ms. Preeti Pareek Ms. Bhumika Chopra |
| 10 | Library | Sh. Amit Mathur |
| 11 | Accounts | Ms. Mamta Pareek Sh. Panna Lal Vyas |
| 12 | Establishment | Sh. A.S.Poonia Sh. Mukesh Kaler |
| 13 | T&P Cell | Ms. Alka Swami Ms. Ruma Bhaduria |
| 14 | Exam | Sh. Narendra Singh Solanki |
| 15 | Proctor | Sh. Rakesh Parmar |



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

The institutional level implementation of the project will be carried out by Institutional TEQIP Unit and the entire process will be monitored by the Governing Council/Executive Council of the college at regular intervals of 2-3 months in a year. A sub committee of Governing Council/Executive Council will be constituted and empowered to take decisions regarding the deputation of faculty for participation in International conferences etc.

It is proposed to constitute following sub committees comprising of faculty and staff members of the college which will be effectively involved in the implementation of TEQIP project:-

- Finance Committee
- Procurement committee
- Civil works committee
- Academic Committee
- Faculty and Staff Development committee
- Services to community committee
- Networking committee
- Monitoring committee

These committees will meet on regular basis and took appropriate decisions for the smooth implementation of the project. Hence the total coordination in the conduct of the project will not held up at any point of time during its implementation.



2.12. Institutional project budget.

Institutional Project Budget for Sub-Component 1.1

(Rs. in Lacs)

| S. No. | Activities | Project Life Allocation | Financial Year | | |
|--------|---|-------------------------|----------------|------------|---------------|
| | | | May 15 | 2015-16 | 2016-17 |
| 1 | improvements in teaching, training and learning through: (i) Starting new PG programmes (ii) Modernization and strengthening of laboratories (iii) Establishment of new laboratories for existing UG and PG programmes and for new PG programmes (iv) Modernization of classrooms (v) Updation of Learning Resources (vi) Procurement of furniture (vii) Establishment/Upgradation of Central and Departmental Computer Centres (viii) Modernization/improvements of supporting departments (ix) Modernization and strengthening of libraries and increasing access to knowledge resources | 500 | 295.02 | 150 | 54.98 |
| | (x) Minor Civil Works | 50 | 4.4 | 44 | 1.6 |
| 2 | Providing Teaching and Research Assistantships to increase enrolment in existing and new PG programmes in Engineering disciplines | 0 | 0 | 0 | 0 |
| 3 | Enhancement of R&D and institutional consultancy activities | 20 | 0 | 15 | 5 |
| 4 | Faculty and Staff Development (including faculty qualification upgradation, and organizing/participation of faculty in workshops, seminars and conferences) for improved competence | 150 | 0.97 | 100 | 49.03 |
| 5 | Enhanced Interaction with Industry | 40 | 0.22 | 35 | 4.78 |
| 6 | Institutional management capacity enhancement | 40 | 3.30 | 32 | 4.70 |
| 7 | Implementation of institutional academic reforms | 60 | 16.71 | 35 | 8.29 |
| 8 | Academic support for weak students under the aegis of Finishing School | 40 | 2.31 | 30 | 7.69 |
| 9 | Incremental Operating Cost | 100 | 19.28 | 60 | 20.72 |
| | TOTAL | 1000 | 337.82 | 497 | 165.18 |

Note: Re-appropriation will be done as per TEQIP norms.

Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1

Page 30 of 39
Principal
Govt. College of Engg. & Technology
Bikaner

2.13 Targets against the deliverables listed.

Project Targets for Institutions under Sub-Component 1.1

| S. No | Deliverables | May 2015 | At the end of the Project |
|-------|--|--|-----------------------------------|
| 1 | Number of students registered for (a) Masters in Engineering programme (b) Doctoral programme in Engineering | NIL | NIL |
| 2 | Revenue from externally funded R&D projects and consultancies in total revenue (Rs. in lakh) | 75 | 40 |
| 3 | Number of publications in refereed journals (a) National (b) International | 5 26 | 10 50 |
| 4 | IRG as % of total annual recurring expenditure (IRG from R&D projects and consultancies has been considered) | 5% | 10% |
| 5 | Number of co-authored publications in refereed journals (a) National (b) International | 20 22 | 30 25 |
| 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 | 20% | 45% |
| 7 | Number of collaborative programmes with Industry | 2 | 5 |
| 8 | Accreditation status (obtained and applied for) | Applied (Awaiting All eligible UG for the NBA visit) courses | |
| 9 | Vacancy position for faculty | 59 | NIL |
| 10 | Percentage of regular faculty having a Masters Degree or a Doctorate Degree in Engineering disciplines | 100 | 100 |
| 11 | Transit rate from 1st to 2nd year for the following: • All Students • SC and ST Students • OBC Students • Women Students | 56.31 72.62 81.24 82.12 | 75.00 90.00 90.00 100.00 |

Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1




Page 08 of 09
Govt. College of Engg. & Technology
Bikaner

| | | | |
|----|--|---------------|--|
| 12 | Autonomy status | Under Process | |
| 13 | Enrolment of faculty with only Bachelor Degree for qualification upgradation | 03 | All Faculty at least having M.Tech. as minimum qualification |

Note: The accreditation targets for Undergraduate and Postgraduate programme are **for NBA accreditation of programmes.**



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

As explained in Section 2.2, Govt. College of Engineering & Technology Bikaner has identified clear strategic directions for itself and has already engaged in these directions. TEQIP is a timely and welcome stimulus to help it realize the organizational realignment it had envisaged. The directions Govt. College of Engineering & Technology Bikaner is pursuing are therefore not externally imposed but internally determined. It is through an analysis of the national and international scenarios that Govt. College of Engineering & Technology Bikaner has chosen to focus on the strategic objectives it has set for itself. This orientation will remain the prime moving force behind our actions for the foreseeable future, regardless of any project implementation.

The TEQIP project will provide a significant boost in these strategic directions and will reinforce several streams of activity which include improved institutional management practices including excellence in academic activities in such areas as postgraduate education, doctoral programs, faculty research, R&D and consultancy services, improved curricular practices, interaction with industry ,administrative and financial management practices, higher internal efficiencies, exercise of autonomies, faculty recruited under the project ,Teaching and Research Assistantship. The project also includes a systematic program of faculty training and development to build this capacity and a large increase in the production of well-trained PhD who will be prime candidates for future recruitment. Both continuous attentions to teaching improvement and to curriculum development are likely to become part of the culture of the institution. The project will have improved networking and public relations capacity of our institute and will help in better tapping of its alumni and other networks, which will further increase its capacity to generate funds.

Being Govt. funded institution we also expect to receive encouragement & helping hand from the State government as provided to us from time to time in past.

We are confident that with the right policy environment each one of these streams of activity will be sustained and even expanded beyond the life of the project.





2.15 Procurement Plan for the last 16 months for Goods and Civil Works.

Name of the institution with location: **Govt. College of Engineering & Technology,
Karni Industrial Area, Pugal Road, Bikaner.**

**PROCUREMENT PLAN WILL BE EXECUTED AS PER PACKAGES LOADED
IN PMSS**

*** Note: There may be some variation in the schedule depending upon the requirement
while maintaining the sanctioned amount.**

Govt. College of Engineering & Technology, Bikaner
Application under Sub-component 1.1



Page 38 of 39
Principal
Govt. College of Engg. & Technology
Bikaner

2.16 Information related to special academic achievements as given in Eligibility proposal of the institution.

- **To upgrade the qualification** of existing faculty members, faculty members from various departments have been sponsored for higher studies at different prestigious institutes like IITs, NITs, and NITTTR etc during last 4 years.
- The **academic results** of college students are among best in the Rajasthan. Top rankers at state level in university examination every year.
- Within short span college has collaborated with the industries & generating revenues of over **Rs. 50 lac per year through consultancy, testing etc.**
- **District Ceramic Testing & Research Centre** (First in North India) through financial assistance of Rs. 7 crore have been set up in the college premises which meet the needs of local industries & unique example of industry-institute partnership.
- **The College has organized international conferences, national conferences, short-term courses for faculty development, and vocational training programs during last four years.**

