

**TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME
(TEQIP)**

PHASE-III

**FORMAT FOR
INSTITUTIONAL DEVELOPMENT PROPOSAL**

For

**Sub-Component 1.1
Institutional Development for Participating Institutions**

1. INSTITUTIONAL BASIC INFORMATION

2.

2.1 Institutional Identity

Name and address of Institution : **Gaya College of Engineering**
At- Srikrishna Nagar
PO – Nagariyawa
Via – Buniyadganj
Khizarsarai , Gaya
Bihar - 823003

Year of Establishment : 2008

Is the Institution AICTE Approved : Yes

Furnish AICTE approval No. : F.No. Northern/1-2812588742/2016/EOA
Date: 30-Apr-2016
Permanent id: 1-43254754

Type of Institution : Govt. Funded
Status of Institution : Non-autonomous

Name and Designation of Head of the Institution (Full time appointee) : Dr. Anil Kumar,
Principal / OSD

2.2 Academic Information

Engineering UG and PG programmes offered in Academic year 2016-17

S. No	Title of Programmes	Level (UG, PG, Ph.D)	Duration (Years)	Year of Starting	AICTE Sanctioned annual intake	Total student strength in all year of study
1	B.Tech. Civil Engineering Mechanical Engineering Electrical & Electronics Engineering Computer Science and Engineering	UG	4 Years	2008	60 60 60 60	Sem VII – 242 Sem V – 236 Sem III – 234 Sem I – 227 Total in academic year 2016- 17 = 949 (Including LE)

NBA Accreditation Status of UG and PG programmes as on 31st December 2016:

Total no. of programmes eligible for accreditation (at least one batch pass out)	04(Four)
No. of programmes accredited	None
No. of programmes applied for accreditation	None

Status of Faculty Associated with Teaching Engineering Students (Regular & Contract) as on 31st December 2016:

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				Master Degree				Bachelor Degree						
	Engineering Disciplines		Supporting Discipline		Engineering Disciplines		Supporting Discipline		Engineering Disciplines		Supporting 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 = 4+8+10	15 = 64 - 06	16=5
64	00	00	03	02	00	00	01	00	02	00	00	00	06	58	02

R= Regular, C= Contract

1. INSTITUTIONAL DEVELOPMENT PROPOSAL (IDP)

(Implementation period: April 2017- March 2020)

2.1 Give the Executive Summary of the IDP (max 2 pages)

A. Academic Enhancement Plan

1. Special emphasis on the continuous training and enriching quality of the faculties with the idea that “yesterday’s will not meet the needs of tomorrow.
2. Filling up the vacancy of Faculty and staff to improve teacher student ratio, this will make institute eligible imparting better quality of education and eligible for accreditation as well.
3. To establish library and in each department with adjacent reading room.
4. To ensure arrival of new titles in print as well as digital form in departmental and central library
5. Starting PG programmes with appointments of appropriate faculty along with establishment of standard laboratories where researches of different level may be conducted.
6. Setting up enriched language lab.
7. Establishing training and placement cell employing trained officer’s (professor’s) capable of maintaining rapport and ability of negotiation with industries and origination.
8. Appointments of able and experienced faculties to guide students in the preparation of GATE to crack the same with significant score which is the ultimate objective of a large chunk of students.
9. In the endeavour of quality improvement the faculties who are yet to do Ph.D / M.Tech should be encouraged to do the same by providing them necessary perks and other facilities.
10. Seminars, conferences, workshops etc should be arranged periodically in the campus and members of the college and students should be persuaded to attend.
11. Time to time suggestion to university for introducing modules in the courses of study enabling students in order to cater to the needs of industry institution and appropriate jobs elsewhere.
12. To organized re-orientation courses periodically for teachers of all levels and streams with the aim to improve quality in teaching and to remain in touch with the latest research and investigation.
13. Establishment of central computer center with latest gadgets wi-fi and other facilities to meet almost every requirement of teachers and students.

B. Communication, IT and other Infrastructure

14. Laptop should be provided to all faculty members and to some selected students (on the basis of their performance and attitude)
15. The central library should be properly furnished and staging of books should be computerized.
16. Technical journals of national / international publications should be displayed on the racks for convenient readings.
17. Class rooms should be modernized where audibility should be perfect.

C. Infrastructure

18. Academic complex should have sufficient number of class room, some capable to accommodate at least 130 students provided with latest type of board where visibility is perfect.
19. Laboratories should be well ventilated.
20. Spacious common rooms separate for girls and boys.
21. Separate canteens for boys and girls.
22. Auditorium for organizing any debate/ function.
23. Neat and clean playground with stadium.
24. Hostels for boys and girls
25. Teachers and staff quarters
26. Staff club
27. Security measures to avoid any causality whether by electric shocks or any natural calamity.

D. Sports and club Facilities

28. To enhance indoor and outdoor games, Gym and Yoga facilities for the students, faculty and Staff
29. To form different professional and cultural society for and managed by students' body and guided by faculty members so that these societies can act as centre for curricular and extra-curricular activities.

E. Good Governance, administrative and financial reforms.

30. To form various committees to suggest reforms and monitor their implementations in different activities for the smooth functioning of institute affairs. It shall have students'

representative as well.

31. Proper delegation of administrative and financial powers to the institute functionaries to enforce discipline, proper upkeep of campus, timely sanction and expenditure of financial transactions.

2.2 Provide an action plan with timelines for : (not more than 1 page for each sub-activity)

(a) Improving the learning outcomes of the students

Faculty training

Qualification upgradation (4-36 months)

- To encourage faculty to upgrade their qualification from Bachelors to Masters and from Masters to Doctoral degree
- Part-time or sandwich programmes for upgrading faculty qualification may also be made use of where feasible and necessary

Enhancing knowledge and research competence :(6-36month)

Subject upgradation and research competence

- To make the faculty aware of the advances in knowledge, technologies and research methodologies for improving his/her own performance and for the benefit of students.
- Short-term and long-term courses are available within India including Summer Schools arranged by Government organizations, institutions and professional Societies

Continuing Education Programmes (CEPs)

- To organise the Continuing Education Programmes in cutting edge technologies
- To encourage the faculty to participate in seminars, conferences and workshops, both National and International
- To encourage the faculty to visit close-by institutions and laboratories of his/her interest to bring about collaborations with academic institutions and R&D organizations within and outside the country

Pedagogical Training (3-24 months)

- For improving the teaching and training competence of faculty Pedagogical Training using the latest teaching methodologies

Staff Training

Technical Staff (2-12months)

- To train the Technical Staff of laboratories and workshops in their functional areas including operation and routine maintenance of both the existing and new equipment
- To participate in training and to use the newly acquired expertise for the benefit of students and the institution
- Use of part-time or sandwich programmes where feasible and necessary

Administrative Staff (3-12months)

- To train the administrative staff in their respective functional areas, particularly in the use of modern office equipment, software, office automation, maintenance of records, procedures, etc
- To train the administrative staff for time and material efficiency, and friendliness towards faculty and students

Increasing capacity of UG, PG and Ph.D. education (increasing enrollment and starting new UG, PG and Ph.D Programme) (12-36 months)

- To encourage Graduates to join Masters programmes and also pursue Research programmes for being employed as faculty
- Opening of master degree courses with permission from AICTE.
- To seek permission to convert the unfilled GATE and Industry sponsored seats to non-GATE and non-Industry sponsored seats respectively
- To provide teaching Assistantships from TEQIP funds for the meritorious students admitted by the institutions for Masters Courses after admission not covered through GATE/other scholarships
- To provide Research Assistantships through TEQIP funds to the enrolled Doctoral students that do not get any scholarships through NDF/other schemes with a condition to devote 8-10 hours per week for teaching or research, as the case may be
- To provided the assistantships to the Master and Ph.D students in supporting departments also
- To enhance the intake of all UG branches presently it is 60 in each branch (viz. Civil Engg, Mechanical Engg, Electrical and Electronics Engg & Computer Science and Engineering).

Investing in Smart classrooms, Campus Wi-Fi, e-library etc

Modernization of Class rooms (3-12months)

- To modernize the classrooms with Smart Boards and Computer linked LCD Projectors with screen for better attention of the students
- To create the facilities like V-SAT, Video Conferencing and Audio-Conferencing for Guest lecturers or class lectures depending upon need and feasibility
- To make the classrooms well-lit and ventilated
- To create the facilities like AC, sound system and other amenities in some class room to make it a multipurpose room.

Up-dation of Learning Resources (4-15months)

- To improve the teaching learning process Continuous updating of Learning Resources (Books, e- books, e-journals, CDs and professional software)

- To procure Course specific software to improve teaching learning process
- To encourage and train the faculty to use these time saving modern facilities
- To effectively use NPTEL/SWAYAM and other platform for the faculties and staff along with the certification, if any

Procurement of Furniture (3-12 months)

- To procure furniture for modernization of existing laboratories, establishment of new laboratories, libraries, Computer Centres and classrooms
- To make provision for regular replacement and maintenance such procurement

Establishment/Up gradation of Central and Departmental Computer Centres (3-36 months)

- To modernize/upgrade Computer Centres to meet curricular and research requirements
- To keep the Computer Centres open for extended periods beyond working hours and on non-working days
- To provide essential and proper connectivity with Campus-wide Networking
- To ensure during the purchase that only latest systems are procured and wherever possible, replacement of computers/components by the suppliers/ manufacturers
- Provision for Annual Maintenance Contracts after the expiry of warranty period for the computers and associated hardware
- To encourage the use of open source software to faculty staff and students

Modernization and strengthening of libraries and increasing access to knowledge resources (6-15months)

- Purchase of books through CDs to the extent possible including the old books if available on CDs,
- To create a CD Bank with proper identification and accessibility
- To become member of Indian National Digital Library in Engineering Sciences and Technology Consortium (INDEST-AICTE Consortium)
- Subscription to the latest e-Journals through Shodh Sindhu or other sources
- To reorganize with adequate computers and connectivity to hostels and departments through Campus-wide Networking
- To keep the libraries open to the maximum extent

Improving the academic performance of SC/ST/OBC/academically weak students through innovative methods, such as remedial and skill development classes, peer assisted learning for increasing the transition rate, non cognitive skills and pass rate

(6-36 months)

- To develop the criteria for identifying weak students.
- To provide extra support on regular basis and the type of support needed to reduce their risk of dropping out of college

Some possible interventions to improve the performance of weak students are

- Diagnosing Student Weaknesses and Continuous Tracking of Performance
- Improving Performance in Academic Subjects
- Improving non-cognitive skills of students
- Peer Learning Groups
- Appointing Faculty Advisers for Students
- Timing of Remedial Courses and Repeat Exams.
- Improving teacher effectiveness
- Bridge courses
- Communication Skills

Instituting academic and non-academic reforms including programme flexibility (Is there any need to revise the curriculum? When it was last revised?)

Academic Reforms (6-24 months)

Curricular Reforms

- To revise the curricula and syllabi for Engineering Education disciplines at UG and PG levels so as to effectively prepare students to meet the market/industry requirements
- To involve employers including core Industry in curricular reforms
- To evolve Innovations in teaching and student evaluation methodologies
- To develop design skills, communication skills, entrepreneurial skills, information Processing, creative and innovative thinking, leadership skills
- To introduce problem solving projects from Industry
- To introduce Elective courses
- To introduce the system of invited expert lectures from Industry and field
- To ensure regular visits to and training in Industry

Improved Student Performance Evaluation

- To implement evaluation of faculty performance by students on a periodic basis
- To analyze the result of faculty evaluation for taking remedial actions to improve the teaching learning process
- An exit assessment at the end of the course to know the total effectiveness of the course, learning achievements and shortcomings for improving the future delivery of the course by the faculty
- To motivate the faculty continuously to improve performance

Faculty incentive for Continuing Education (CE), Consultancy and R&D

- To encourage faculty initiatives through proper incentives and clear guidelines
- To encourage the faculty to participate in organizing and/or attending CE programmes, to offer consultancy to Industry and to take part in R&D activities in the institution.
- To prepare a faculty engagement chart indicating the faculty teaching commitments, but also his / her expected involvement in administration, Continuing Education, collaborative activities, research and development activities including curriculum and laboratory development, consultancy, etc.

- To recognise faculty efforts for good achievements be adequately encouraged through website updation, College Newsletter and issue of commendation certificate by the competent authority

Non Academic Reforms

Exercise of autonomies

- To obtain academic autonomy from UGC

Establishment of Corpus Fund, Faculty Development Fund, Equipment Replacement Fund and Maintenance Fund

- To establish the above funds as required by the project guideline

Generation, retention and utilization of revenue generated through variety of activities

- To increase revenue generation from a variety of activities such as conducting self-financing
- teaching and training programmes, testing services, consultancy and research, innovations, patents, commercialization of R&D outputs, sharing of high-tech equipment with Industries, public usage of infrastructure for academic activities, etc
- To utilize the internal revenue generated for development activities, offering incentives to Faculty and staff, instituting awards and rewards for students, faculty and staff, etc. in accordance with rules with Government Guidelines, if any

Filling-up existing teaching and staff vacancies

- To fill-up all faculty vacancies on a regular basis as per government guidelines.

Delegation of decision-making powers to senior institutional functionaries with accountability

- Delegation of adequate powers to senior functionaries
- To spell out the powers and responsibilities clearly to all functionaries in the department, laboratory in-charges and other functionaries in a decentralized administrative environment

(b) Improving employability of the students (12-36months)

Increasing interaction with industry

- To form Industry-Institute-Interaction Cell (IIIC) in the institution to promote links to benefit students and faculty and to promote collaborative interdisciplinary research for offering solutions to real life problems
- To Participating in curriculum design, curriculum implementation, student assessment, training of students, exposing students to new technologies, and providing experts for certain instructional sessions
- To provide opportunities for student groups to undertake problem-solving projects;
- To providing exposure to faculty on industrial practices and latest technologies;
- To ensure industry expert participating in such bodies as the Board of Governors, Academic Council, Boards of Studies, faculty recruitment, etc.
- To assisting institutions in establishing new laboratories, providing literature on new technologies and offering their shop floors as substitutes for laboratories;
- To train students, faculty and technical staff in new technologies and processes;
- To collaborate with industry offering sandwich programme for industry personnel
- To participate with the industry in joint R&D activities
- To appoint senior personnel from industry as adjunct faculty
- To utilize institutional resources (manpower and physical) for industrial manpower training;
- To provide assistance for improving employability including entrepreneurial training specialized skill training, and training in softer skills required by Industry.
- To conduct short term training programmes in collaboration with institutions including Students' internship in Industry
- To share the laboratories of the institutions with industries on agreed terms especially in select areas of excellence
- To develop innovations, products and technologies to be adopted by Industries
- To depute faculty to Industry for problem solving and for joint projects

Student career counselling and placement

- To establish the Career Counseling Cell (CCC) for providing placement assistance to the students in relevant industries/company and also help the students of the institutions in their career planning, preparation for selection tests, summer placement, internship and final placements
- To encourage various activities like Aptitude test, Group Discussion, Guest Lectures from corporate personalities from time to time by the placement cell for the students

- To increase the transition and pass rate specially of students of weaker categories i.e. SC / ST / Rural /Academically weak students
- To Strengthen the Training and Placement Cell, both in terms of facilities and staff
- To introduce a structured programme of Soft skill for the students by professional through Career Counseling Cell or Training and Placement Cell.

(c) Increasing faculty productivity and motivation (6-36months)

Sponsored research, consultancy and other revenue generating activities

- To promote increased participation of faculty in research, R&D projects and consultancy
- To encourage Masters Students to join Doctoral programmes
- To encourage the industry to give live problems to the institution for solutions
- To encourage the faculty having expertise to take up consultancy assignments, thus benefitting directly and indirectly the institution, faculty and students
- To share income generated through consultancy with faculty, staff and students as per the norms
- To promote a healthy and useful relationship between industries and institutions due to regular interactions through consultancy
- To develop a strategy within the institutions for enabling faculty to secure consultancy assignments and to complete them timely and successfully
- To encourage UG and Masters students to get associated with Industry oriented/sponsored research programmes under the guidance of senior faculty thus increasing their interest in higher education and research
- To offer “Seed grant” for research to faculty members and / or students to venture into innovative research and to strengthen research culture in institutions

2.3

Provide an action plan with timelines for

Obtaining autonomous institution status from UGC (24-36months)

- To obtain accreditation from National Board of Accreditation
- To obtain NOC from the government
- To obtain NOC from University
- To apply for academic autonomy from UGC after completing all the above prerequisite

Improving the NBA accreditation status (6-24months)

- To apply for pre-qualifier
- To apply for Self Assessment Report
- To prepare for the Expert Team Visit
- To give the reply of NBA report, if asked for

2.4

Describe the following in brief

Is any enhanced assistance /mentoring that the institution is looking forward from its ATU?

Yes, the institution is looking forward for assistance/mentoring from ATU in the following areas:

- Revising the syllabus of academic programs.
- To strengthen evaluation and assessment mechanism (question setting and examination) so that the concept and understanding of the subject domain knowledge of the students are assessed.
- Mentoring of the institutions for preparation of application for NBA Accreditation/ UGC autonomy
- To Increase faculty productivity and motivation to build capacity and improved performance
- Preparation of massive open online courses (also referred to as MOOCs), facilitating access of institutions to MOOCs
- To develop credit-based systems such that students in institutions could use select e-learning courses as part of their degree programs
- Greater access to digital resources and Centralized Research hubs opened to all faculty
- Improve student learning and Student employability

Does your BOG need strengthening, if yes then how?

Yes, the BOG needs strengthening. BOG will be strengthened by including the member as per UGC norms.

Is there an ERP/MIS system existing, if yes then any improvement, modification suggested

No, as of now no ERP system is existing. Cloud Based ERP College Management System with all most all modules is contemplated.

Is there any mechanism i.e. special classes being conducted in the institution for improving the GATE score.

As of now there is no standard mechanism.

2.5 Provide a Twinning Plan with a high performing institute with the objective of capacity building knowledge transfer and developing long term strategic partnerships. (Twinning plan will be formalized into twinning agreement after finalizing the twinning partner).

Some of the suggested activities under twinning plan can be as follows:

- Assistance and help in Procurement of Goods (equipment, furniture, books LRs, software and minor items)
- Guidance for Improvement in Teaching, Learning and Research competence
- Improve student learning
- Student employability
- Increasing faculty productivity and motivation
- Establishing a twinning system to build capacity and improved performance
- Knowledge transfer
- Exchange of experience
- Optimizing the use of resources and developing long-term strategic partnerships
- Interactions at four levels:
 - Board of governors (BoG)
 - Institute's management/leadership
 - Faculty
 - Students

2.6 Is there any difficulty in Recruitment and selection of high-quality faculty? If yes, what are the reason & action plan to solve the issue?

- Faculty recruitment is done Bihar Public Service Commission (BPSC). Many a times the aggrieved applicant approaches the Hon'ble High Court against the selection or selection procedure, and as a result of that the whole process always gets delayed.
- Under TEQIP-III project will support states in filling sanctioned posts through hiring of contract faculty at the entry level as per AICTE norms on qualifications and pay, by funding the cost (up to 75%) of such faculty during the project period. As per the condition of the project such funding will be based on an understanding with state government that well-performing faculty hired using project funds will be retained post project.

The aim of the project is to establish a Teacher Enhancement Fund (TEF) in order to develop a mechanism for which a lump-sum amount of money will be provided to participating institutions to hire faculty members.

Once the above mechanism comes into force, college will be able to recruit high quality faculty on contract basis.

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

The overall project focus on institutional development has sustainability built in the design of the project. The project's emphasis on well-functioning government bodies, more delegated authority to manage their affairs, and capacity to generate own revenues, involve changing behaviour of key players at a fundamental level. Some of the steps suggested in the project as given below, if implemented properly can make the activities sustainable even after the end of the project.

- TEQIP III institutes require to deposit at least 8% of their revenue every year into a Sustainability Fund. This will help the institute to in maintaining the equipment even after the end of the project.
- A new aspect in the form of the Twinning Arrangements between the colleges for long-term relationships is proposed in TEQIP-III project. This step will help in sustaining the reforms in teaching, learning, research and institutional governance envisaged under the project. Again the IITs and IIMs which have been working on strengthening internal systems for sustaining reforms in TEQIP-II will continue even for TEQIP-III.
- The Faculty Recruitment envisaged for each focus state will build a system for recruiting and retaining adequate numbers of high-quality faculty. This Plan will be expected to provide a long-term solution to the problem of faculty recruitment and retention (not just during the project period) since every institute need to create a “trust fund” with shared contributions from TEQIP-III and state.
- The governance-related reforms under the Project, such as UGC autonomy, high-quality BoG and accreditation are expected to put colleges on a long-term path of excellence, which will include innovations in areas relating to internal revenue generation, thus making the institution sustainable even after the end of the project.

2.8 **Describe briefly the participation of departments/faculty/students in the IDP preparation**

Following steps were taken during the preparation of Institute Development Plan.

- Principal along with the HOD's of different department and sectional in-charges had brain storming session for the broader frame work of the institutional development plan.
- Subsequently, Head of the Department along with their faculty discussed the framework in detail keeping in mind the departmental requirement.
- Every department then appointed three faculty members to discuss the broader framework of Institutional Development Plan with group of students both at junior and senior level. The inputs received from the student were incorporated in the Institutional Development Plan where ever applicable and possible.
- After incorporating the ideas of faculty and students in the Institutional Development Plan by each department, again an interaction was carried out at the central level between the principal and Head of the Department.
- At the end of these interactions the Institutional Development Plan was finalized after incorporating the input / ideas from various sources.