

# INSTITUTIONAL DEVELOPMENT PROPOSAL

For

**Sub-Component 1.2: Scaling-up Post Graduate Education and  
Demand-driven R&D&I**

*Submitted by*



BVVS

**Basaveshwar Engineering College (Autonomous)**

[TEQIP Lead Institute, Govt. Aided Institution, AICTE Recognized, Affiliated to VTU Belgaum]

**Bagalkot-587103, Karnataka, India**

## PROLOGUE

- Basaveshwar Engineering College Bagalkot is a premier technical institute offering quality Engineering Education in Karnataka. The salient features of the college are:

- Started with 3 UG programmes in Engineering and an intake of 120 students in 1963

- Today it offers 10 UG programmes, 8 PG programmes and PhD/ M.Sc in Engg. by research in 8 engineering disciplines, along with MCA & MBA

- Student intake has grown to about 1100 and the total student strength on campus is about 3600

- Quality teaching-learning processes are emphasized by the faculty whose strength has grown from 28 to 171 and proactive core research activities have helped in securing grants to the tune of Rs. 1.7 crores in the past three years.

- Excellent facilities in terms of buildings, amenities and IT infrastructure. About 1200 state-of-the-art computers are networked through 10 Gbps backbone fiber network and the campus is WiFi enabled with 50 Mbps Internet connectivity.

- Library is one of the best in the region with about 1,20,000 volumes and around 50,000 titles

- The college successfully implemented TEQIP-I as lead institute during 2004 to 2008

- The college attained academic autonomy in the year 2007 from Visvesvaraya Technological University, Belgaum with UGC approval and has successfully implemented the autonomous scheme in all programmes offered

- With the excellent growth over the years and its over reaching performance the college is now in a vantage position to expand its gamut of operations in global technical education

- For scaling up post graduate education, demand driven research, development and innovation, the college presents the Institutional Development Proposal (IDP) for sub component 1.2 of TEQIP-II, with the following agenda

- Set up 24 state-of-the-art Laboratories to support 44 research proposals in various domains

- Strengthen the teaching-learning processes and enhance the research culture

- Proactively pursue the equity plan, environment management framework and disclosure management framework

- Faculty development plans through 125 seminars/ workshops/ symposiums/ conferences/ skill enhancement programs. Increase faculty Ph.D qualification to 28%, number of technical publications by 400 and external research grants to ` 450 lakhs

- Staff development plans through computer/communication/attitudinal/laboratory equipment maintenance skill enhancement training programs

- Strengthen industry-institute collaborative activities through 35 MoUs

- Increase campus placement to 75%

## Vision, Mission, Values and Quality Policy

### Vision

To be recognized as a premier technical institute committed to developing exemplary professionals, offering research based innovative solutions and inspiring inventions for holistic socio economic development

### Mission

- To pursue excellence through student centric dynamic teaching-learning processes, encouraging freedom of inquiry and openness to change
- To carry out innovative cutting edge research and transfer technology for industrial and societal needs
- To imbibe moral and ethical values and develop compassionate, humane professionals

### Values

- Work is Worship** : The core essence of every activity of the college is inspired by the life and saying of Lord Basaveshwara the visionary of 12<sup>th</sup> century. The “Basaveshwara Engineering College” is named after the visionary
- Student Centric** : Academic and Administrative processes are devised and practiced to be student centric
- Innovation** : Encourage innovation and research for betterment of society
- Learning Centric** : To inculcate life long learning through teaching-learning and research activities
- Empathetical** : Cordial and harmonious living on campus through empathy
- Campus Culture**
- Indian Ethos** : Nurture modern outlook imbibed with Indian ethos in BEC community

### Quality policy

Teaching-Learning, research, administrative processes are quality driven and embellished with continuous improvements (Kaizen) to meet the global standards by rigorous adherence to set procedures and exhaustive quality audits.

This will be achieved through:

- Continuous upgradation, of qualification/ skills of faculty/staff and infrastructure
- Teaching-learning and mentoring with enhanced quality management system
- Providing multiple study options through perfect blend of academic flexibility and research emphasis
- Involvement of people at all levels

## TOWS Matrix for Strategic Objectives

The strategic objectives are framed keeping in view the overall development of the college and are listed in the TOWS Matrix.

	Strengths	Weaknesses
	<b>SO Strategies - ExPloit</b>	<b>WO Strategies - ExploRe</b>
Opportunities	<b>BAEP01:</b> To produce high quality graduates, postgraduates and doctorates in selected academic areas	<b>BAER09:</b> To facilitate the faculty and staff to upgrade qualification and acquire new technical skills
	<b>BAEP02:</b> To proactively participate in Government initiated research schemes for socio-economic development	<b>BAER10:</b> To explore research in inter-disciplinary areas
	<b>BAEP03:</b> To Strengthen/Enhance MOUs and consolidation of alumni network	<b>BAER11:</b> To create awareness about Intellectual Property Rights (IPR) and encourage patenting through cutting edge research
	<b>BAEP04:</b> To design and offer skill oriented certificate and value addition programmes to the youth for better employability	<b>BAER12:</b> To establish highly efficient internal communication and information system
	<b>BAEP05:</b> To enhance intake in all branches of engineering to strengthen and to establish new, distinctive PG courses	<b>BAER13:</b> To formulate well structured auditing procedures (academic, finance and administrative)
	<b>BAEP06:</b> To foster innovative thinking in the faculty and students	<b>BAER14:</b> To upgrade educational infrastructure using the state of the art Information and Communication Technology (ICT) tools.
	<b>BAEP07:</b> To inculcate spirit of entrepreneurship among students and to provide incubation facility	
	<b>BAEP08:</b> To establish Industrial Consultancy Services Cell (ICSC)	
	<b>ST Strategies - EnGage</b>	<b>WT Strategies - EScapE</b>
Threats	<b>BAEG15:</b> To retain and attract well-qualified faculty and experienced staff	<b>BAES16:</b> To minimize admission of low rank CET students

## Action Plan for scaling up enrolment into masters and doctoral programmes

### Key activities and action plans for scaling up enrolment into masters and doctoral programmes

Scaling up enrolment into masters and doctoral programmes is one of the most important objectives of the strategic plan. Many key activities and action plans are devised to quantitatively enhance the enrollment into masters, doctoral programmes and qualitatively improve the research activities. Key activities and action plans devised for this purpose are listed below and the activity chart for the key activities is given in Fig.BA3.

#### BAKA01 Upgradation of qualifications and enhancement of skills of faculty

- Encourage and depute faculty to acquire higher qualifications (Ph.D & M.Tech)
- Identify and depute faculty for need based training programmes
- Encourage faculty to enhance their communication skills
- Provide recognition/ incentives to faculty/ staff for qualification and skill enhancement
- Involve industry personnel for in house skill enhancement training

#### BAKA02 Promote High Quality Research amongst Faculty

- Encourage faculty to engage in high quality research through performance linked incentives
- Support faculty for publishing the research outcomes in international refereed journals/conferences
- Attract in-house faculty as well as faculty from other colleges for part-time Ph.D. under BEC R&D centers
- Attract faculty for Post-Doctoral Fellowship (PDF) for enhancing quality of research
- Substantial action plans for Quantitatively increasing and qualitatively improving research by the faculty individually, jointly and collaboratively
  - Identify thrust areas of research in each department
  - Conduct orientation program on research methodologies for young faculty
  - Share research experiences on a common platform
  - Launch working paper series to encourage research work in BEC
  - Propose joint research projects with industries and institutions of higher learning
  - Depute faculty for carrying out research at National/International R&D labs and institutions of higher learning
  - Involve industry experts in identifying and supervising research problems
  - Establish sophisticated research facility with advanced testing equipment
- Establish Research Consultancy Cell (RCC) to:
  - Interact with Government agencies at all levels on regular basis
  - Create awareness about research schemes among the faculty
  - Establish centralized research facility
  - To motivate faculty to take up R&D projects from industries
  - Providing space for setting up of laboratories to industries and introduce integrated courses
  - Explore emerging inter disciplinary research areas
  - Project the strength of the institute by designing and communicating the RCC brochure

**BAKA04 Attract more research scholars**

- Attract competent research scholars through research fellowships and independent research facilities
- Develop among undergraduate students an interest towards deep specialization and/or research
  - Conduct awareness programs about higher education and research
  - Research oriented projects to be introduced at UG level
  - Arrange visits for UG students to advanced research laboratories and institutions
  - Invite renowned S & T professionals to inspire students
  - Create database of UG/PG and research projects
  - Organize project contests for UG students
  - Establish knowledge sharing networks with reputed institutions and research labs

**BAKA05 Encourage High Quality Research amongst Research Scholars**

- Encourage the publication of technical reviews and papers in peer reviewed journals and participation in national/ international conferences
- Attract regular Ph.D. students through fellowships
- Take up need based projects from industry and community
- Form inter & intra department research groups
- Conduct orientation program on research methodologies for students
- Launch working paper series of BEC

**BAKA20 Enhance industry-institute collaboration**

- Enter into MoUs for excellence in education, training, research, consultancy and community development under the aegis of RCC (BAKA02)
- Match the core research areas with Industries in the region
- Specialized subject teaching by industry experts
- Faculty deputations to industry for research/ training
- Information of visiting faculty and universities to be posted on BEC web-site
- To organize executive meets regularly and nourish good relationship with industrialists
- To involve industry, institute and alumni personnel in academic bodies
- To motivate faculty to take up industry sponsored R&D projects
- Reconstitute and rejuvenate the Industrial Consultancy Services Cell (ICSC) and formulate the guidelines to channelise all consultancy services through the cell

**BAKA21 Linkages with Higher Learning institutes**

- Action plans for establishing MoUs with Institutions of Higher Learning in India and Foreign Universities
  - Identify and Establish links in specialized areas in each discipline.
  - Define modalities for establishing the collaboration.
  - Student exchange programs for project/ research for one semester
  - Faculty exchange programs for research/ teaching assignment
  - Information of visiting faculty and universities to be posted on BEC web-site
  - Establish a forum of researchers belonging to various institutes

**BAKA24 Establish good rapport with Media for Publicity and Brand-building**

- Establish BEC communications office for effective brand building
- Promote college Brand Image through participation in educational fairs, Informative brochures and pamphlets
- Publicity and advertisements in all major cities and also through BEC alumni

### 2.4.2 Bar Chart for Key Activities related to scaling-up enrolment into masters and Doctoral and programmes

Sl. No	Key Activities	Jul-Sep 2014	Oct-Dec 2014	Jan-Mar 2015	Apr-Jun 2015	Jul-Sep 2015	Oct-Dec 2015	Jan-Mar 2016	Apr-Jun 2016	Jul-Sep 2016	Oct-Dec 2016
1	BAKA01: Up gradation of qualifications and enhancement of skills of faculty										
2	BAKA02: Promote High Quality Research amongst Faculty										
3	BAKA04: Attract more research scholars										
4	BAKA05: Encourage High Quality Research amongst research scholars										
10	BAKA20: Skill enhancement of technical and other staff										
11	BAKA21: Linkages with Higher Learning institutes										
12	BAKA24: Establish good rapport with Media for Publicity and Brand-building										

Figure: Bar Chart for Key Activities related to scaling-up enrolment into masters and doctoral programmes

## **2.5 Provide an Action Plan for improving collaboration with industry**

### **2.5.1 Key activities and action plans**

Collaboration with industry is an essential component of today's engineering education system. Synergy between industry and academic institute leads to enhanced knowledge assimilation and dissemination resulting in updated curriculum on par with latest technological developments. It also facilitates research in cutting edge technology areas. To foster and nurture active collaboration with industries, the following key activity and action plans have been envisaged. An activity chart showing the action plans is given in Fig.BA4.

#### **BAKA20 Enhance industry-institute collaboration**

- Enter into MoUs for excellence in education, training, research, consultancy and community development under the aegis of RCC (BAKA02)
- Match the core research areas with Industries in the region
- Specialized subject teaching by industry experts
- Faculty deputations to industry for research/ training
- Information of visiting faculty and universities to be posted on BEC web-site
- To organize executive meets regularly and nourish good relationship with industrialists
- To involve industry, institute and alumni personnel in academic bodies
- To motivate faculty to take up industry sponsored R&D projects
- Reconstitute and rejuvenate the Industrial Consultancy Services Cell (ICSC) and formulate the guidelines to channelise all consultancy services through the cell

The enhancement of industry – institute collaboration will have a positive impact on the following:

- Quality of research
- Quality of PG education
- Commercialization of products/projects
- Teaching-Learning processes



### 2.5.2 Activity chart of Action Plans for improving collaboration with Industry

Sl. No	Action Plan	Jul-Sep 2014	Oct-Dec 2014	Jan-Mar 2015	Apr-Jun 2015	Jul-Sep 2015	Oct-Dec 2015	Jan-Mar 2016	Apr-Jun 2016	Jul-Sep 2016	Oct-Dec 2016
1	Enter into MoUs for excellence in education, training, research, consultancy and community development under the aegis of RCC (BAKA02)										
2	Match the core research areas with Industries in the region										
3	Specialized subject teaching by industry experts										
4	Faculty deputations to industry for research/ training										
5	To involve industry, institute and alumni personnel in academic bodies										
6	To motivate faculty to take up industry sponsored R&D projects										

Figure: Activity chart of Action Plans for improving collaboration with Industry

## **action plan for Quantitatively increasing and qualitatively improving research by their faculty individually, jointly and collaboratively**

Escalating the quality and quantity of research by BEC faculty will be accomplished through following key activities and action plans.

### **BAKA02: Promote High Quality Research amongst Faculty**

- Encourage faculty to engage in high quality research through performance linked incentives
- Support faculty for publishing the research outcomes in international refereed journals/conferences
- Attract in-house faculty as well as faculty from other colleges for part-time Ph.D. under BEC R&D centers
- Attract faculty for post-doctoral fellowship (pdf) for enhancing quality of research
- Substantial action plans for Quantitatively increasing and qualitatively improving research by the faculty individually, jointly and collaboratively
  - Identify thrust areas of research in each department
  - Conduct orientation program on research methodologies for young faculty
  - Share research experiences on a common platform
  - Launch working paper series to encourage research work in BEC
  - Propose joint research projects with industries and institutions of higher learning
  - Depute faculty for carrying out research at National/International R&D labs and institutions of higher learning
  - Involve industry experts in identifying and supervising research problems
  - Establish sophisticated research facility with advanced testing equipment
- Establish Research Consultancy Cell (RCC) to:
  - Interact with Government agencies at all levels on regular basis
  - Create awareness about research schemes among the faculty
  - Establish centralized research facility
  - To motivate faculty to take up R&D projects from industries
  - Providing space for setting up of laboratories to industries and introduce integrated courses
  - Explore emerging inter disciplinary research areas
  - Project the strength of the institute by designing and communicating the RCC brochure

### **BAKA03: Encourage faculty to secure intellectual property**

- Provide institutional support
- To organize workshops/seminars
- Promote patentable research

### **Developing research interest among undergraduate students**

**'Catch them Young'**. Inculcation of scientific temper and research interest will attract UG students to take up research activities. The dormant research interest amongst UG students develops while they take up final year project work. The creative talent can be nurtured during this project phase. In this direction BEC has framed a key activity and corresponding action plans which are listed below:

### **BAKA04: Attract more research scholars**

- Attract competent research scholars through research fellowships and independent research facilities
- Develop among undergraduate students an interest towards deep specialization and/or research.
  - Conduct awareness programs about higher education and research
  - Research oriented projects to be introduced at UG level
  - Arrange visits for UG students to advanced research laboratories and institutions
  - Invite renowned S & T professionals to inspire students
  - Create database of UG/PG and research projects
  - Organize project contests for UG students
- Establish knowledge sharing networks with reputed institutions and research labs

- Develop an appropriate strategy to motivate UG students to take up higher studies
  - Identify research thrust areas in each department
  - Launch working paper series to encourage BEC research works
  - Propose joint research projects with industries and institutions of higher learning for securing funding/sponsorship
  - Involve industry experts in identifying and supervising research problems
  - Establish sophisticated research facility with advanced testing equipment

**Collaborating with Indian and foreign institutions in academic and research areas through MOUs**

Collaboration in academic and research activities among peers with novel ideas in various Indian and Foreign Institutions will lead to enhanced knowledge generation and quality research. Towards this end BEC proposes to pursue the action plans listed below.

**BAKA21: Linkages with Higher Learning institutes**

- Action plans for establishing MoUs with Institutions of Higher Learning in India and Foreign Universities
  - Identify and Establish links in specialized areas in each discipline.
  - Define modalities for establishing the collaboration.
  - Student exchange programs for project/ research for one semester
  - Faculty exchange programs for research/ teaching assignment
  - Information of visiting faculty and universities to be posted on BEC web-site
  - Establish a forum of researchers belonging to various institutes

**Provide an 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 and pass rate with the objective of improving their employability.**

It is an established fact that, quality manpower feeds and nourishes industries and augments the economic growth of the region. The mandate of the technical education system is to create a bank of skilled personnel who can be directly absorbed by the industry. In this direction BEC plans to set up a **Finishing school** to provide enhanced knowledge and skill for better employability to academically weak and students from SC/ST/OBC.

**BAKA19: Establishing Finishing School**

- Conduct remedial teaching throughout the semester for subjects perceived to be difficult for improving transition rate
- Organize specialized soft skills and professional development training for increasing employability
- Conduct mock online test for providing a feel of corporate selections
- Establish MoU with leading HR organizations in the region for training and placement assistance
- Conduct high intensity and employer need based training programmes for graduates and postgraduates to secure employment
- Organize campus interviews and make necessary efforts to secure employment for graduate engineers

## **An action plan to ensure that the Project activities would be sustained after the end of the Project**

The college plans to consolidate its financial position through Finance mobilization and cost optimization in the project period and enhance internal revenue generation, which will help to sustain the activities after TEQIP-II period. Towards this direction the following key activities and corresponding action plans have been envisaged.

### **BAKA25: Finance Mobilization**

- Form a task force for identifying finance mobilization opportunities from various sources
- Consolidation of corpus, faculty development, depreciation and maintenance funds.
- Other IRG activities such as consultancy, training activities will also be used for sustaining the activities
- Prepare detailed proposals for gaining financial assistance from specific sources (Eg: From AICTE, DRDO, Alumni, International Endowment Foundations)

### **BAKA26: Cost optimization**

- Conduct cost audits for minimizing wasteful expenses
- Conduct regular internal and third party financial audits
- Devise financial procedures in tune with modern accounting trends