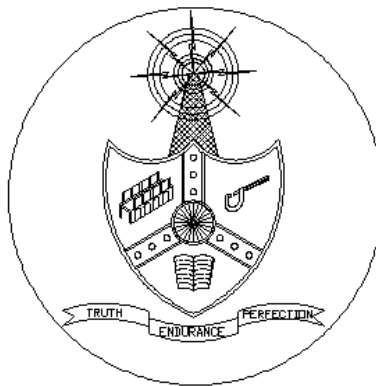


**TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME
OF
GOVERNMENT OF INDIA
(TEQIP-II)**

**REVISED INSTITUTIONAL DEVELOPMENT PROPOSAL
FOR EXTENDED PERIOD TILL DECEMBER 2016**

For

**Sub-Component 1.1: Strengthening Institutions to improve learning
outcomes and employability of Graduates**



**Government College of Engineering, Karad
Vidyanagar, Karad. Dist. Satara 415 124.**

1. INSTITUTIONAL BASIC INFORMATION

1.1 Institutional Identity

- Name of the Institution : **Government College of Engineering, Karad**
- Is the institution AICTE approved : **Yes/No**
- Furnish AICTE approval No. : F. No. Western/ 1-2452192120/2015/EOA
Dated 21.04.2015
- Type of Institution : **Govt. funded/ Govt. aided/ Private**
Unaided/Autonomous/Other
- Status of Institution : **Autonomous Institutes as declared by**
University/Non Autonomous/Deemed
University / Constituent College affiliated to
Shivaji University, Kolhapur

- **Name of Head of the institution and Project Nodal Officers**

Head & Nodal Officer	Name	Phone Number	Mobile Number	Fax Number	E-mail Address
Head of the Institution	Dr. P. M. Khodke	02164-326632	9370157387	02164-271713	principalgcekarad@gmail.com
TEQIP Coordinator	Dr. M. N. Hedao	02164-271711 Ext.213	9823395078	02164-271713	teqipkarad@gmail.com
Project Nodal Officers for:					
Academic Activities	Dr. P. M. Joshi	02164-271711 Ext.226	9967960490	02164-271713	dr.pmjoshi@gmail.com
Civil Works including Environment Management	Dr. S. S. Valunekar	02164-271711 Ext.211	9422701525	02164-271713	ssvalunekar@gmail.com
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Financial Aspects	Prof. V. S. Jadhav	02164-271711 Ext.305	9970821973	02164-271713	vijayjadhav@yahoo.com
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1.2 Base line Data (2013-14)

Sr. No	Parameters	Data
1	Total strength of students in all programmes and all years of study in the year 2013-14	1675
2	Total women students in all programmes and all years of study in the year 2013-14	570
3	Total SC students in all programmes and all years of study in the year 2013-14	208
4	Total ST students in all programmes and all years of study in the year 2013-14	53
5	Total OBC students in all programmes and all years of study in the year 2013-14	278
6	Number of fully functional P-4 and above level computers available for students in the year 2013-14	428
7	Total number of text books and reference books available in the library for UG and PG students in the year 2013-14	68526
8	% of UG students placed through campus interviews in the year 2013-14	28.34
9	% of PG students placed through campus interviews in the year 2013-14	3.46
10	% of high quality undergraduates(> 75% marks) passed out in the year 2013-14	5.24
11	% of high quality postgraduates(> 75% marks) passed out in the year 2013-14	12
12	Number of research publications in Indian refereed journals in the year 2013-14	02
13	Number of research publications in International refereed journals in the year 2013-14	15
14	Number of Patents obtained in year 2013-14	Nil
15	Number of Patents filed in year 2013-14	Nil
16	Number of sponsored research projects completed in year 2013-14	Nil
17	The transition rate of students in percentage from 1st year to 2nd year in the year 2013-14 for (i) all students (ii) SC (iii) ST (iv) OBC	70.53 54.55 16.65 66.03
18	IRG from students fees and other charges in year 2013-14 (Rs in lakhs)	49.35
19	IRG from externally funded R&D projects, consultancies in the year 2013-14 (Rs in lakhs)	Nil
20	Total IRG in year 2013-14	49.35
21	Total annual recurring expenditure of the applicant entity in the year 2013-14 (Rs in lakhs)	114.36
22	Number of joint publication with national authors in the year 2013-14	
23	Number of joint publication with Inter- national authors in the year 2013-14	Nil
24	Number of RND products commercialized in the year 2013-14	Nil
25	Number of joint M-Tech programmes with institutions under taken in the year 2013-14	Nil
26	Number of joint M-Tech programmes with industry under taken in the year 2013-14	Nil
27	Number of joint PhD programmes with institutions under taken in the year 2013-14	Nil
28	Number of joint PhD programmes with industry under taken in the year 2013-14	Nil
29	Number of joint Consultancies under taken with institutions in the year 2013-14	Nil
30	Number of joint Consultancies under taken with industry in the year 2013-14	Nil

2.0 EXECUTIVE SUMMARY OF THE IDP

The institute envisages participation in TEQIP- phase II (sub component 1.1) as an opportunity to enhance the existing capacity of the institute, become dynamic, demand driven, quality conscious and responsive to fast technological developments occurring at state / national and international level.

2.1 Background: Government College of Engineering, Karad is one of the premier institutes affiliated to Shivaji University, Kolhapur. The institute was established in 1960 with the aim of providing technical education of highest standards to all the sections of the society. Over the years it has established itself as one of the leading institutes in this area catering to the needs of technical education both at UG and PG level.

A sincere attempt to analyze present status of the institute through a scientifically carried out **SWOT** analysis showed that Institutional facilities / equipment are obsolete; the faculty is woefully inadequate and overloaded due to alarming vacancies; it is severely handicapped by internal administrative inefficiencies and external regulatory restrictions. Having analyzed its current status, GCE Karad has decided to revitalize its resources through an ambitious program of institutional development to allow it to maintain its excellence and expand it in new directions.

2.2 Strategic Plan: The strategic plan designed by the institute is based on FOUR fundamental pillars of Institutional development; (1) Curricular and Administrative reforms (2) Human Resource Development (3) Infrastructure Development and (4) Research, Consultancy and Interaction with Industries and Premier Institutes. The overall development is focused on long lasting benefit of all stakeholders namely, (a) Students (b) Staff (c) Society and (d) Industry. The strategic plan lays emphasis on “Sustained Development” of the reforms introduced for the overall development of technical education. Action plan is laid out and well defined to achieve the general and specific objectives of the project through a concerted approach.

2.3 Strategy to fulfill the objectives of the programme in extended period till 2016

The strategic plan designed by the institute is based on four pillars of Institutional development.

- i) Academic and Administrative reforms
- ii) Human resource development
- iii) Infrastructure development and
- iv) Resource mobilization and research & consultancy

The stakeholders are committed to successfully implement this plan by overcoming challenges that come in the way.

The short-term goals

- To get all the UG and PG programmes accredited by the NBA
- To undertake institutional reforms and effective governance
- To fill up vacant faculty positions

- To upgrade laboratories and teaching-learning infrastructure
- To establish campus wide network with intranet & other communication means
- To increase employability of graduates through soft skill training
- To develop spirit of entrepreneurship, industry and diligence
- To promote awareness of Intellectual Property Rights (IPR)
- To enhance liaison with industry through collaborative activities like projects, training, visits, participation in curriculum development, departmental industry boards
- To create conducive atmosphere to undertake R & D activities

The medium term goals

- To establish state-of-the-art laboratories
- To establish industry funded laboratories in every department
- To establish strong Industry Institute Interaction through courses and joint research projects
- To establish state of the art library
- To establish a 2000 capacity auditorium

An elaborate action plan for different areas of development is as under.

Governance

The institute has a Board of Management comprising of educationists, entrepreneurs and industry experts to ensure realization of the vision. Effective governance that will be in place in the days to come shall monitor continuous growth of the institute. It will be ensured through the process of automation by implementing intranet and MIS/ERP software in all administrative and academic processes. The decision-making process can also use the IT tools. A transparent and participative decision making process will be followed. The agenda and issues of several committees such as BoM, Academic council, Building and works committee, Finance committee, APEC and BoS, etc. can be discussed on video conferencing. This will reduce the administrative burden and will improve the efficiency of decision making.

Undergraduate education

The institute will undertake a review of the undergraduate academic environment. This review will include the academic process such as examination pattern, hands-on experience, grading system student counseling as well as curriculum contents. The review will be based on students' feedback, industry inputs as well as best practices adapted by other universities and institutes.

The laboratories are to be improved considerably. A new complex of core laboratories will be set up soon. More emphasis will be placed on the concept of "learning by doing". Students will be provided ample opportunities to innovate and implement their ideas in an environment which distresses the present concept of earning marks either by mathematical problem-solving or memorizing facts. Every student should be able build a portfolio of work done at the institute.

Student faculty relations need to be improved. Students should interact with faculty on a residential campus at occasions outside the class room. This will provide an experience of "learning outside class rooms" so as to boost critical thinking, communication and

collaboration. In order to facilitate such an atmosphere, professional student bodies will be made active with several events and programmes.

The spirit of creativity and research is a key element of any institute. Final year UG students shall be encouraged to work along with PG students on seminar and projects to get a glimpse into research activity. This spirit needs to be fostered not only in the post-graduate students but also in the undergraduate students. Summer research school and internship, special credits for research work and involvement of students in sponsored research projects will be encouraged.

Postgraduate education

The institute is committed as a mission to transform the complexion of the post-graduate education in the next 5 years at GCEK. The following action plan is suggested.

- To encourage PG students to work in industry for their dissertation.
- Mentoring UG students on seminar and projects to get them a glimpse into research activity.
- Institute level assistantship will be provided to Non-GATE PG students.
- Each department will have a research retreat (in-house workshop) every year.

Student activities

It is to be emphasized that the education at GCEK wishes to make students multidimensional and all round.

The involvement of faculty in many student-related activities such as culture, sports, workshops, seminars, industrial visits, in-plant trainings, community services, etc. needs considerable improvement. There is a need to review the subsidy provided to students in hostel utilities, hostel maintenance and nonfunctional mess facility on campus. The student counseling service needs to be strengthened. It is necessary to provide career counseling, academic counseling, personal counseling and professional counseling. Further it is necessary to provide training on soft-skills, motivation and other aspects of behavior & attitude. It is necessary to provide guidance for higher studies in India and abroad. Those having a flair for entrepreneurship need to be encouraged and given support. All the above mentioned issues will be addressed in a rational, logical and realistic manner.

Human Resource Development

The faculty strength of the institute has decreased significantly. The quality of technical and administrative staff needs to be improved considerably. A comprehensive HRD policy is required for this purpose. All staff members must undergo continual training and appraisal.

Sponsored Research

Every faculty member is expected to participate in this activity. A fair amount of internal revenue will be generated through this activity. The areas of research, particularly of interest to institute, can broadly be classified as

- Geo-informatics and Disaster mitigation
- Earth quake engineering
- Remote sensing
- Computational and experimental fluid/thermal engineering

- Condition monitoring
- Precision manufacturing and engineering

The institute will strive to set up interdisciplinary research groups where postgraduate and PhD students will work closely with industry.

Social Responsibility

Community service programmes (CSP) will be undertaken on regular basis with the participation of students, faculty and staff of the institute. These services will be provided to the under privileged sections of the society, farmers, personnel of small scale industries, etc.

Environment and Ecology

A general awareness for environment and ecology will be created in the campus community by undertaking various programmes.

Green campus will be developed by undertaking plantation. The concept of rain water harvesting and waste water treatment and recycling will be implemented.

2.4 Fund requirement : The fund requirement over the project period, with year-wise breakup is given below:

Activities	Project Life Allocation Lakh	Expenditure till 31st March Lakh	Financial Year Lakh	
			2015-16	Apr 16-Dec16
Infrastructure improvements for teaching, training and learning	550	388.84	261.16	160.00
Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines	20	16.70	12.30	7.00
Enhancement of R&D and institutional consultancy activities	100	6.60	55.40	38.00
Faculty and Staff development for improved competence based on TNA	100	43.46	75.54	35.00
Enhanced interaction with Industry	40	4.52	37.48	20.00
Institutional Management Capacity enhancement	30	7.98	37.02	23.00
Implementation of institutional reforms	20	21.98	19.02	15.00
Academic support for weak students	40	23.06	48.94	20.00
Incremental Operating Cost	100	35.61	54.39	35.00
Total	1000	548.75	601.25	353.00

3.0 LISTS OF KEY ACTIVITIES THAT ARE PLANNED TO MEET THE DEMANDS OF STRATEGIC PLAN

A. Up-gradation of subject knowledge and competence

- Faculty deputation for qualification upgradation
- Faculty deputation for specific training programmes for knowledge enhancement
- Faculty deputation for industry exposure
- Faculty visits to selected IIT's for studying recent trends in their subject knowledge and visits to different laboratories of their domain.
- Deputation / training to the supporting staff

B. Improving quality of teaching-learning

- Modernization of laboratories
- Setting up a new laboratories
- Industry participation for curriculum development & delivery
- Preparing learning resources Extensive use of available NPTEL web / Video Lectures from experts of IIT's, acquiring additional lectures and videos

C. Increasing research activity and improving quality of research

- Increasing enrolment of doctoral students
- Acquiring sponsored research projects
- Increasing industry-institute interaction for applied research
- Motivating faculty and PG students for filing patents
- Arranging National/International conferences on research based themes
- Incentivizing quality research on the basis of impact factor/ citation

D. Increasing output of PG students

- Increasing enrolment of PG students
- Expansion of Internet facility such as (Wi-fi internet network)
- Motivating the PG students for paper Publication at International Journal or Conference, provision of Funding for attending the workshop or Conferences
- Exchange programme with national institutes of repute or IIT's
- Conduction of finishing schools & summer courses

E. Increasing industry interaction

- Increasing applied research activity and UG/PG projects based on industry problems
- Conducting Seminars / Conferences
- Organizing site or Industry visits
- Arranging Industrial Experts Lectures series
- Internships of faculty & students in Industry
- Increasing interaction of faculty through industry advisory boards

F. Improving faculty student ratio

- Recruitment of Regular faculty through MPSC
- Appointment of faculty on contractual basis
- Appointment of adjunct faculty

G. Increasing on campus accommodation for students

- Improving facilities in the existing hostel
- Providing WiFi facility to hostels

H. Appreciating the performance of faculty & staff

- Appreciation by awards or Certificates or educational visits to India & abroad.
- Advertising the special achievements of staff on Notice board and on Web site

4.0 ACTION PLAN FOR EXTENDED PERIOD:

4.1. Infrastructure improvements for teaching, training and learning:

During initial phase of the project, focus was given for up-gradation of existing laboratories and creation of new laboratories with bare minimum equipments. With advent of new technologies, the laboratories need to be equally upgraded. The faculty, during their visits to few reputed institutes, has realized that their laboratories need further up-gradation. Additionally refurbishment of few existing laboratories shall be essential. Existing campus wide network project needs extension to hostel. The project allocation of Rs. 550 Lakhs was just enough to fulfill academic requirements as per university curriculum. The institute shall implement revised curriculum under autonomy from coming academic year 2015-16. Revised curriculum shall need additional equipments and additional laboratories

The proposed additional procurement of Rs. 250 Lakhs shall mostly be focused on computational facilities, simulation software, advanced measuring equipments, research facility and networking components. The procurement shall be planned till August 2016.

4.2. Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters programmes in Engineering disciplines

Present allocation is sufficient for existing project period. But for extended period upto Dec 2016, Rs. 10 Lakh shall be needed. Expenditure planned till Dec 2016 for the estimated enrollment with Rs. 8000 pm for ME which is likely to increase Rs. 12000 pm.

4.3. Enhancement of R&D and institutional consultancy activities

The institute has identified area of excellence in three departments. Mechanical department has already established the laboratory. Additionally R&D projects are identified and execution is going on. Henceforth, the outcome of R&D and these projects shall be monitored and effort shall be made to achieve the targets. The expenditure is planned till Sept. 2016.

4.4. Faculty and Staff development for improved competence

The institute has carried out Training Need Analysis (TNA) and the training programs are arranged accordingly. The domain based training is identified and faculty shall be deputed for the training. Due to increased awareness and support publications are multifold and support shall be extended for attending conferences/Journal publications by faculty and student as per Institute/NPIU norms. Skill up-gradation courses shall be arranged with few change mindset programs for support staff. The efforts for increasing such training programs are being made by continuous follow up.

Activities shall be completed during April 2015 to Oct 2016.

4.5. Enhanced interaction with Industry

So far 3 MoU's are signed with R&D organizations and Industry associations. Few more MoU's are in pipeline. Every department has been given targets. Though internship is not part of the curriculum, the students are motivated to undertake internship. The no of internships per year has gone up during TEQIP period. In addition BE students shall be sent to industry for identification of project areas and awareness regarding good practices in R&D activities of the Industry. The faculty training in industry has been recently introduced which will help to acquire exposure about industry practices. The institute has already appointed industry advisory board and meeting are regularly conducted. Such interaction shall be further extended for conduct of expert lectures of industry personnel.

Activities shall be executed during April 2015 to Oct 2016.

4.6. Implementation of institutional reforms

UGC expert committee already visited the institute for autonomy. The institute has to prepare to implement autonomy from 2015-16. The meeting of BOS and Academic counsel shall need funds. Fees for accreditation for three courses and reaccreditation of three courses are already paid. Fees for remaining five PG courses shall be booked under the head for extended period. In addition the competence building and awareness regarding outcome based teaching learning in line with NBA guidelines shall be done with arranging courses from the experts at Institute. Target for accreditation of all courses shall be May 2016.

Above activities shall need additional provision of Rs. 21 Lakhs.

4.7. Academic support for weak students

Basic focus shall be given to enhancement of domain knowledge of the slow learners by arranging finishing schools for all BE programs and effort shall be done to make them Industry ready. Due to rural background the students are weak in communication and professionalism. Hence finishing schools shall mainly focus on soft skills. Summer term for weak student shall be arranged to give them the flexibility to cope up with the courses with extended pace. Weak areas shall be identified for the incumbent through psychometric analysis method from external experts and gap bridging shall be done by inviting experts from outside. Additionally remedial teaching (e.g. extra classes, tutorials) shall be arranged for academically weak students.

Activities shall be mainly done during summer and winter vacations and completed before June 2016

5.0 DEMAND BUDGET ALLOCATION

Activity	Project Life Allocation	Expenditure till 31 March 2015	Additional demand for extended Period
Infrastructure improvements for teaching, training and learning	550	388.84	260
Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines	20	16.70	16
Enhancement of R&D and institutional consultancy activities	100	6.60	0
Faculty and Staff development for improved competence based on TNA	100	43.46	54
Enhanced interaction with Industry	40	4.52	22
Institutional Management Capacity enhancement	30	7.98	38
Implementation of institutional reforms	20	21.98	36
Academic support for weak students	40	23.06	52
Incremental Operating Cost	100	35.61	25
Total	1000	548.75	503

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