

“REVISED INSTITUTIONAL DEVELOPMENT PROPOSAL”

For

TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP) PHASE-II

**Sub-Component 1.2: Scaling-up Postgraduate Education and Demand-Driven
Research & Development and Innovation**

Submitted by



**UNIVERSITY VISVESVARAYA COLLEGE OF ENGINEERING
BANGALORE UNIVERSITY
K. R. CIRCLE, BANGALORE – 560 001**

Submitted to

**National Project Implementation Unit
TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME (TEQIP)
(PHASE-II)
Department of Higher Education
Ministry of Human Resource Development
Govt. of India, New Delhi**

Through

**State Project Coordinator
State Project Facilitation Unit
Technical Education Quality Improvement Programme
Department of Technical Education, Govt. of Karnataka
Bangalore**

(June 2015)

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UNIVERSITY VISVESVARAYA COLLEGE OF ENGINEERING BANGALORE UNIVERSITY, BANGALORE

About UVCE

University Visvesvaraya College of Engineering (UVCE) was started as a School of Mechanical Engineering by Bharat Ratna Sir. M. Visvesvaraya in the year 1913 to meet the needs of the State for skilled workers with S V Setty as its Superintendent. Later, it was converted to a full-fledged Engineering College in the year 1917 under the name *Government Engineering College* and was affiliated to the University of Mysore. It is the fifth Engineering College to be established in the country.

After the formation of Bangalore University in 1964, UVCE became one of the Constituent Colleges of Bangalore University. This is one of the oldest Institutions in the country imparting technical education leading to B.E, M.E, B.Arch., M.Sc. (Engineering), M.Arch and Ph.D degrees in various disciplines of Engineering and Architecture.

The Institution has grown by leaps and bounds producing highly competent graduates, postgraduates and doctorates who have occupied prestigious positions both in India and abroad. The pioneering Institution has grown manifold and has acquired a leading position in Technical Education and is rated among the top twenty-five Engineering colleges in the country.

UVCE ranks:

- 40th in Top 50 Indian Government Engineering Colleges in India, 2007
- 47th by Outlook: Top 75 colleges in India, 2009
- 24th in Best Engineering colleges in India as per survey conducted by India Today and Nielsen company for the year 2011
- 37th in Best Engineering colleges in India as per survey conducted by The Week for the year 2012.

The City campus is situated at K.R. Circle and is in the neighbourhood of Vidhana Soudha, Government of Karnataka. The Department of Mechanical Engineering, Department of Electrical Engineering, Department of Electronics Engineering and Department of Computer Science and Engineering, is spread over 15 acres of land, in the heart of the city at K.R. Circle. Proximity to the city bus stand and Visvesvaraya Metro Station connects one easily to any part of the city. The Departments of Civil Engineering and Architecture are located in the salubrious outskirts of Bangalore City at Jnanabharathi Campus.

VISION

The vision of UVCE is to strive for excellence in Advancing Engineering Education through path breaking innovations across the frontiers of human knowledge to realize a vibrant, inclusive and humane society.

MISSION

The mission of UVCE is to prepare human resource and global leaders to achieve the above vision through discovery, invention and develop friendly technologies to promote scientific temper for a healthy society. UVCE shapes engineers to respond competently and confidently to the economic, social and organizational challenges arising from globally advancing technical needs.

GOALS

The goals of the UVCE are to substantially increase the capability to become more dynamic, demand driven, quality conscious, efficient and forward looking, responsive to rapid economic and technological development both at National and Global level by undertaking the following:

- (i) Build infrastructure (Mechanical Block, Visvesvaraya Centenary Block, Hostel Block, Visvesvaraya Metro Block and Laboratories) to compete globally.
- (ii) Increase in recruitment of faculties from 175 to 500 in 12th and 13th five year plan.
- (iii) Starting of new PG, UG, PGDM and Skill Development Programs.
- (iv) Increase in the number of Under Graduates (4000 to 8000), Post Graduates (400 to 800) and Ph.Ds from 250 to 500 produced from the Institution; training and increase in employability of UG, PG and Ph.D Students.
- (v) Placement to all students, enhanced employability, scholarship to all meritorious, socially and economically challenged students.
- (vi) Increase in the number of faculty members involved in guiding Ph.D Research Scholars and encourage Interdisciplinary Research activities through Institution - Industry Interactions, collaboration with Corporate, Research Organizations and Foreign Universities.
- (vii) Establish Centres of Excellence catering to the research needs in the high end technology areas.
- (viii) Increase Internal Revenue Generation (IRG) and make it self-sustaining.

Infrastructure of the Institution

The Institution currently offers Seven Undergraduate (B.E / B.Arch) Full-time, three Undergraduate (B.E) Part-time and Twenty Four Postgraduate (M.E / M.Arch.) Programmes. The Institution has awarded 178 Ph.D degrees. The Institution has 79 eligible faculties to guide Ph.D students and presently more than 300 candidates pursuing their Ph.D. The Institution has presented and published more than 500 technical papers in the last 3 years in International refereed Journals and National / International Conferences.

The Department of Civil Engineering being a recognized QIP centre from MHRD, has completed more than 1000 consultancy projects. The teaching faculty has completed/ engaged in a number of R & D projects sponsored by UGC, AICTE, MHRD, AR&DB, ADA, Naval Research Board, National Highways, etc. including an Indo-European project. Sixty two Books have been published by the faculty members of UVCE. The faculty have filed 73 patents.

Presently, 110 full-time faculty members are serving the Institute, of which 69 faculty members possess Ph.D degrees. Twenty Three faculty members are pursuing their Doctoral Programme. There are 33 Professors, 45 Associate Professors and 32 Assistant Professors and one faculty member from the Department of Physical Education, Bangalore University. In addition, sixty reputed and experienced teachers are rendering their services as Guest faculty.

UVCE is recognized by the All India Council of Technical Education of the Government of India (AICTE) and is a recipient of financial aid under World Bank's Technical Education Quality Improvement Programme (TEQIP) totally Rs. 26.5 crores from Phase I and Phase II.

UVCE has an excellent Industry-Institution Interaction with reputed global companies. Excellent technical training is provided in the Institution to the students with regular mock aptitude tests, group discussions, soft skills, personality development and case studies to meet the expectations of the industry. There are around 4332 UG, PG, Ph.D students pursuing their degree at UVCE with a student-teacher ratio of 1:22.5. There are 1300 women students, 1300 SC students, 130 ST students and 2400 OBC students. The transition rate of all students from 1st year to 2nd year is around 95%, the transition rate of SC, ST and OBC students are around 91%, 90% and 96% respectively.

The tuition fee is the least in the state with UG students paying a tuition fee of Rs. 22,430 and PG students pay an tuition fee of Rs. 31,820 that amounts to more than Rs. 12 Crores per annum. More than 60% of the students receive scholarships to a tune of Rs. 7 Crores viz., GATE, TEQIP, PGCET, Minority, OBC, SC/ST, UVCE Alumni, Army etc., from various organizations/bodies namely AICTE,TEQIP, Government of Karnataka, Government of India etc.

Nearly 80 % of the UG students and 35 % of PG students get placed through campus interviews every year. The institute has around 800 high-end computers with an internet connectivity of 100 Mbps extendable to 1Gbps. UVCE Library has around 1,50,000 text and reference books.

Academic Reputation

- (i) UVCE produces 98% results in Undergraduate and 99% results in postgraduate courses.
- (ii) Nearly 55 % of the Postgraduate students undertake Internship or summer training at various Industries for a period ranging from 6 months to 1 year.
- (iii) Placements in the Department of Computer Science & Engineering, Information Science & Engineering and Electronics & Communication Engineering has reached nearly 100%.

Academic Achievements of the Staff.

- (i) UVCE has well qualified, experienced and dedicated Teaching Staff with an average teaching experience of 20 years and Technical Staff having an average experience of 25years.
- (ii) 64% of the faculty are with Ph.D. degree and another 20% are in the process of completion.
- (iii) The Institution has presented and published more than 500 technical papers in the last 3 years in International refereed Journals and National / International Conferences.
- (iv) Books Published by the faculty till date: 62
- (v) Patents Filed till date: 92
- (vi) Ph.Ds awarded till date: 178.
- (vii) Ph.Ds awarded in the last three years: 68
- (viii) Students registered presently for Ph.D Programme: 251
- (ix) Consultancy Projects completed till date: 1000+

- (x) Research projects completed/ongoing since 1998 till date generating revenue to a tune of 239.74 Lakhs ó 18
- (xi) Padma Vibhusan conferred on UVCE Alumini: 3

Mode of Admission of Students and Recruitment of Teachers.

UG Students are admitted on merit basis through entrance conducted by KEA. Candidates belonging to Union Territory, Government of India, are also admitted by the Central Government. PG Students are enrolled through PG CET conducted by KEA, GATE and Ph.D students are admitted through Entrance Examination conducted by Bangalore University. Teachers are appointed through interviews by open selection.

Library and Laboratories.

UVCE is spread across two campuses, one at K R Circle with an area of 15 acres and another with 50 acres at Jnanabharathi campus. The institution has a total built up area of about 20,000 sq mtrs, 53 Laboratories and 1,50,000 volumes of books in the library.

Institutional Management.

UVCE is a Constituent College of Bangalore University under the Government of Karnataka. The institution is governed by the KSU Act 2000 comprising of the following bodies: The Academic Council, The Syndicate, The Faculties, Finance Committee, Board of Studies and Department of Studies. The Board of Governors is constituted to carry out the activities under TEQIP-II.

The students (UG, PG and Ph.D) and Faculty benefit by attending Seminars, Workshops, Expert Lectures, National and International Conferences. The faculty are involved in research projects funded by external agencies like DST, VGST, AICTE, etc. Most of the Faculty are consultants in State and Central Government Projects.

Financial Resources of the Institution.

- Annual Budget is allocated from the State Government Budget and Bangalore University.
- UVCE is a recipient of financial aid under World Bank's Technical Education Quality Improvement Programme (TEQIP). A sum of Rs. 14.5 Crores during Phase-I and a sum of Rs. 12.5 Crores during Phase-II is sanctioned.

1. INSTITUTIONAL BASIC INFORMATION

1.1 Institutional Identity

- Name of the Institution : **University Visvesvaraya College of Engineering (UVCE)**
- Year of Establishment : 1917
- Name of the Principal : Dr. Venugopal K R
- AICTE approved : Yes
- AICTE approval No. : South-West/1-2016821057/2014/EOA dated: 04/06/2014
(Copy Enclosed)
- Type of Institution : Government funded Constituent College of Bangalore University
- Status of Institution : Constituent College of Bangalore University

1.2. Academic Information

The institution currently offers Seven Under Graduate (B.E / B.Arch), Twenty Four Post Graduate (M.E. / M. Arch.) Programmes and Ph.D. programmes. The Programmes are listed below:

UG/PG/Ph.D. Programmes offered in Academic year 2015-16

Total Number of Students: 4332 as on the Academic Year 2015 - 2016

I. Under Graduate Programmes

Sl. No	Title of Programme	Duration in Years	Year of Starting	AICTE Intake	Student Strength *
1	Civil Engineering (B.E.)	4 Years	1917	210	724
2	Mechanical Engineering (B.E.)	4 Years	1917	105	480
3	Electrical & Electronics Engineering (B.E)	4 Years	1921	85	385
4	Architecture (B.Arch.)	5 Years	1967	40	200
5	Electronics & Communication Engg. (B.E)	4 Years	1969	66	306
6	Computer Science and Engineering. (B.E)	4 Years	1983	75	345
7	Information Science & Engineering. (B.E)	4 Years	2002	65	290
8	Electronics & Communication Engg. **	3 Years	1972	60	180
9	Mechanical Engineering **	3 Years	2001	60	180
10	Civil Engineering **	3 Years	2012	60	180
Total				826	3270

Note :- * Includes supernumerary, lateral entry and Government of India (GoI) Exchange Programme

** B.E Evening course from 5:30 pm ó 9:30 pm

II. Post graduate Programmes

Sl. No	Title of Programme	Year of Starting	AICTE Intake	Student Strength
(i) Department of Civil Engineering (M.E)				
1	Structural Engineering	1961	14	28
2	Highway Engineering	1963	10	20
3	Pre-stressed Concrete	1965	10	20
4	Geo-Technical Engineering	1963	12	24
5	Environmental Engineering	1969	10	20
6	Water Resource Engineering	1981	10	20
7	Construction Technology	1990	10	20
8	Earthquake Engineering	2008	18	36
(ii) Department of Mechanical Engineering (M.E)				
9	Machine Design	1964	18	34
10	Manufacturing Science and Engineering	1974	18	36
11	Thermal Science and Engineering	2001	18	35
12	Advanced Material Technology	2008	18	36
(iii) Department of Electrical and Electronics Engineering (M.E)				
13	Power and Energy Systems	1970	14	28
14	Power Electronics	1994	18	36
15	Control and Instrumentation	2008	18	36
(iv) Department of Electronics and Communication Engineering (M.E)				
16	Electronics and Communication Engineering	1987	25	50
(v) Department of Computer Science and Engineering (M.E)				
17	Computer Science and Engineering	1994	18	35
18	Information Technology	2004	25	43
19	Computer Networking	2008	18	35
20	Web Technologies	2008	18	36
21	Software Engineering	2008	18	36
22	Bioinformatics	2008	18	32
(vi) Department of Architecture (M. Arch)				
23	Construction and Project Management	2008	18	08
24	Landscape Architecture	2008	18	12
Total			392	716

III. Ph.D. Programmes (Full Time – 3 to 5 Years, Part Time – 4 to 6 Years)

Sl. No	Title of Programme	Year of Starting	Student Strength
1	Civil Engineering	1967	74
2	Mechanical Engineering	1965	103
3	Electrical Engineering	1981	6
4	Electronics and Communication Engineering	1987	24
5	Computer Science and Engineering	2001	44
6	Architecture	2009	--
Total			251

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

Faculty Rank	No of Regular Sanctioned Posts	Present Status : Number in Position by Highest Qualification												Total No of Regular Faculty in Position	Total Vacancies	Total No of Contract Faculty in Position
		Doctoral Degree				Master Degree				Bachelor Degree						
		Engg. Discipline		Other Discipline		Engg. Discipline		Other Discipline		Engg. Discipline		Other 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	15	16	17
Prof.	26	24	12	4	-	4	-	-	-	1	-	-	-	29	-	12
Asso. Prof.	47	25	6	7	-	13	9	-	-	-	-	-	-	38	18	18
Asst. Prof.	102	6	-	-	-	24	39	-	-	2	-	-	-	32	58	46
Total	175	55	18	11	-	41	48	-	-	3	-	-	-	99	76	76

Prof = Professor, Assoc. Prof = Associate Professor, Asst. Prof = Assistant Professor, R = Regular, C = Contract
 The column 5, 9, 10 includes teachers in Physics, Chemistry, Mathematics, Kannada, Environmental Science and Law from the Departments of Bangalore University totaling to 11 teachers.
 The number of sanctioned posts = 186

List of Regular and Guest Faculty**I. List of Regular Faculty**Principal: **Dr. Venugopal K R****I Department of Mechanical Engineering**

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					a	b	c
	Dr. N. Lakshmana Swamy	Chairperson					
01	Sri. M. Vishnu Kumar	Professor	22.09.1982	ME	28	-	-
02	Dr. K.V.Sharma	Professor	05.12.1985 Lecturer As TA 25/1/1988	Ph.D	25	0.5	18
03	Dr. P. Vijaya Kumar	Professor	28.01.1988	Ph.D	28	10	18
04	Dr. Paul Vizhian S	Professor	28.01.1988	Ph.D	25	--	18

05	Dr. G. Harish	Professor	01.02.1988	Ph.D	26	-	10
06	Dr. N. Lakshmana Swamy	Professor	02.02.1988	Ph.D	26	-	19
07	Dr. B.K. Muralidhar	Professor	01.02.1995	Ph.D	26	4	24
08	Dr.B.M. Rajaprakash	Professor	08.02.1988	Ph.D	26	--	18
09	Dr. U N Kempaiah	Professor	15.05.2013	Ph.D	25	1	15
10	Dr. S. Ranganatha	Professor	Feb. 1988	Ph.D	26	06	16
11	Dr. C.K. Umesh	Professor	28.09.1995	Ph.D	24	01	15
12	Sri V. Ramamurthy	Associate Professor	17.07.1989	MS	24	04	02
13	Dr. Shivarudraiah	Associate Professor	12.09.1995	Ph.D	24	--	15
14	Dr. H.N. Vidyasagar	Associate Professor	28.09.1998	Ph.D	23		18
15	Dr. Chandrashekhar Bendigeri	Associate Professor	26.11.1998	Ph.D	15	01	10
16	Dr. H.K. Shivanand	Associate Professor	04.02.2006	Ph.D	16	01	10
17	Dr. D.K. Ramesh	Associate Professor	02.04.2008	Ph.D	15	--	10
18	Dr. H.C. Chittappa	Associate Professor	13.09.1995	Ph.D	18	02	15
19	Dr. Shantharaja M	Associate Professor	04.02.2006	Ph.D	15	02	08
20	Sri. Hanumantharaju H.G	Assistant Professor	06.02.2006	M.E	15	08	08
21	Sri G. Prem Kumar	Assistant Professor	17.02.2006	M.Tech	07	--	07
22	Sri. R.Rajashekar	Assistant Professor	10.02.2006	M.E.	07	01	04
23	Dr. Saravanan R	Assistant Professor	07.06.2006	Ph.D	07	06	06

II Department of Electrical Engineering

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					a	b	c
	Dr Y. R. Manjunatha	Chairperson					
24	Dr. V Satyanagakumar	Professor	12-02-82	PhD	32	--	05
25	Ms. M N Suneetha	Associate Professor	19-11-93	ME	17	--	--
26	Dr Y. R. Manjunatha	Associate Professor	02-04-08	PhD	10	03	--
27	Dr. E G Shivakumar	Associate Professor	11-09-95	PhD	17	03	05
28	Dr. B P Harish	Associate Professor	06-09-95	PhD	14	--	04
29	Mr. D Venkatesh	Sr Assistant Professor	13-04-88	BE	27	--	--
30	Mr. M V Kashinath	Associate Professor	07-04-88	ME	27	--	--
31	Ms. B C Sujatha	Associate Professor	15-12-95	ME	20	--	--
32	Dr. T S Prasanna	Associate Professor	28-03-96	PhD	19	--	01
33	Mr. H R Ramesh	Associate Professor	01-03-06	ME	10	--	--
34	Ms. H S Veena	Sr. Assistant Professor	24-09-98	ME	17	--	--
35	Mr. K P Guruswamy	Assistant Professor	03-03-06	ME	09	--	--
36	Mr. J Madhusudhana	Assistant Professor	06-03-06	ME	09	01	--
37	Ms. K P Shobha	Assistant Professor	08-03-06	ME	09	--	--
38	Mr. T N Raghavandra	Assistant Professor	09-03-06	ME	09	--	--
39	Mr. N Manjappa	Assistant Professor	08-03-06	MTech	09	--	--
40	Mr. H Prasanna Kumar	Assistant Professor	29-06-06	MTech	08	01	--
41	Mr. C M Maheshan	Assistant Professor	19-04-07	ME	08	01	--

III Department of Electronics & Communication Engineering

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					a	b	c
	Dr.Sudheer.M.L.	Chairperson					
42	Dr.Narendra Kumar. G	Professor	20.07.90	Ph.D	25		
43	Dr.Sudheer.M.L.	Professor	25.07.90	Ph.D	15	03	
44	Dr. Raja.K.B.	Professor	07.04.88	Ph.D	27		
45	Dr.Suresh Babu.K	Professor	18.06.90	Ph.D	25		
46	Mr.Venugopal.B.K	Associate Professor	08.04.88	M.E	27		
47	Mr.Sreenivasa Murthy.A	Associate Professor	30.09.88	M.E	27	07	
48	Mr.Hanumanthappa. S	Assistant Professor	08.10.93	B.E	22		

IV Department of Computer Science & Engineering

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					A	b	c
	Dr. P Deepa Shenoy	Chairperson					
49	Dr.Venugopal K R	Professor	1982	Ph.D	33	02	28
50	Dr. P Deepa Shenoy	Professor	1986	Ph.D	29	-	10
51	Dr. Thriveni J	Associate Professor	2008	PhD	20	03	05
52	Dr. Manjula S H	Associate Professor	2008	PhD	21	---	05
53	Aruna latha J S	Associate Professor	2008	ME	22	---	---
54	Dr. Champa H N	Associate Professor	2008	PhD	25	01	04
55	Dr. Dilip Kumar S M	Associate Professor	2008	PhD	17	01	05
56	H S Vimala	Associate Professor	1995	MS	24	---	---
57	Pushpa C N	Assistant Professor	2008	M.Tech	14	00	00
58	Lata B T	Assistant Professor	2008	M.Tech	12	00	00

59	Kiran K	Assistant Professor	2008	ME	13	00	00
60	Venkatesh	Assistant Professor	2008	M.Tech	13	00	00
61	Tanuja R	Assistant Professor	2008	ME	14	00	00
62	Dharmendra chauhan	Assistant Professor	2008	ME	12	02	00
63	Samyama Gunjal	Assistant Professor	2008	M.Tech	07	01	01

V Department of Civil Engineering

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					A	b	c
	Dr. B.S.Nagendra Prakash			Chairperson			
64	Dr. B.R.Niranjan	Professor	26/04/1983	Ph.D	26	-	29
65	Dr. H.N.Ramesh	Professor	14/02/1996	Ph.D	22	2	18
66	Dr. V.Devaraj	Professor	19/06/1981	Ph.D	29	-	29
67	Dr. Usha N Murthy	Professor	08/04/1983	Ph.D	27	-	20
68	Dr. M.S.Amarnath	Professor	13/07/1983	Ph.D	26	-	28
69	Prof. G.R. Harish	Professor	22/08/1984	M.E.	25	10	15
70	Dr. B.Santhaveerana Goud	Professor	01/02/1988	Ph.D	22	-	22
71	Dr. B.S.Nagendra Prakash	Professor	07/11/1984	Ph.D	25	-	25
72	Dr.A.S.Ravikumar	Associate Professor	10/12/1998	Ph.D	15	-	16
73	Sri M.Keshavamurthy	Associate Professor	04/04/1988	M.E	20	-	05
74	Dr. L.Manjesh	Associate Professor	11/05/1994	Ph.D	18	1	05
75	Dr. S.Gangadhara	Associate Professor	17/07/1998	Ph.D	16	-	16
76	Dr. M. Inayathulla	Associate Professor	14/08/1998	Ph.D	24	-	08
77	Dr. G. Suresh	Associate Professor	19/06/1998	Ph.D	16	-	16
78	Dr. Shivakumar J Nyamathi	Associate Professor	08/06/1998	Ph.D	21	½	15
79	Dr. P.S. Nagaraj	Associate Professor	02/06/1998	Ph.D	21	-	18
80	Dr. B.Vishwanath	Associate Professor	08/07/1998	Ph.D	25	00	12

81	Dr. Sadath Ali Khan Zai	Asst Professor	01/06/1998	Ph.D	20	-	17
82	Sri.S. Bhavani Shankar	Asst Professor	10/07/2008	M.Tech	18	2	-
83	Dr. L. Govindaraju	Asst Professor	05/06/1998	Ph.D	18	-	10
84	Dr. A.Krishna	Associate Professor	08/07/1998	Ph.D	16	04	05
85	Dr. B.P. Annapurna	Associate Professor	04/06/1998	Ph.D	17	1	09
86	Sri A.V.Sriram	Associate Professor	08/06/1998	ME	16	-	05
87	Sri. N.Jayaramappa	Associate Professor	26/10/2006	M.E.	11	03	02
88	Sri T. Kiran	Associate Professor	26/10/2006	M.E.	11	03	02
89	Smt. H.B. Rekha	Assistant Professor	02/11/2006	M.Tec	4	½	-
90	Dr. K.V.S.B. Raju	Assistant Professor	29/03/2007	Ph.D	05	05	06
91	Sri.H.C. Muddaraju	Assistant Professor	29/03/2008	M.E	02	04	-
92	Dr.Chethan. K	Assistant Professor	31/03/2008	Ph.D	2	-	3

VI Department of Architecture

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					a	b	c
	Prof. S V Ravindra			Chairperson			
93	Prof. K V Guruprasad	Professor		B.Arch			
94	Prof. D Azad	Professor		MUD			
95	Prof. S V Ravindra	Professor		M.C.P			
96	Sri. M Nagendra	SR Assistant Professor		M.Arch			
97	Sri. Haroon Salim	SR Assistant Professor		MLA			
98	Sri. Satyam J Vora	Assistant Professor		M.Tech			
99	Sri. Pedagadi Pavan Kumar	Assistant Professor		Ph.D			

VII Department of Chemistry

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					a	b	c
100	Dr. Suresh Babu V V	Professor	11/06/1990	Ph.D	20		
101	Dr Chandrappa G T	Associate Professor	1993	Ph.D	17		
102	Dr. Chetana P R	Associate Professor	1995	Ph.D	15		

VIII Department of Physics

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					a	b	c
103	Dr. Kokila	Professor	1990	Ph.D	20		
104	Dr. Doddamani V H	Associate Professor	1992	Ph.D	18		
105	Dr. Renuka C G	Associate Professor	1996	Ph.D	14		

IX Department of Mathematics

Sl. No	Name (s) of the Teaching Faculty	Designation (Assistant Professor/ Associate Professor/ Professor)	Date of Joining the Institution	Highest Qualification	Experience (in Years)		
					a) Teaching	b) Industry	c) Research
					a	b	c
106	Dr. Maralabhavi Y B	Professor	01/07/1988	Ph.D	22		
107	Dr. Pradeep Siddeshwar	Professor	1988	Ph.D	22		
108	Dr. Medha	Associate Professor	1992	Ph.D	18		
109	Dr. Muddhe Bihal	Associate Professor	1994	Ph.D	16		
110	Dr. Harina P Vaghmore	Associate Professor	1994	Ph.D	16		

II List of Guest Faculty**I Department of Computer Science and Engineering**

Sl No.	Name of the Guest Faculty	Semester & Branch	Place of Work
1.	Anand R Umarji	II ME Bioinformatics	Samsung
2.	Anitha Kanavalli	II ME Computer Science & Engg. Information Technology	MSRIT
3.	Balaji B G	II ME Computer Networks	Nokia
4.	Dhamodhar P	II ME Bioinformatics	MSRIT
5.	Krishna Kumar P	II ME Software Engg.	Cambridge Institute of Tech.
6.	Mustafa B	II ME Software Engg.	IBM
7.	Shantha Kumar S	II ME Bioinformatics	MSRIT
8.	Namitha Muruges	II ME Software Engg.	---
9.	Prakash. G. L	II ME Computer Networks	Alpha Institute of Technology
10.	Prashanth kumar H P	II ME Bioinformatics	Sapthagiri Institute of Tech.
11.	Chandrakanth Naikodi	Project Lab (PG)	Oracle
12.	Prathap U	II ME Web Technology	Nokia
13.	Shaila K	II ME CSE.	VIT
14.	Sivashankari G G	II ME Computer Networks	AMC
15.	Shrikantaiah K C	II ME Web Technology	SJBIT
16.	Rama Sivakiran Reddy	Biotechnology Lab	MSRIT
17.	Siva Subramanyam	II ME Web Technology	Lucent
18.	Suhail Ahmed	II ME Web Technology	IBM
19.	Sunil Kumar G	II ME Software Engg.	Alpha Institute of Technology
20.	Veena Bhat	II ME Information Technology	ICFAI
21.	Vishwanath R H	II ME Software Engg.	Sambram Institute of Tech
22.	Yamuna Devi C R	II ME Computer Science & Engg. & Information Technology	Dr. Ambedkar Institute of Technology
23.	Ramu S	VI Sem Information Science & Engg	Advocate
24.	Girish G S	III ME Web Technology	BNMIT, Bangalore
25.	Gururaj M	I ME Software Engg.	Nagarjuna Institute of Tech.
26.	Indira Priyadrashini	I ME Bioinformatics	Oxford College of Engg.
27.	Jagadish S k	I ME Information Technology	MSRIT
28.	M A rajan	I ME Computer Science & Engg.	TCS
29.	Shiva Kiran R	III ME Bioinformatics	MSRIT
30.	Thraimbaka	V BE Computer Science & Engg. & Information Science & Engg.	Jain College, J C Road

II Department of Electronics and Communication Engineering

31.	Sudhi	VII Sem Cryptography	
32.	B N Manjunatha Reddy	V Sem MP	
33.	D Kumaraswamy	V Sem Analog	
34.	Vijaya Prakash A M	DSD	
35.	Rangaraju H J	SAT Comm	
36.	Parameshwara	III Sem, Fields	
37.	M L Shylesh	Multimedia	
38.	Shankar B B	Multimedia	
39.	Channe Gowda G C	English	
40.	Hemanth Kumar	VII Sem, Wireless	
41.	Chandrashekar B S	III Sem ME, Microwaves, Embedded Systems	
42.	Gangadhariah	I ME VLSI	
43.	Santosh Emmaule Georg	Electronics Lab II	
44.	Chintamani C	DSP Lab	
45.	Sana Dhalayat	Controls	
46.	Kakesa Awati	Networks and Lines	

III Department of Electrical Engineering

47.	Ms. R Hemavathi	Digital Control Systems, Electrical Machine Design, Non conventional Energy Sources	
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IV Department of Civil Engineering and Architecture

48.	K G Krishna Murthy	Construction Management	
49.	Swetha Baliga	History of Architecture	
50.	Sridhar	Building Material and Construction	
51.	Shyam Sundar		
52.	Bhavana	Building Services	
53.	Bhaskar	Visual Arts	
54.	M S Amarnath	Visual Arts	
55.	Dr. H Sharada Bai	Structural Engineering I	
56.	Dr. H N Ramesh	Strength of Materials	
57.	Dr. B P Annapurna	Structural Engineering II	
58.	Dr. L Manjesh		
59.	Dr. G R Harish	Structural Engineering I	

V Department of Mechanical Engineering

60.	Pandurangappa	Engineering Mathematics (Bridge Course)	
61.	Subramanyam J	Applied Thermodynamics	

+ 15 Guest Faculties (Kannada, English, Constitution of India, etc.)

Total Faculty on Contract: 76

1.4. Baseline Data (2014 – 15)

Sl. No	Parameters	Particulars
1	Total strength of students in all programmes and all years of study	4332
2	Total women students in all programmes and all years of study	1382
3	Total SC students in all programmes and all years of study	824
4	Total ST students in all programmes and all years of study	131
5	Total OBC students in all programmes and all years of study	2436
6	Number of fully functional P4 and above level computers	526
7	Total number of syllabus Text books and Reference books in library	147257
	7a) Student -Teacher ratio	17.7:1
8	% of UG students placed through campus interviews	80.5
9	% of PG students placed through campus interviews	35.7
10	% of High quality under graduates (>75% marks)	42.64
11	% of High quality post graduates (>75% marks)	87.43
12	Research publications in Indian refereed Journals (2005 ó 15)	85
13	Research publications in International refereed Journals (2005 ó 15)	371
14	Number of Books Published	65
15	Number of Patents obtained	--
16	Number of Patents filed	92
17	Number of sponsored research projects completed	12
18	The transition rate of students in percentage from 1 st year to 2 nd year for : (i) All Students (ii) SC (iii)ST (iv)OBC	86.3% 81.2% 79.8% 85.6%
19	IRG from students fee and other charges (Rs. in lacs)	1000
20	IRG from externally funded R & D products, consultancy & other sources (Rs. in lakhs)	193
21	Total Internal Revenue Generated (Rs. in lakhs)	1193
22	Total annual recurring expenditure of the institution (Rs. in lakhs)	1049

2 INSTITUTIONAL DEVELOPMENT PROPOSAL

2.1 Executive Summary of the IDP

During the project life it is proposed to start five Post Graduate programmes in different specialized areas namely Nano Technology, Space Technology, Digital Electronics, VLSI and Embedded System Design, Data Mining and Warehousing. It is proposed to strengthen the existing 24 PG programmes and Ph.D programmes. It is proposed to attract more and better qualified students for the existing PG programmes by increasing the enrolment and

- By providing Assistantship.
- Enhancing interaction with industries/ R & D institutions.
- Deputing faculty and staff for advanced training.
- Support for academically weak students.
- Conduction of meaningful finishing schools.

The fund requirement over the project period with year wise break-up for the various activities has been presented in the tabular form shown below.

TABLE 1

Fund Requirement over Project period with quarterly breakup

Sl. No.	Head of accounts	Additional grants (Rs lakhs)	Jan-Mar 2016	May - June 2016	July- Sept 2016	Oct-Dec 2016
1	Procurement	405.00	200	205	-	-
2	Assistantship (PG and Ph.D)	180.00	45	45	45	45
3	Enhancement of R&D	45.00	-	15	15	15
4	Faculty and Staff Development	90.00	-	30	30	30
5	Enhanced interaction with Industry	45.00	-	15	15	15
6	Institutional Management capacity enhancement	18.00	-	6	6	6
7	Implementation of Institutional academic reforms	9.00	3	2	2	2
8	Students support	18.00	-	6	6	6
9	Incremental operating cost	90.00	-	30	30	30
	Total	900.00	248	354	149	149

The following SWOT Analysis has been accomplished by concerted involvement of each department on the guidelines provided in the PIP. A comprehensive institutional SWOT analysis has been compiled based on the inputs of academic, technical, and administrative personnel of the institute.

2.2 SWOT Analysis of the Institution

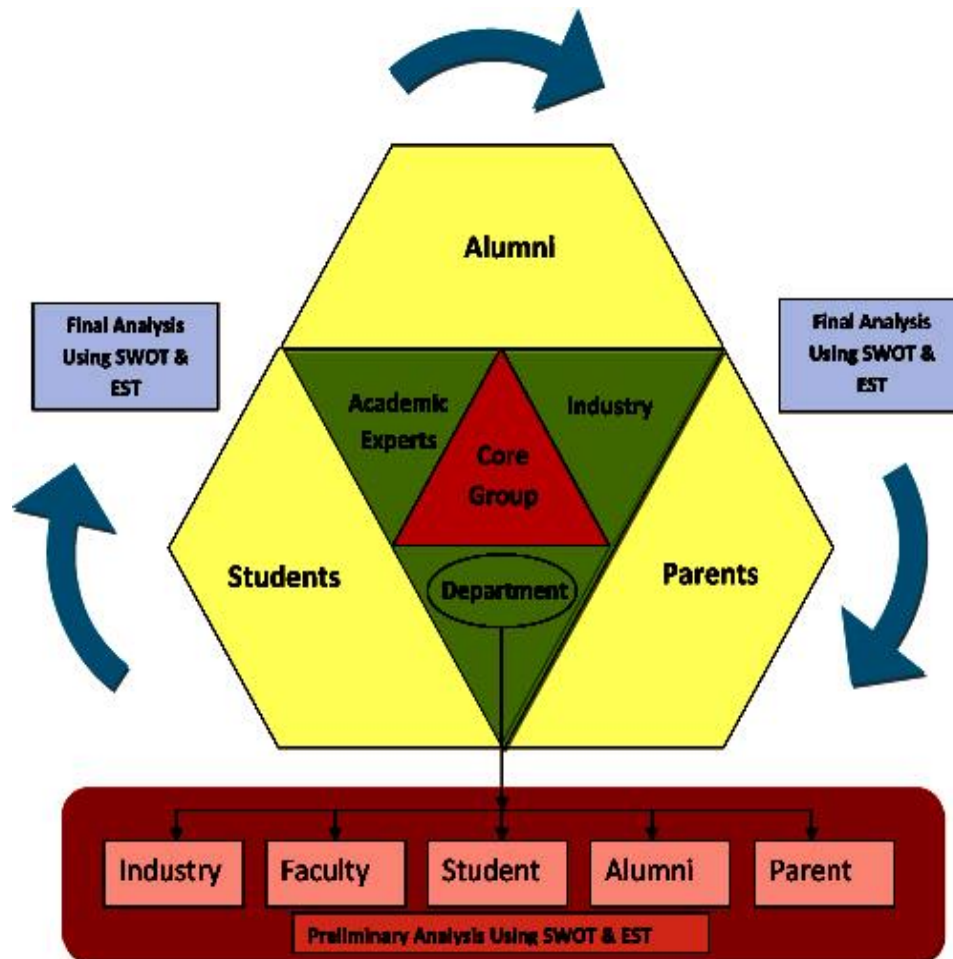


Figure 1: Showing Methodology adopted for Analysis of Primary and Secondary Data.

The Seven-Step strategic analysis method is adopted in conducting SWOT analysis. Strategic planning of *Institution* is carried out keeping in mind to preserve the great reputation and heritage of the college along with its mission to be an Icon of advanced technical Institute. Primary and secondary data is collected and analyzed from faculty, students, alumni, industry experts, academic experts, parents and individual Departments.

Step 1: SWOT Analysis framework is adopted along with EST (Economical, Social and Technical) viability in preparation of institutional analysis report. SWOT analysis is a strategic planning method used to evaluate the Strengths, Weaknesses, Opportunities and Threats involved in a project or business venture, indicating where opportunities and risk should be pursued,

where certain threats or risks are easily avoided when resources are allocated properly. Core group implemented the following seven step process:

Step 2: The Principal and coordinators prepared a detailed event schedule and distributed the schedule among all team members in advance, for the initialization of the work. This included listings of all the meetings, agendas for each of those meetings, and the purpose and objectives of the process. Both primary data as well as secondary data was collected by the documentation team well before the initial meeting. Key factors and indicators are derived from the data and respective teams are assigned with identification of Institutional requirements.

Step 3: The Coordinators interacted with each Department coordinators and individual participants to provide a list of requirements and factors under various heads. Executive summary of all the factors and requirements is prepared and placed under Strengths and those that weaken the situation and competitive position under Weaknesses.

Step 4: The Coordinators repeated the round-robin exercise looking at external factors. Factors that are possibly detrimental to the institution competitive position are considered as threats and those factors that enhance the institution position are classified as opportunities.

Step 5: Under the guidance of the Head of the Institution, all coordinators made separate teams to review them. Time frame was set and time was scheduled when all participants voted on Strengths, Weaknesses, Opportunities and Threats.

Step 6: The Head of the Institute conducted brainstorming session of the list prepared in the previous steps. For each opportunity, coordinators identified the Institute's relevant Strengths and Weaknesses. Repeated the process for each Threat, identifying the strengths that the institution used to defend itself from the Threats and the Weaknesses that leave the institution exposed.

Step 7: The Head of the Institution personally orchestrated the process, setting up a series of half-day work sessions that involved his direct reports and several members of the functional areas reporting to him. He had the groups use SWOT analysis as a key job aid in their work sessions, supported by facilitators who understood the process.

SWOT Analysis

The following SWOT Analysis has been accomplished by concerted involvement of each Department on the guidelines provided. A comprehensive institutional SWOT analysis has been compiled based on the inputs of academic, technical, and administrative personnel of the Institute.

Sl. No	Items	Strengths	Weaknesses	Opportunities	Threats	Remarks
I. CAPABILITIES: Strengths						
1	The Institute will be celebrating its centenary year in the year 2016-17	✓				Strong Base
2	The existing teaching staff are highly qualified and experienced in their field of specialization.	✓				Global Strength
3	The Institution offers SEVEN Under Graduate courses and TWENTY FOUR Post Graduate courses apart from M. Sc., (Engg.) and Ph.D. by research. Twenty Three new PG Courses have been proposed	✓				Global Recognition
4	The Institution has 110 faculty members with 68 faculty members possessing Ph.D. Degree, while 34 faculty members are pursuing their Ph. D. programme. In addition, 86 qualified and experienced guest faculties are associated with the Institution. The teacher student ratio is 1: 22.5	✓				Global Recognition
5	UVCE has been recognized as one of the nodal centres for the prestigious Rs. 6,00,000 crores öPradhana Mantri Gram Sadak Yojana (PMGSY)ö of Government of India and is also Principal Technical Agency (PTA) to scrutinize DPRs for 4 Southern states based on its research capabilities.	✓				Global Recognition
6	The Institution has been conducting various Research and Consultancy projects to Central and State Governments, National Laboratories and Private Sectors Organizations.	✓				Global Recognition
STRENGTHS						

Sl. No	Items	Strengths	Weaknesses	Opportunities	Threats	Remarks
7	Several Special Equipments have been developed indigenously by this Institution which are helpful for Advanced Research and Consultancy work in areas like Material Characterization, Pavement Design, Evaluation and Management.	✓				Good Practice
8	The Institute is actively involved in Industry Institute Interaction programmes and has carried out several training programmes for Engineers of public sectors enterprises like Bharat Electronics, Hindustan Machine Tools, Karnataka Rural Roads Development Agency etc.	✓				Good Governance
9	Several full scale test track studies were carried out in south India by collaborating with various agencies like state PWD and National Highways.	✓				Strong Base
10	Interdisciplinary research with UGC-CAS in Fluid Mechanics is going on in the area of Smart Materials of Nano Structures.	✓				Global Strength
11	UVCE has been selected under TEQIP-II for subcomponent 1.2 (setting up of Post Graduate studies and research in development and innovation).	✓				Strong Base
12	The fee structure is one of the lowest in the Country. Total number of students is 4332. In addition, 70% of students are being awarded scholarship to a tune of 7 crores per annum. The scholarships are given through various bodies like Government Scholarship (SC / ST, OBC), Multinational Companies (MNCs), UVCE Alumni, PG CET, GATE Scholarship etc.	✓				Good Governance

STRENGTHS

II. RECOGNITION : Strengths								
13	The Institute established in 1917 and is one of the oldest in the country. Over the years it has earned a reputation well worth recognized both within and outside the country setting up several benchmarks on its way to growth which is its Unique Selling Point (USP).	✓					Strong Bases	STRENGTHS
14	Some of the faculties are recipients of Young Scientist Award, Best Thesis Award, Best Paper Award, Best Presentation Award and Best Teacher Award.	✓					Global Recognition	
15	Many faculty members are in the expert committees of AICTE, Task force for maintenance of roads in Karnataka and in selection committees as subject experts in Karnataka Public Service Commission (KPSC), Union Public Service Commission (UPSC), NAL, ISRO, KPWD, KSPCB, ISRO, KPSCE, NRRDA, KRRDA, BEL etc.	✓					Strong Base	
16	Many faculty members have been recognized as experts to review research papers in National and International refereed Journals.	✓					Global Strength	
17	Library is in possession of highly valuable volumes relating to Science, Technology and Arts over a long period of time, making it an exclusive library possessing rare volumes relating to Engineering and Technology in the entire State of Karnataka. It continues with the same spirit of maintaining these high standards as a referral library.	✓					Global Strength	
18	Students have represented the College and University in sports both at National and International level.	✓					Global Recognition	
19	The Department of Civil Engineering is recognized as QIP centre.	✓					Global Recognition	
20	The faculty members have written 65 high quality books which have been prescribed as text / reference books throughout the country.	✓					Global Recognition	
21	A team of students from Mechanical Department, Arjun Premchandran, Keerthivas and Vaisakh R. Sarma won the FIRST Prize in Inventor Sustainable Design Competition 2012 at IIT Madras conducted by National Skill Development Corporation and Autodesk (Total Prize Money : Rs. 1 Lakh).	✓					Good Practice	

22	A team of 7th Semester students of Electronics and Communication, Samhitha M. R., Akshay Kumar B. U. and Gowrishankar A. have won the SECOND Prize in National Level Design Fellowship Contest ó ANVESHAN conducted by Analog Devices, Bangalore, June 2013 (Total Prize Money: Rs. 75000/-).	✓				Good Governance	
23	Dr. P. Deepa Shenoy, Professor, Department of Computer Science and Engineering was invited by IEEE-WIE committee at Atlanta, USA, in May 2013.	✓				Global Recognition	
24	Twenty one sponsored projects were under taken and 12 were successfully completed.	✓				Global Strength	
25	Seven hundred and fifty Consultancy Projects have been completed out of which 240 were completed in the last 3 years. The Institute has entered MOU with 30 leading industries.	✓				Strong Base	
26	Two hundred and two Ph.Ds. were produced in UVCE till date and of which fifty four were awarded in the last 3 years.	✓				Global Strength	
27	International Journal in Information Processing (IJIP) is in its 10 th Year of publication and is edited by Dr. L. M. Patnaik, Professor, IISc and Dr. Venugopal K. R., Principal UVCE. Dr. Venugopal K R, Principal has authored and edited 51 books and has filed 91 patents.	✓				Global Recognition	
III. COMPETITIVE ADVANTAGE: Strengths							
28	Admission to UVCE is based purely on merit through Common Entrance Test conducted by Govt. of Karnataka for both U.G., P.G. courses and Ph.D. programmes.	✓				Good Practice	
29	Institution is located in the heart of Bangalore city close to central railway station and bus terminal, and has access to different well known Research Institutions and advanced industries relating to manufacturing and knowledge processing. It is also at a distance of about 50 meters from Visvesvaraya / Central College metro station.	✓				Strong Base	
30	Department of Civil Engineering is located in	✓				Strong Base	

STRENGTHS

	the Jnanabharathi campus which helps students to use the wide area and the field for Surveying.					
31	University is having bus facility from all over the city to reach the campus. Hostel facilities for both boys and girls who are studying in UG, PG and Research courses like M. Sc. Engg.(by Research) and Ph.D. in the campus. In addition, the college caters to and admits students from Union territories inter-state and sponsored by Government of INDIA as a proactive measure.	✓				Strong Base
32	UVCE supports meritorious students of economically weaker sections by providing scholarships and fee waivers (Rs. 6 Crores).	✓				Good Practice
33	Final year U.G. and PG students are also offered internships in various companies (Rs. 10,000 to 25,000).	✓				Global Strength
34	The placement and training centre of the college creates employment opportunities for more than 80% eligible UG and PG students.	✓				Good Governance
IV. RESOURCES: Strengths						
35	Resources in terms of equipments were procured over the years, for catering to UG, PG and Ph.D. courses.	✓				Good Governance
36	Resources in terms of extension of facilities in R & D establishments like NAL, GTRE, ISRO, IBM, SUN Microsystems, etc., to students of UVCE is existing since many years by way of non-formal networking.	✓				Good Practice
37	Resource persons in and around Bangalore in specialized fields are invited and encouraged to be a part of our academic activities on a sustained basis.	✓				Good Practice
38	Equipments and learning resources were augmented by utilizing funds efficiently from TEQIP phase - I.	✓				Good Governance
39	National/International Journals and e-Journals are available in the Institution for reference work.	✓				Global Recognition

V. ASSETS AND PEOPLE: Strengths							
40	The Institution possesses highly experienced Faculty and Staff members with long standing experience.	✓				Global Strength	STRENGTHS
41	The Faculty members have been trained in Institutions of higher learning.	✓				Good Governance	
42	Faculty have visited various Universities and Institutions in developed countries and are exposed to state of art knowledge and technology.	✓				Global Recognition	
43	The Faculty and Staff members have rich traditional Indian cultural values because of Institutions 100 years of long existence.	✓				Strong Base	
44	The Faculty and Staff enjoy healthy student-teacher relationship.	✓				Strong Base	STRENGTHS
45	Many of the teaching faculties are recognized for their expertise in relevant fields and are serving as panel members on several boards of state and central Governments including, KPWD, KSPCB, ISRO, KPSCE, NRRDA, KRRDA, BEL etc.	✓				Strong Base	
46	Faculty members have also taken up responsibilities as members of accreditation committees of AICTE for accreditation of other engineering colleges.	✓				Strong Base	
47	The institution benefits tremendously from a illustrious list of eminent alumni and experts, 1. Prof. Roddam Narasimha, Professor, Jawaharlal Nehru Centre for Advanced Scientific Research. 2. Dr. M. R. Srinivasan, Former Chairman, Atomic Energy Commission. 3. Prof. M. A. L. Thathachar, Chairman, EE, IISc 4. Dr. V. K. Aatre, Former Scientific Advisor to Defence Ministry, Government of India. 5. Dr. R. Natarajan, Former Chairman, AICTE 6. Prof. S S Iyengar, LSU,USA 7. Dr. S. Rame Gowda, Former Chairman, AICTE. 8. Prof. G Krishna, Chairman, CSA, IISc. 9. Prof. Viktor K Prasanna, Chairman,	✓				Global Strength	

	<p>University of Southern California</p> <p>10. Prof. T S Ramamurthy, IIT Madras</p> <p>11. Prof. P A Aswathanarayana, IIT Madras</p> <p>12. Prof. B. T. Lakshman, Educationalist</p> <p>13. Prof. Achyutha H, IIT Madras</p> <p>14. Dr, T S Prahalad, Former NAL Chairman</p> <p>15. Prof. Y. N. Srikant, , Chairman, CSA, IISc</p> <p>16. Prof. H. S. Jamadagni, Chairman, CEDT, IISc</p> <p>17. Lt. Commander V. J. Sundaram</p> <p>18. Sri Ramesh Arvind, Actor</p> <p>19. Sri H G Dattatreya, Wing Commander, Actor</p> <p>20. Sri Mano Murthy, Music Director</p> <p>21. Sri B V Jagadeesh, Entrepreneur</p>						
48	<p>UVCE Alumni, UVCE Centenary Foundation, Vision UVCE and UVCE Foundation: A Conglomeration of Alumni is dedicated to serve the Institution in all possible ways such as:</p> <p>1. Providing scholarship and to aid deserving students.</p> <p>2. Promoting development of technical education related activities like seminars, debate, invited lectures and interactive sessions with experts in the field.</p> <p>3. Providing improved amenities at UVCE.</p>	✓				Global Recognition	
VI. INNOVATIVE ASPECTS, MARKETING AND QUALITY OF PROGRAMMES : Strengths							
49	<p>Students of UG Courses are encouraged to publish technical and research articles in journals and conferences apart from PG and Ph. D. students.</p>	✓				Global Recognition	
50	<p>The Institution has carved for itself a niche in the field of technical education through its emphasis on quality and sustained stress on research by its teaching fraternity as seen in Research Publication and Placement programme with participation by well known organizations like Infosys, Wipro, TCS, L&T, Accenture on a priority basis.</p>	✓				Global Recognition	STRENGTHS

51	The quality of programmes offered at UG, PG and Ph. D. levels in the institution is on par with National level institutions of higher learning.	✓				Good Practice	
VII. LOCATION, ACCREDITATIONS, CERTIFICATIONS AND PROCESSES: Strengths							
52	The Institution is centrally located connecting all parts of the city of Bangalore.	✓				Strong Base	STRENGTHS
53	The Institution is a constituent college of the Bangalore University and is accredited by NAAC with 'A' Grade. However, applications for NBA accreditation of UG & PG programmes of the institution have been sent to AICTE.	✓				Global Strength	
54	The Institution is governed by existing norms of the Karnataka State University Act.	✓				Strong Base	
55	The Institution gets regular grants from State Government and UGC as per the prevailing norms.	✓				Strong Base	
Weakness							
56	There has been a delay in the sanction of available funds at appropriate time.		✓			Lack of Staff	WEAKNESS
57	There is shortage of Teaching staff to teach existing and newly introduced P.G. courses and Technical staff to run existing P.G. laboratories.		✓			Lack of Awareness	
58	Building space is insufficient for the class rooms and laboratories for the approved intake of U.G., P.G. and Ph. D. programmes.		✓			Lack of Awareness	
59	New equipments are required in the Departments as some of the equipments are obsolete & new equipments in emerging fields and also new licensed version software in all the Departments		✓			Lack of Staff	

60	More than 75% of the students belong to Scheduled Caste, Scheduled Tribe and Other Backward Communities. Hence they require more training and facilities.		✓			Lack of Staff	
I. SHORT TERM OPPORTUNITY (1-2 YEARS): Opportunities							
61	The USP of the Institution is its long standing existence and large alumni.			✓		Large Market	OPPORTUNITIES
62	All the nine newly introduced PG courses under TEQIP-I are running with full student strength. This reflects that these PG programmes are catering to the growing student and industries demand.			✓		Large Market	
63	Being a University Constituent College, the pay scales of sixth pay commission are being implemented, thereby; there is always increased attraction for the qualified faculty joining this Institution.			✓		Active at Global level	
II. MEDIUM TERM OPPORTUNITY (4-8 YEARS): Opportunities							
64	The Institution is located strategically where there are innumerable IT Industries, Manufacturing/Automobile Industries and National R & D Establishments. The Institution is meeting the skilled manpower requirements of the above organizations. It has opportunities for carrying out demand driven Industry related R & D projects leading to award of M.E. and Ph. D. Degrees.			✓		Land Mark	OPPORTUNITIES
III. LONG TERM OPPORTUNITY (8-10 YEARS): Opportunities							
65	Based on the opportunities exploited during medium term time frames, the Institution is having opportunities for getting associated with innovations made by various R&D/IT /Manufacturing/Automobile Organizations.			✓		Large Market	OPPORTUNITIES
66	The Institution is also having bright opportunity for acquiring patents in the Industry relevant areas.			✓		Large Market	
Threats							

67	Lack of incentives: like appreciation, recognition and promotion on time may deter qualified teachers in undertaking additional innovative and R&D works.				✓	Loss of Talent	THREATS
68	External Factor: competition by the way of attractive infrastructure and higher salaries to key faculty and staff is a threat to the Institution which may result in declining quality of students.				✓	Loss of Talent	
69	Internal Factor: Strengthening the available opportunities in the Institution to overcome risk factors, such as, threats of changing technology, lack of accessibility to fast changing technology, lack of Industryó Institution partnership by sustainable financial autonomy by the Institution.				✓	Loss of Talent	

2.3 SWOT analysis results for Strategies in the following Action Plan

SWOT ANALYSIS LINK TO ACTION PLAN	Threats <ul style="list-style-type: none"> • Flow of Funds, • Poor Advertisement. 	Opportunities <ul style="list-style-type: none"> • Global Market, • Active at National as well as Global Level.
Strengths <ul style="list-style-type: none"> • Strong Base, • Great Image at National Level, • Great Image at International Level, • Good Practices. 	Action Plan Using Strength of the Institute to Reduce Threat. <ol style="list-style-type: none"> 1. Buildings: Mechanical Block, Visvesvaraya Centenary Block, Visvesvaraya Metro Block, Hostels etc. 2. Evaluation Buiding for UVCE: Stone Building (Cental College) 3. Achieving 100% Accreditation of UG&PG 4. Enhanced Academic Performance of SC/ST/OBC <p style="text-align: center;">(S.T)</p>	Action Plan Exploiting Various Opportunities by using Strength. <ol style="list-style-type: none"> 1. Obtaining Autonomous Institution/University Status, 2. Enhancement of Research and Consultancy Activity. 3. 100% Placement. 4. Establishing Centres of Excellence 5. Increase in internal revenue generation. <p style="text-align: center;">(S.O)</p>
Weakness <ul style="list-style-type: none"> • Lack of Staff (Both Teaching and Non Teaching), • No Marketing strategies in Place, • Flow of Funds. 	Action Plan Eliminating Weakness to Reduce Impact of Threats. <ol style="list-style-type: none"> 1. Improving employability/package of Graduates 2. Increased Learning Outcomes of Students in Skills and Academics 3. Implementation of Academic and Non Academic Reforms 4. Scholarship to all meritorious students/ socially challenged students <p style="text-align: center;">(W.T)</p>	Action Plan Exploiting Opportunities to Support reduction of Weakness. <ol style="list-style-type: none"> 1. Improving Interaction with Industry, DRDO, Foreign University 2. Increase in UG, PG, Research Programs 3. Faculty Development Programs to enhance the quality of teaching (QIP) <p style="text-align: center;">(W.O)</p>

Action Plan

Action plan and Strategies are prepared after detailed analysis of the above SWOT analysis and matrix for action plan.

Strategic Plan

- Increase Institute Industry Interaction programmes to carry out demand driven R & D work by involving UG, PG and Ph.D. students.
- At present, the institution offers Post Graduate programmes in 24 specialized areas with a total intake of 784 students. The plan is to start 23 new PG courses and also increase the total intake of post graduate students to 1600. It is proposed to strengthen the infrastructure by way of purchase of equipments for the laboratories belonging to existing PG programmes.
- There are 55 eligible faculties to guide Ph.D students. At present, there are 251 research scholars working for their Ph. D. Degrees. The plan is to increase the number of Ph. D. enrolment to 500.
- It is proposed to encourage demand driven Industry related projects leading to award of Ph. D. Degree.
- The Institution is situated in a place where there are number of IT, Manufacturing, Automobile, Industries and R & D establishments. During the project period it is envisaged to explore and identify common avenues of interaction with these industries and R & D organizations as per the requirements of Institution leading to increased rate of campus placements, increase in solving the real life problems of the region.
- MoU with Foreign Universities.
- Establish Incubation Centers.

Challenges to Implement Strategic Plan:

- The main challenge for the implementation of the strategic plan is the shortage of teaching and non-teaching staff.
- The other challenge is the insufficient building space for establishment of new Laboratories and for carrying out other technical activities.
- Implementation of Administration, Academic and Financial autonomy is another major challenge.

2.4 Specific Objectives and Expected Results

The specific objectives and outcome based on the SWOT analysis is as follows. These objectives are in terms of scaling up PG education using additional funds proposed in the revised IDP.

1. Build infrastructure (buildings and laboratories) to compete globally.
2. Increase in the number of Postgraduates and Ph. D.ø produced from the Institute, training and increase in employability of UG, PG and Research Students.
3. Increase in the number of faculty members involved in guiding Ph. D. students and encourage Interdisciplinary Research activities through Institution - Industry interactions.
4. Establish Centres of Excellence catering to the research needs in the high technology areas.
5. Promote internal revenue generation.

Justification

- The Institute has a large number of experienced and dedicated faculty members possessing Ph. D. degree and are capable of carrying out the various activities envisaged by Institution.
- The institution is one of the oldest in the country (Est:1917). The institution is funded totally by the State Government offering engineering education to students of all sections of the society as per the government policy admitted through common entrance test only.
- Since the institution is located strategically close to many varied types of Industries/R&D establishments, it is possible to carry out more meaningful demand driven R & D works continuously.

Improving Employability of Graduates

The following specific activities are proposed to be held to improve the employability of academically and socially needy students:

- Add-on course/Training for effective communication skills and personality development
- Add-on course/Training for facing competitive exams and interviews
- Talks and Expert lectures
- Academic support for weak student by arrangement of remedial classes and tutorials.
- Awards for notable academic improvement by student
- Student appraisal and reward system

- Psychological counseling by Experts
- Seminars and Expert Assistant Professors related to employment opportunities
- Financial assistance for project work in thrust area
- Awards for good project work carried out
- Career counseling by Experts
- Arrangement of Industrial visit
- Financial support for seminars, exhibitions and paper writing
- Student development program through short term and long term training/course

Increased Learning Outcomes of Students

- Effective teaching learning process due to Smart Classrooms in each Department
- Wi-Fi facilities in both college and hostel premises resulted in enhanced knowledge assimilation.
- A separate Seminar hall for UG and PG courses in each Department has resulted in effective teaching learning process.
- College must be able to pull the talented persons from Industries to come and teach one or two courses for the students to acquire the Industry related problems and work based on the practical situation.
- MoU with R & D organizations, IISc, IITs, NITs, ISRO, ADA, NAL, GTRE, WIPRO, SAP etc. for enhanced Industry Institute Interaction and joint R & D programmes.
- The Professors from International Universities are invited to give special lectures to our students and research resulting in global exposure.

Obtaining Autonomous Institution/University status within 2 years

UVCE was started in the year 1917 by Engineer Statesman Sir. M. Visvesvaraya and was affiliated to University of Mysore. In the year 1964, when Bangalore University was established, UVCE got affiliated to Bangalore University. During 1998 after the formation of Visvesvaraya Technological University at Belgaum, Karnataka, UVCE remained as the only Constituent Engineering College under Bangalore University. The current goal is to obtain autonomous status to UVCE and ultimately to establish a deemed university based on the model of IIT.

Action Plan for Scaling-Up Enrolment into Masters and Doctoral Programmes

It is proposed to scale up the enrolment into Masters and Doctoral programmes in the institution through the following activities:

Sl. No	Key Activities	Project Months Jan - Dec 2016			
		1-3	4-6	7-9	10-12
I	Masters Programme				
1	Strengthening the existing programmes				
2	Introducing new programmes				
3	Introducing joint doctoral programmes Offering part-time Masters and Doctoral programmes				
4	Increasing the intake in the existing PG programmes				
5	Enhancing the quality of Masters and Doctoral programmes				
(i)	Faculty development.				
(ii)	Restructuring the curricular and aligning then with industry expectations				
6	Enhancing the demand driven and industry applied research & innovation				
(i)	Collaborative research programmes on industry/society relevant problems				
(ii)	Tie-up with industry for collaborative R & D projects by involving students				

Action Plan for Improving the Collaboration with Industry

Sl No	Key Activities	Project Months Jan - Dec 2016			
		1-3	4-6	7-9	10-12
1	Facilitating joint research work, consultancy involving faculty, students and industry				
2	Invite professionals from industry to work as visiting faculty				
3	Associate experts from industry in curriculum development activity				
4	Provide opportunities for short term and long term continuing education for working professionals				
5	Create and promote revenue generative activities like lab testing, consultancy, product development including patents etc				
6	Conduct interactive workshops, conferences etc in collaboration with members of industry				

Action plan for improving research

- a. For quantitatively increasing and qualitatively improving research by their faculty individually, jointly and collaboratively, the following measures are suggested:

Sl. No	Key Activities	Project Months Jan - Dec 2016			
		1-3	4-6	7-9	10-12
1	Fiscal incentive for getting sponsored projects from agencies like DST, UGC, AICTE, DRDO, NRB, etc for faculty getting industrial/R & D projects as and when they get it				
2	Encourage to get the industrial and government sponsored projects funds from agencies like DST, UGC, AICTE, NRB, ARDB, etc and involve in collaborative projects				
3	Faculty will be provided with special equipments and consumables to carry out their research work leading for up gradation of their qualification to Ph.D. and attempting to get patents.				
4	Encourage and support faculty to publish their research work in refereed journals for which fiscal incentive per publication.				
5	Send faculty to various Labs in Advanced countries to do research in the thematic research areas.				
6	Encourage faculty to get exposed to frontline research in India and Abroad by way of Post Doctoral fellowship.				

Action plan for developing research interest among undergraduate students

Sl. No	Key Activities	Project Months Jan - Dec 2016			
		1-3	4-6	7-9	10-12
1	Fiscal incentives as per BOG are proposed to UG students to trigger the research interest among the Under Graduate students in the institution. This incentive will be given upon publication of research work in conferences and journals.				
2	Provide financial assistance and all facilities to students to work on at least one innovative activity ,which addresses a real-life issue of industry or society				
3	Institute a cash award of Rs 25,000-00 for -Best Studentø in each Branch of Engineering and one overall award for the whole College for the best UG students showing their interest in research				

2.5 Institutional Project Budget (Table no. 34).**Table 34**

Sl. No	Activities	Projection Line allocation (Rs. In Crores)	Financial Year and Amount (Rs. In Crores)			
			Jan – March 2016	April – June 2016	July – Sept. 2016	October – Dec 2016
1	Infrastructure improvements for teaching, training and learning through:					
	(i) Establishment of new laboratories for new and existing PG programmes, faculty research, etc.	405	200	205	-	-
	(ii) Updation of learning resources					
	(iii) Procurement of furniture					
	(iv) Modernization and strengthening of libraries and increasing access to knowledge resources					
	(v) Refurbishment (Minor Civil Works) including Consultancy services					
2	Providing Teaching and Research Assistantships for significantly increasing enrolment in existing and new Masters and Doctoral programmes in Engineering disciplines	180	45	45	45	45
3	Enhancement of R&D and institutional consultancy activities	45	-	15	15	15
4	Faculty and Staff development for improved competence based on TNA	90	-	30	30	30
5	Enhanced interaction with Industry	45	-	15	15	15
6	Institutional Management Capacity enhancement	18	-	6	6	6
7	Implementation of institutional reforms	9	3	2	2	2
8	Academic support for weak students	18	-	6	6	6
9	Incremental Operating Cost	90	-	30	30	30
	Total	900	248	354	149	149

Technical Education Quality Improvement Programme (TEQIP) Phase-II

2.6 ACTION PLAN FOR ADDITIONAL FUNDS OVER AND ABOVE INITIAL ALLOCATION OF Rs. 1250 Lakhs

ADDITIONAL FUND PROPOSED = Rs. 900 Lakhs

Name of the Institution: **UNIVERSITY VISVESVARAYA COLLEGE OF ENGINEERING, KARNATAKA, BANGALORE**
Sub-component :1.2

Financial figures (in Rs. Lakh)

date : 03.07.2015

Activities	Sub-Activities	Apr-Jun 2016		Jul-Sep 2016		Oct-Dec 2016		Total		Additional funds required
		Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	Physical Target (Nos.)	Financial Estimate (Rs. Lakh)	
1. Procurement	ICT enabled learning, related softwares & hardware.	0	0.000	0	0.000	0	0.000	0	0	360.000
	New laboratory for new PG programs	0	0.000	0	0.000	0	0.000	0	0	
	New laboratory for existing PG programs	25	120.000	30	170.000	0	0.000	55	290.000	
	Library i.e. books,e-books, journals, e-journals course specific softwares	8	30.000	10	40.000	0	0.000	18	70.000	
	membership of online journals & consortium	0	0.000	0	0.000	0	0.000	0	0	
	Digital/Virtual learning	0	0.000	0	0.000	0	0.000	0	0	
	Equipments for Institutional TEQIP unit.	0	0.000	0	0.000	0	0.000	0	0	
	Civil Work	0	12.000	0	15.000	0	0.000	0	27.000	
Others	0	8.000	0	10.000	0	0.000	0	18.000	18.000	
Sub-total		33	170.000	40	235.000	0	0.000	73	405.000	405.000
2. Assistantships	Masters students enrolled with TEQIP teaching assistantship	50	12.000	50	12.000	50	12.000	150	36.000	180.000
	PhD students enrolled with TEQIP research assistantship	58	31.320	58	31.320	58	31.320	174	93.960	
	Others	0	15.000	0	15.000	0	20.040	0	50.040	
Sub-total		108	58.320	108	58.320	108	63.360	324	180.000	180.000
3. R& D	Research projects taken by UG /PG students	8	3.000	8	3.000	8	3.000	24	9.000	45.000

Revised IDP TEQIP II

	Seed grants for research by faculty	7	5.000	7	5.000	7	5.000	21	15.000	45.000
	Research publications in engineering in refereed journals	10	2.000	10	2.000	10	2.000	30	6.000	
	Organising conferences on R&D topics	1	2.000	1	2.000	1	2.000	3	6.000	
	Patenting of technologies	2	1.000	2	1.000	2	1.000	6	3.000	
	Others	2	2.000	2	2.000	2	2.000	6	6.000	
	Sub-total	30	15.000	30	15.000	30	15.000	90	45.000	45.000
4. FSD	Enrollment of faculty with BTech for MTech degree	0	0.000	0	0.000	0	0.000	0	0.000	90.000
	Enrollment of faculty with MTech for PhD degree	6	2.000	6	2.000	6	2.000	18	6.000	
	Faculty training in subject domain	15	2.000	15	2.000	15	2.000	45	6.000	
	Faculty training in pedagogy	10	3.000	10	2.500	10	2.500	30	8.000	
	Organising inhouse training workshops in teaching/research subjects	12	10.000	12	10.000	12	10.000	36	30.000	
	Paticipation of faculty in outstation seminar/ conferences/ workshops etc	5	10.000	5	10.000	6	12.000	16	32.000	
	Training/Development of technlial/support staff	4	0.500	4	0.500	10	1.000	18	2.000	
	Others	0	2.000	0	2.000	0	2.000	0	6.000	
	Sub-total	52	29.500	52	29.000	59	31.500	163	90.000	90.000
5. Industry Institute Interactions	Collaborative academic programs: BTech/MTech/PhD with industry	7	2.000	7	2.000	7	2.000	21	6.000	45.000
	Short term workshops with industry	10	6.000	10	6.000	10	6.000	30	18.000	
	Academic networking with industry/research institutions including industry-exposure to teachers and students	20	2.000	20	2.000	20	2.000	60	6.000	
	Campus placements of graduates (UG & PG)	6	1.500	6	1.500	6	1.500	18	4.500	
	Students internship at industry	15	1.500	15	1.500	15	1.500	45	4.500	
	Joint activities with industry	7	1.000	7	1.000	7	1.000	21	3.000	
	Others	2	1.000	2	1.000	2	1.000	6	3.000	
	Sub-total	67	15.000	67	15.000	67	15.000	201.000	45.000	45.000
6. Capacity development	Exposure/Training of senior teaching/non-teaching members in management capacity development	15	4.000	15	4.000	15	4.000	45	12.000	18.000

Revised IDP TEQIP II

	Others	2	2.000	2	2.000	2	2.000	6	6.000	
	Sub-total	17	6.000	17	6.000	17	6.000	51	18.000	18.000
7. Reforms	Fee for NBA accreditation	0	6.000	0	0.000	0	0.000	0	6.000	9.000
	Activities / Innovations aiming at improvement in quality of education	0	0.000	0	0.000	0	0.000	0	0.000	
	Others	0	1.000	0	1.000	0	1.000	0	3.000	
	Sub-total	0	7.000	0	1.000	0	1.000	0	9.000	9.000
8. Academic support for weak students	Support to academically weak students to enhancement their knowledge and skills	4	4.000	4	4.000	4	4.000	12	12.000	18.000
	Others	2	2.000	2	2.000	2	2.000	6	6.000	
	Sub-total	6	6.000	6.000	6.000	6	6.000	18	18.000	
9. Incremental operating cost	IOC	0	30.000	0	30.000	0	30.000	0	90.000	90.000
	GRAND TOTAL	313	336.820	320	395.320	287	167.860	920	900.000	900.000

2.7 The Targets Against The Deliverables (Table 35)

Sl. No	Deliverables	Base line Data	Targets achieved					Total as on 30.05.2015	Targets to be achieved as on December 2016
		2010-11	2011-12	2012-13	2013-14	2014-15			
1	Number of students registered for								
	(a) Masters in Engineering programme	352	353	355	357	358	358	460	
	(b) Doctoral Programme in Engineering	125	101	109	89	215	215	250	
2	Revenue from externally funded R&D projects and Consultancies in total revenue (Rs. in lakh)	191.08	78.45	43.50	65.50	45.00	45.00	65.00	
3	Number of								
	(a) Research publications in refereed journals	44	15	14	03	08	08	20	
	National journals	38	38	49	46	52	52	100	
	International journals	240	400	450	500	550	270	600	
	(b) Citations	00	00	00	01	101	102	120	
	(c) Patents obtained / filed	01	03	04	04	14	05	10	
	(d) Books	00	00	00	00	00	00	00	
	(e) No. of R&D projects commercialized								
4	IRG as % of total recurring expenditure	46	74	65	50	46	46	55	
5	Number of co-authored publications in refereed journals								
	(a) National	44	15	14	03	08	08	20	
	(b) International	38	38	49	46	52	52	100	
6	Student credentials								
	(a) Campus placement rate of								
	UG students	81.59	82.34	72.46	50.77	62.00	62.00	75.00	
	PG students	35.71	24.57	9.00	16.80	17.80	17.80	40.00	
	(b) Average salary of placement package for (Rs. in lakh/annum)								
	UG students	4.5	5.0	5.4	5.4	6.0	6.0	7.0	
	PG students	3.4	3.8	4.3	4.3	4.0	4.0	7.0	
7	Number of collaborative programmes with Industry	01	00	02	05	01	00	05	
8	Accreditation Status (obtained and applied for)								
	Applied for	Nil	Nil	Nil	Nil	Nil	Nil	06 UG+22PG	
	Obtained	Nil	Nil	Nil	Nil	Nil	Nil	06 UG+22PG	
9	Vacancy position for faculty and staff	71	72	73	73	73	73	50	
10	Percentage of regular faculty with PhD in Engineering disciplines	58	57	60	60	63	63	75	
11	Any other (maximum three)								
(i)	Number of Postgraduate Courses	24	24	24	24	24	24	29	
(ii)	Number of Demand Driven Industry related R & D projects	Nil	Nil	Nil	Nil	Nil	Nil	Nil	

Describe the Plan in detail for achievement of the above targets enumerated in Table-35.

1. (a) It is expected that the number of students registered for PG programme to increase from the present 392 to 625 by completion date of the project. There are 24 PG Programme at present and by the end of two years an increase in 7 seats in each branch of PG programme is proposed. Further, Five new PG programmes with an intake of 25 each in each PG course will be introduced as follows:

- ME (VLSI and Embedded System Design)
- ME (Data Mining and Warehousing)
- ME (Digital Electronics)
- ME (Nano Technology)
- ME (Space Technology)

1. (b) There are a total of 251 research scholars working for their Ph.D in the various department of UVCE. It is expected that there will be an increase in the number of research scholars as eligible guides to guide Ph.D students in the various departments of UVCE. This results in additional number of Ph.D registrants in the University.

2. Faculty members will be encouraged to get sponsored projects from Industries and other agencies. It is expected that the action plan proposed under this head is to motivate more number of faculty to get involved in demand driven industrial / R & D projects.

1. The targets mentioned is due to increase in the number of Ph.D scholars and involvement of UG and PG students in research work.

2. The proposed increase in IRG is due to increase in fund inflow to Institution through sponsored R & D projects, consultancy and IRG by equipments purchased under TEQIP-I and II.

5. It is expected that faculty members make joint publications involving more than one author.

6. The activities proposed in the IDP will result in more number of employable graduates since finishing schools for SC/ST/OBC/academically weak students will be conducted.

7. Using the project resources, from additional grants, the institute is likely to get more sophisticated instruments/equipments. This will enhance the research/ Industry collaborative programmes. In addition since many industries are situated in and around Bangalore, it is expected that the activities proposed in the proposal will result in increase in the collaborative programmes with industry.

8. UVCE being constituent part of Bangalore University, it had been accredited by NAAC. The Bangalore University is preparing Self Assessment Report for reaccreditation under NAAC. However, application for NBA accreditation of all the eligible UG and PG programmes is under preparation as per Washington Accord . It is expected that all the eligible UG and PG programmes will get accredited by project closing.
9. The process of filling up of existing vacancy is under progress. Correspondence for getting the posts sanctioned for the newly introduced PG programmes is already under progress and it is expected that these sanctioned posts are also filled up at the end of TEQIP project.
10. Many faculty members of the institution are in the process of completing their Ph.D programme. It is expected that the percentage of faculty with Ph.D by project closing would be even more than the target specified.
11. **Any other**
 - (i) UVCE being a constituent part of Bangalore University, it is not difficult for the institute to start new PG Programmes. Hence the new 5 PG courses mentioned in item number 1(a) above can be started in the TEQIP-II project period after obtaining NBA.
 - (ii) The action plan suggested in the proposal results in:
 - More number of Demand Driven Industrial related R & D projects.
 - Increase in Industry-Institute interactive programmes.
 - Increase in Service to Advisory Boards.
 - Development of special equipment.

2.8 Action plan to ensure that the project activities would be sustained after the end of the project.

Action Plan for sustaining the gains of the project after the closure of the project.

The gains made under the programme are in terms of increased competence among staff, enhanced infrastructure in terms of purchase of state of art equipments, will be made use of to enhance the consultancy programmes to sustain the project activities. This in turn can attract more projects.

The departments will make attempts and ensure that the research activity and higher quality of education dissipation is sustained by sending the teachers to attend training programmes / workshops / conferences with the financial assistance from the University. Attempts will be made to retain the technical supporting staff with specified skills to operate state of art equipments purchased using the University funds.

Attempts will be made to ensure funding support to students enrolled in Post Graduate and Doctoral Programmes with assistantship from University funds.

Project activity would be sustained through IRG from resources, Government funding and consultancy.

3. List of Equipments for Additional Grants

Department of Civil Engineering

Sl No	Title of the Equipments	Quantity	Approx Cost (Lakhs)
1	Infrared Thermometer, Sound level Meter, High Density LUX Meter, Moisture Meter	1	2.0
2	Benchtop Water/waste analysis UV-VIS Spectrometer	1	4.7
3	Portable Water/waste water analysis Spectrometer	1	2.8
4	COD Digester/Reactor	1	0.8
5	Portable Turbidity meter	1	0.8
6	Benchtop Ion meter	1	1.2
7	ISE probes, Ammonium Ion Selective Electrode, 1m cable	1	2.3
8	Portable dissolved Oxygen meter	1	1.0
9	Basic Benchtop pH meter	1	0.5
10	Benchtop conductivity meter	1	0.5
11	Rapid Digestion Apparatus	1	1.0
12	Multiparameter water quality sonde	1	8.2
13	Profometer	1	3.0
14	Digital rebound hammer	1	11.0
Structural Health Monitoring Laboratory			
15	NDT Equipment with Accessories	1	5.50
	Equipments for Durability Studies	1	14
Structural Evaluation for Retrofitting and Rehabilitations			
16	Rebound Hammer (PROCEQ, Switzerland)	1	1
	Cover meter testing Apparatus	1	5
	Half-Cell Potential measurement testing apparatus	1	1
	Extraction of Concrete cores samples testing apparatus	1	0.5
17	EPANET software	1	10
18	SWAT software	1	10
19	HEC-HMS software	1	10
20	GPS total stations	1	10
Total			106.8

Department of Mechanical Engineering

Sl No	Title of the Equipments and Software	Quantity	Approx Cost (Lakhs)
1	Computer workstations for CAD/CAM applications	20	20
2	Coordinate measurement machine	01	15
3	Form tester	01	15
4	Fatigue test equipment	01	25
5	Stir casting equipment for fabrication of mmc	01	05
6	Computer assisted 10 hp a) Petrol engine b) Diesel engine	01 01	10 12
7	Exhaust emission measuring kit a) For diesel engine b) For petrol engine	01 01	05 05
8	Heat exchanger a) Surface heat exchanger b) Tubular heat exchanger c) To study nano fluids effect	01 01	02 02
9	Manufacturing Simulation Software	01	15
10	Corrosion Test Equipment	01	30
11	Vacuum Bag Moulding facility for fabrication of composites	01	05
12	Filament winding machine for preparing polymer composites	01	10
13	ADAMS	6	6
14	HYPERKESH Software	5	10
Total			182

Department of Electrical Engineering

Sl No	Title of the equipments	Quantity	Approx Cost (Lakhs)
1	Advanced PLC Industrial Automation and SCADA Lab		
	KIT-1: Testing Kit For Proximity Sensor, Limit Switch And Encoder	1	1.5
	KIT-2: Testing Kit For Diffused Beam And Through Beam Sensors	1	1.25
	KIT-3 : PLC Based Trainer Kit With All Input / Output Components	1	1.75
	KIT-4: Level, Flow, Volume Control Measurement Kit With PLC	1	2.7
	KIT-4: Level, Flow, Volume Control Measurement Kit with out PLC	1	2.25
	KIT-5: Rotary Indexing Table With Stepper Motor And Pneumatic Pick & Place	1	2.9
	KIT-5: Rotary Indexing Table With Stepper Motor And Pneumatic Pick & Place (with servo it will be extra)	1	0.95
	SCADA Software	5 Users	6.0
	3 station lift (table top model) with motor, sensors, door limit switch push buttons etc., (without PLC)	1	1.5
	16 station automated plating plant without PLC	1	2.5
	Servo drive controller kit (with out PLC)	1	1.5
	XY plotter ó stepper motor based (Used along with welding unit)	1	1.5
	Hydraulic controlled material lift (table top model)	1	1.9
	4 bin batching plant with load cell	1	3.3
			Total
2	Industrial Robot and Application Lab		
	IRB Robot 140	1	32
	IRC 5 Controller	1	
	Teach pendent with touch screen	1	
	Robot Mounting Pedestal	1	
	Robot dressing	1	
	Pneumatic Gripper	1	
	Pick and place table	1	
	Cabling & ducting	1	
	Pneumatics	1	
	Sensors	1	
	Conveyor with sensor	1	

	Operator Panel Cum Interface Panel	1	
	Sample component	1	
	Grouting screws for conveyor	1	
	Robot Mounting Pedestal	1	
	Safety Fence	1	
	Operator Panel cum Interface panel	1	
	SiMS futurobot: ROBOT PROTOTYPING KIT Mobile programmable robot Kit	10	7.5
	Software of Robotics kit: Icon based GUI	5 Users	2.0
		Total	41.5
3	Process Control and Instrumentation Lab		
	PC Based Temperature process control test kit (P,PI, PID, PD Mode) ADC/DAC, Card with RS-232-interfaces	1	2.25
	PC Base level process control (100LPH, ADC/DAC, RS-232 Interfaces) Both P,PI, PD & PID node.	1	2.5
	Magnetic Amplifier built in AC supply of 50V/ 1A variable DC supply is available	1	0.15
	AC Servomotor 230V AC, 400 w (3,000 RPM) and PLC with touch screen, temperature 20 ⁰ to 85 ⁰ C	1	2.3
	Bottling plane control module water full, Bottle full, bottle sensed 24V DC	1	0.5
	DC position control system 12V PMDC, Full 360 ⁰ rotation resolution 3 ½ digit	1	0.2
	Study of P,PI and PI controller PG 0 to 20, IG 0-1000, Kd=0.001, First order, Second order	1	0.2
	Study of stepper motor controller 2 x 16 LCD display, step angle 1.8 ⁰ ± 0.1 ⁰ 3kg cm = 0.1Nm steps per revolution 200 half 0.9 ⁰	1	0.1
	Study and experiment on PLC digital output line with RS232	1	0.4
	Elevator control module using PLC input, lift up, lift down, 4 lift position LEDø 24 VDC	1	0.5
		Total	9.0
4	Sensor Board for Controls applications	1	4.0
5	NI ELVIS II Electronics Bundle	1	3.0
		Grand Total	89.0

Department of Electronics and Communication Engineering

Sl. No.	Item Description	Qty.	Amount Rs.(in lakhs)
1	Arm7 (32 Bit) Microcontroller Kits For Embedded Application		
	UNIVERSAL EMBEDDED DEVELOPMENT BOARD (SiMS-UEdb-832)	10	1.40
	Daughter boards: 8-bit, 16-bit and 32 bit Microcontroller boards		
	a) 32 Bit: ARM 7 ó LPC2148FBD64 family of Microcontrollers board	10	0.85
	b) 8 Bit: Atmel 89S51 Microcontroller board	10	0.65
	c) 16 Bit: TI - MSP430F149 Microcontrollers board	10	0.75
	Advanced Application Specific Interfacing Modules:		
	a) RFID Kit		1.39
	b) Graphic LCD Interfacing Kit (320X240)	10 each	1.8
	c) GSM Modem Interfacing Kit		2.0
	d) Finger Print Sensor Interfacing Kit		2.0
	e) RF Development Kit		2.5
	f) SPI Protocol Demonstration Kit		0.65
Total			13.99
2	Embedded Lab Based on Arm Cortex M3 Platform		
	Educational Practice Board for ARM Cortex M3 LPC1768 (For Ethernet based experiments)	10	3.0
	All in One General Purpose Board	10	0.95
TOTAL			3.95
3	Embedded Lab Based on ARM920T Platform		
	Educational Practice Board for ARM920T (Linux Porting activity)	10	4.0
	LCD Matrix Key board interfacing kit	10	0.38
	I/O Module	10	0.26
	Application Specific Kit for I2C protocol demonstration	10	0.68
TOTAL			5.32
4	ARM9 Tutors (10 user License)		
	AT91RM9200 Hands on Session - OS Concepts		0.0355
	AT91RM9200 Hands on Session ó GPIO		0.0355
	AT91RM9200 Hands on Session - LCD Matrix KB		0.0355
	AT91RM9200 Hands on Session - Stepper Motor		0.0355
	AT91RM9200 Hands on Session ó Configuration		0.0355
	AT91RM9200 Hands on Session - Image Flashing		0.0355
	AT91RM9200 Hands on Session - Thermal Printer		0.0355

	AT91RM9200 Hands on Session ó RFID		0.0355
	AT91RM9200 Hands on Session ó Fingerprint		0.0355
	AT91RM9200 Hands on Session ó GSM		0.0355
	Working Environment for ARM9		0.0516
	Boot Loader Basics		0.0516
	AT91RM9200 Boot Loader Porting		0.0516
	Introduction to Linux Kernel Structure		0.0516
	AT91RM9200 Hands on Session - Kernel Porting		0.0516
	AT91RM9200 Hands on Session - File System Porting		0.0516
	Introduction to GNU Debugger		0.0516
	AT91RM9200 Hands on Session Device Driver		0.0516
TOTAL			0.7678
5	PC based Robotic Trainer Prototyping Kit		
	PC BASED ROBOTIC TRAINER PROTOTYPING KIT-Sims-Lego-PP:Consists of : NXT Intelligent Brick: 32-bit ARM7 microcontroller, <ul style="list-style-type: none"> • 256 Kbytes FLASH, 64 Kbytes RAM • Bluetooth wireless communication, USB 2.0 port ; 4 input ports, 6 wire digital platform • 3 output ports, 6 wire digital platform • Dot matrix Graphical display 60 x 100 pixels • 	2	0.63
	HighEnd Computers	20	16.0
	LAN		1.5
TOTAL			18.13
6	Digital Signal Processing Laboratory		
	TI make TMS30C6713 based DSP Starter Kit	20	7.6
	TI make TMS320C6748 based DSP development kit.	15	9.75
	Advanced Application Specific Interfacing Modules	10	2.0
	Finger print sensor interfacing kit	10	1.55
	Daughter board for 6713 DSP UART. All in one General purpose board	20	1.10
	OMAP Kit	2	6.4
	HighEnd Computers	20	16.0
TOTAL			44.4
Grand Total			86.56

Department of Computer Science and Engineering

Sl. No.	Name of Equipment	Quantity	Cost per Unit (In Rs.)	Total Cost (Rs in lakhs)
1	High end Desktop Computers	50	70,000	35
2	Laptop Computers	15	1,00,000	15
3	Interactive Boards	10	1,50,000	15
4	Network Printers	05	2,00,000	10
5	LCD projectors	10	50,000	5
6	Cloud Setup	1 Package	10,00,000	10
	i. Network			
	ii. Public Cloud			
	iii. Licensed Database			
	iv. Backup and Firewall			
TOTAL				90

NOTE: The specific requirement for procurement of goods will be made depending upon the priority indicated by the department, availability of funds and approval of BOG.