R.V. COLLEGE OF ENGINEERING

R.V. Vidyaniketan Post, Bangalore – 560 059.

<u>INSTITUTIONAL DEVELOPMENT PROPOSAL (IDP)</u>

Executive summary of the IDP:

India is rapidly moving towards becoming a developed nation and a leader in the era of Knowledge Economy, based on former President, Dr. Abdul Kalam initiated roadmap "Vision 2020". Karnataka which is already one of the top five developed state in India, is making rapid progress and plans to have over 12% - Industrial growth and 9% - Gross State Domestic Product (GSDP), with a focus on development in over 14 niche areas of technology by 2020. We are in Bangalore, "the Silicon Valley of India" and identified as one of the most innovative cities in the world. All these goals clearly call's for highly qualified, adaptable and innovative engineers. R.V.College of Engineering which will be completing 50 years in 2013, would like to be in tune with these needs and aspirations of the local, regional, national and international arena, deliver the same, and be a globally recognized leader in engineering education, research and innovation by the end of this decade. The proposed Institutional Development Plan (IDP) is a partial roadmap toward this 10 year goal. The IDP focuses on training the faculty, starting of new interdisciplinary PG programs, establishment of associated labs and Centre's of excellence, leveraging the current expertise (discussed else were in the report) which would dovetail into advanced cutting edge new areas. Thus, leading to capacity building, innovation, IP creation, technology development and entrepreneurship, in areas of national importance.

We plan to start interdisciplinary PG programs in areas like (i) Green Computing and Information Resource Management (ii) Large Area and Flexible Microelectronics, (iii) Environmentally Clean, Sustainable and Efficient Energy Systems, (iv) Bioinformatics and Drug Discovery, and (v) Industrial and Systems Engineering for Sustainability. These cover a wide range of subjects from all the branches of engineering ranging from cloud computing, data mining, energy efficient systems, green buildings, environment friendly technologies for air and water quality to e-waste management, renewable energy technologies, power generation, energy harvesting technologies and efficient distribution. The same materials and devices under large area and flexible microelectronics including novel amorphous, organic and nano materials based on silicon, carbon and oxides could be used for solar energy, lighting, low power ICT enabling green computing systems from displays, to scanners, handsets, touch screens and printers. They are also expected to be part of MEMS or printed electronics based sensors, RFIDs, and novel light weight, compact, and inexpensive instrumentation, for use in areas like health, telemedicine, education, security, automobile, space and avionics. Thus the CoE will also be broadly based on the above mentioned areas / programs. We already confirmation from leading industrial partners for all these technologies. They would be facilitating the courses, help setup labs and partner in research. Further in the first 18 months we plan to establish the labs and have our faculty trained be subject experts from many countries including India, UK, USA and EU like Germany & Holland. During the second phase of the program we hope to have production and process technology experts from US, Australia, Germany, Japan, Korea and Taiwan for these technologies, so that faculty, the students and the industrial partners gain from the same. Thus we have trained faculty, capacity building, intellectual capital generation and actual technology emerging as an outcome of the program. More importantly ensuring the success and sustainability of this unique opportunity for growth which only a program like TEQIP can facilitate. If we are selected we believe we would truly validate the TEQIP mandate and vision, even as this enables us to move closer to achieving our vision and mission.

Action taken since the commencement of Sub-Component 1.2 of TEQIP

Post Graduate Initiatives

1.   Starting of New PG Programs

      a.   M.Tech in Master of Engineering Management started in the academic year 2011-2012.

      b.   M.Tech in Biotechnology started in the academic year 2011-2012.

      c.   M.Tech in Bioinformatics (start from academic year 2012-13)

      d.   M.Tech in Chemical Engineering (start from academic year 2012-13)

2.   Starting of New Laboratories

RVCE in association with Industry has established state-of-the-art laboratories in various departments. Some of the companies who have set up labs include Freescale Semiconductor, Cisco, NXP, Agilent Technologies, Bosch Rexroth, Lapp Cable and Hind High Vacuum.

3.   Assistantship could not be provided as the funds are not released.

4.   Upgrading Skills and Qualification

Degree	Pursuing	Completed
Ph.D.	109	16
M.Tech.	02	03

5.   Several Training Programs for faculty and support staff have been undertaken.

6.   Equity Programs could not be implemented as the funds are not released.

Research Initiatives

(i)   Developing a wide range of Biomass Fuel for Biomass based power plant.
(ii)   Development of Technology to convert waste coal and lignite into clean fuel.
(iii)   Developing a high efficiency novel Plasmonic a-Si:H solar cell on glass.
(iv)   Developing high temperature absorbing solar thermal receiver tubes.
(v)   Developing environment friendly, low water consuming cement free construction blocks.
(vi)   Developing indigenous process equipments, wide range of composite materials.
(vii)   Developing the novel meta materials based antennas.
(viii)   Development of Image compression Algorithm for satellite Images.
(ix)   Developing a monitoring system for Environment including air, wind, noise and water.
(x)   Developing novel medical instrumentation including compact hand held X-ray sources, Ultrasound sources, smart electronic stethoscope, for affordable healthcare and telemedicine application.
(xi)   Developing novel room temperature grown nanocarbons based thin film transistor.
(xii)   Developing a Biofuel production and characterization facility.
(xiii)   Developing compact wind mills, concentrator solar systems, energy harvesting systems etc.
(xiv)   Setting up of STP plant & Rainwater Harvesting facility in the campus
(xvi)   Establishing a clean room facility for development of Large Area and Flexible Microelectronics and Vacuum Nanoelectronics.
(xvii)   Established seamless connectivity with over 25 Kms of wired & wireless (100 access points scalable further) connectivity with a virtualization platform and in the process of establishing our own Cloud computing & High Performance facility for undertaking wide range of developmental activity.

RV COLLEGE OF ENGINEERRING, BANGALORE-560 059
MASTER PLAN OF DEVELOPMENT AND TEQIP IMPLEMENTATION (scheduling & Phasing of investment)

■	RVCE: Initiative						■	TEQIP			
		BASE LINE INITIATIVES						TEQIP INITIATIVES			
Sl.No.	Particulars	2005-2006	2006-2007	2007-08	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	CAMPUS & GREEN ENVIRONMENT ACTIVITIES										
	Campus Development through department buildings for enhanced enrolment and new courses	■(blue)	■(blue)	■(blue)	■(blue)	■(blue)	■(green)	■(green)	■(green)		
	Medical Center				■(blue)	■(blue)					
	Barrier free movement for physically challenged including lifts				■(blue)	■(blue)					
	Affluent treatment for chemical, chemistry, bio-tech labs					■(blue)					
	Drinking water for Campus & Canteen RO plants	■(blue)									
	Rain water Harvesting		■(blue)		■(blue)		■(green)				
	Enhancing Horticultural / Garden Activity	■(blue)			■(blue)			■(green)			
	Sewage water treatment plant				■(blue)						
	Distribution for STP water (Separate)					■(blue)					
	Clean energy generation bi		■(blue)			■(blue)	■(green)				
	AUTONOMY & AUTONOMOUS OPERATION										
	Administrative Block (Creation of Examination and valuation block)					■(blue)	■(blue)				
						■(blue)	■(blue)				

Sl.No.	Particulars	BASE LINE INITIATIVES					TEQIP INITIATIVES				
		2005-2006	2006-2007	2007-08	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	U.G. Autonomy		■								
	P.G. Autonomy						▨				
	Formation of various statutory bodies			■							
	Revision of curriculum			■							
	Framing rules , regulations, credits		■	■							
	UGC visit				■						
	Approval by BoS			■							
	Approval by Academic Council of the institute			■							
	Approval by BoG			■							
	SWOT ANALYSIS AND TRAINING PROGRAMS										
	Through internal activities	■	■	■	■						
	Through external experts				■	■					
	Through external agency					▨	▨				
	Domain workshops/ Conferences/ Seminars/ Symposia etc	■	■	■	■	■	▨	▨	▨	▨	▨
	a. Faculty					■	▨	▨	▨	▨	▨
	b. Tech. & Support staff					■	▨	▨	▨	▨	
	Sponsoring to winter summer schools	■	■	■	■	■	▨	▨	▨	▨	▨
	Qualification improvement	■	■	■	■	■	▨	▨	▨	▨	▨
	Basic Pedagogy	■			■		▨	▨	▨	▨	
	Leadership					■	▨	▨	▨	▨	
	Behaviour Skills		■		■		▨	▨	▨	▨	
	RE-ACCREDITATION OF UG DEPARTMENTS										
	Preparation		■	■	■	■	■				
	Making Application					■		■			
	Updating Files			■	■	■					
	Dispatch & online					■					

Sl.No.	Particulars	BASE LINE INITIATIVES					TEQIP INITIATIVES				
		2005-2006	2006-2007	2007-08	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	ACCREDITATION OF PG PROGRAMS										
	Preparation					🟦	🟦				
	Making Application					🟦	🟦				
	Updating Files					🟦	🟦				
	Dispatch & online					🟦	🟦				
	UP-GRADATION OF PG										
	Enhancement of Enrolment						🟩				
	Staring of New PG programs (min. three)						🟩				
	QIP programs						🟩	🟩			
	R & D AND MOU WITH INDUSTRIES & INSTITUTIONS										
	For value added and Bridge Courses			🟦	🟦	🟦	🟩	🟩			
	Enhancing R & D	🟦	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩
	Project Works with industries	🟦	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩
	Special incentive schemes						🟩	🟩	🟩	🟩	🟩
	Entrapreneu development & Innovation				🟦	🟦			🟩	🟩	🟩
	Commerialisation & IP assistance Center								🟩	🟩	🟩
	INCLUSIVENESS										
	Academic support to slow learners	🟦	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩
	Scholarship to students from poor background				🟦	🟦	🟩	🟩	🟦	🟦	🟦
	Scholarships to Merited students	🟦	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩
	Scholarships to SC/ST/OBC	🟦	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩
	Assistance ship to PG students										
	a. GATE	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦	🟦
	b. Non -GATE			🟦			🟩	🟩	🟩	🟩	🟩

Sl.No.	Particulars	BASE LINE INITIATIVES					TEQIP INITIATIVES				
		2005-2006	2006-2007	2007-08	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	EQUIPMENT UPGRADATION										
	Department wise Requirements for PG programs	B	B	B	B	B	G	G	G	G	G
	Office Equipment & General			B		B					
	Computer and peripherals as learning resources for librariries.	B	B	B	B	B	G	G	G		
	Purchase of Instruments & Equipment for R&D&I		B	B	B	B	G	G	G	G	G
	MODERNIZATION / IMPROVEMENTS										
	CAMPUS WI-FI					B	B				
	Security & Survelance						B	B			
	Fire fighting	B		B		B		G			
	Optical Fiber campus N/W	B									
	Additional Telephone Lines			B	B						
	New EPABX /CENTREX System			B							
	Direct Satellite Receiving System / Link							B			
	LIBRARY										
	Computerization of Service	B									
	Electronic & Digital Library	B									
	Infrastructure Enhancement	B		B	B			B			
	DELNET	B									
	Membership of the Libraries	B							G		
	Increasing licenses to R&D learning and reference.	B	B	B	B	B	G	G	G	G	G

Sl.No.	Particulars	BASE LINE INITIATIVES					TEQIP INITIATIVES				
		2005-2006	2006-2007	2007-08	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	STAFF										
	Teaching improving student faculty ratio.		■	■			▩	▩	▩		
	Technical / Non Teaching improvement		■				■				
	Administrative / Ministerial Staff						■				
	ADMINISTRATION										
	Approval by BoG for applying for TEQIP						■				
	Formation of various committees						■				
	Approval of eligibility requirements by BoG					■					
	Institutional Management Capacity enhancement						▩	▩	▩	▩	▩
	STAFF WELFARE PROGRAMMES										
	Medical Benefits	■	■	■	■	■	■	■	■	■	■
	Group Insurance	■	■	■	■	■	■	■	■	■	■
	Provident Fund	■	■	■	■	■	■	■	■	■	■
	Children's Education	■	■	■	■	■	■	■	■	■	■
	Gratuity	■	■	■	■	■	■	■	■	■	■
	Sponsorship for Conferences abroad	■	■	■	■	■	■	■	■	■	■
	Training Programmes for Non-Teaching (Technical) Staff	■	■	■	■	■	■	■	■	■	■
	Incentives for PhD guides					■	■	■	■	■	■
	Incentives for projects undertaken					■	■	■	■	■	■

Sl.No.	Particulars	BASE LINE INITIATIVES					TEQIP INITIATIVES				
		2005-2006	2006-2007	2007-08	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
	REVENUE GENERATION										
	Consultancy projects sponsored by private or public sector industry						🟩	🟩	🟩	🟩	🟩
	Sponsored research projects					🟦	🟩	🟩	🟩	🟩	🟩
	Conducting continuing education programmes,	🟦	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩
	Incubation center							🟩			
	Media Center				🟦						
	Corporate Training	🟦	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩
	Offering specially tailored programs							🟩	🟩	🟩	🟩
	Consultancy	🟦	🟦	🟦	🟦	🟦	🟩	🟩	🟩	🟩	🟩
	Royalty through IPR & commercialization.									🟩	🟩