Rashtreeya Sikshana Samithi Trust

R.V.COLLEGE OF ENGINEERING

(Autonomous Institution affiliated to VTU, Belgaum)
**R.V. Vidyaniketan Post, Mysore Road,
BANGALORE - 560 059**

SELF STUDY REPORT

November 2014

Submitted to

National Assessment and Accreditation Council
(An Autonomous Institution of the University Grants Commission)

INDEX

<div align="center">

PREFACE

</div>

This Self Study report is submitted to NAAC as a part of its journey towards excellence on behalf of the management and R.V. College of Engineering.

RASHTREEYA SIKSHANA SAMITHl TRUST (RSST)
The last decade of pre-independence India was marked with several initiatives and entrepreneurialventures. One such unique venture was the founding of RashtreeyaSikshanaSamithi Trust (RSST) in the year 1940. Late Sri. M.C. Sivananda Sharma, a school teacher and freedom fighter was the founder secretary of this organization, started with a noble mission to impart quality education. What began with a primary school has now grown into holistic group of institutions imparting quality education, from kindergarten to post graduate & research hub in various Science, Technology and Arts programs. The reason for this growth and success can be attributed to the dedicated trustees who have for over seven decades built this organization with commitment to quality, continuous improvement and social responsibility. Today the trust is managed by a very distinguished board of trustees, that is led by **Dr.M.K.PandurangaSetty, President & Chairman Governing body, Vice Presidents Sri. C.V. Hayagriv and Sri Panditharadhya, Hon. Treasurer Sri.K.G.SubbaramaSetty, Hon. Secretary Sri. A.V.S. Murthy and Hon. Joint Secretary Sri.D.P.Nagaraj**.
The board recognizes the importance of all round education in today's world and that it requires outstanding facilities, excellent faculty to create a learning environment that nurtures healthy competition and innovation. As such the management has developed state of the art infrastructure and carefully recruited best-in-class human resource in both teaching and administration in each of its educational institutions. RashtreeyaSikshanaSamithi Trust **manages twenty eight educational institutions including six schools, twelve colleges offering professional degrees and six institutions offering programs in different specialties**. Today RSST is regarded as one of the transparent and the best managements in education in the country. RSST also has in its mission commitment to societal welfare.

R.V. COLLEGE OF ENGINEERING

Marching towards Excellence in Education, Research and Innovation
RashtreeyaVidyalaya College of Engineering (RVCE) established in 1963 is the flagship institution of RSSTand one of the earliest self-financing engineering colleges in the country. RVCE is today recognized as one of India's leading technical institution. RVCE is rated amongst the top five self-financing Engineering colleges in the country, and some magazines have rated it as the best institute in the country among private institutes, in terms of the Return on Investment by a student. RVCE is spread over 50 acres of sprawling campus with the right learning ambience. RVCE is preferred destination for top ranking aspirants, both for UG and PG programs. RVCE is an **Autonomous college**, affiliated to Visvesvaraya Technological University (VTU) Belgaum. That means that RVCE decides and frames UG Curriculum through its own Academic council. All the processes are as per the VTU guidelines for autonomous institutions. RVCE currently offers **12 Bachelor & 23 Master programs. It also has sixteen centers of research** and carries out research and consultancy activities in all the departments, with a provision for **Ph.D. Studies.** All UG programs have been accredited multiple times. Some of the P.G. programs have

been accredited and other eligible PG programs have gone for accreditation. The College currently has **student's strength** of about **5400**,faculty strength of more than **400** and there are **250** Research Scholars.

ACADEMICS & AUTONOMY:
RVCE was granted Autonomous Status for its Under Graduate Programs by the VTU, UGC and Government of Karnataka (GoK) in the year 2007. Being an Autonomous college under VTU, RVCE prescribes its own syllabus and academic activities. A special emphasis is on experiential learning and outcome based education(OBE). The academic activities concentrate on helping the students to gain an excellent theoretical knowledge base and in the development of skills to implement them. The latest teaching aids from multimedia equipment to simulation techniques ensure a thorough learning process. The college regularly invites experts and industry professionals to impart practical skills and lessons to students. Industrial visits are encouraged to help the students grasp the technology at work. Some of the facilities within the campus also provide an opportunity to the students to get oriented to the practical aspects of engineering. The whole campus seamlessly connected with over 25 Kms of wired connectivity and close to 100 wireless access points located strategically all across the campus, with a further scope for scalability. RVCE also has excellent labs including 35 labs set up by industries. Some of the companies who have set up labs include IBM, EMC^2, Samsung, ABB, PACE Electronics, Freescale Semiconductor, CISCO, NXP, Texas Instruments, Wipro, Infosys, Bosch Rexroth, Mind Tree, Lapp Cable, Cognizant, Agilent(Key Sight), Sparx, and Tejas Networks. Further students have access to an exhaustive library with both printed and electronic version of books (>1 Lakh Volumes) and journals (> 4000 journals). The Institution also has a Digital Learning Center for developing e-learning material to facilitate the students. After successful completion of the program, almost around 100% of the eligible students are placed through campus selection.

ACHIEVEMENTS & RESEARCH INITIATIVES:
RVCE was one of the first colleges to have its entire Bachelor program accredited by National Board of Accreditation (NBA), as per the guidelines of the All India Council for Technical Education (AICTE), New Delhi, India. MHRD chose RVCE for the review /assessment of India's new NBA process by International Observers, to enable India to enter the Washington Accord. RVCE utilizes its expertise in various disciplines to conduct Research and Development for Industry and Defense Establishments in the country. Innovative projects are supported by the Management. RVCE has a collaborative arrangement with leading universities in USA, UK, France, Australia and Germany for Post-Graduate and Research programs. More than 200 Ph.D. scholars have registered for Ph.D. under the various Research Centers. 17 patents have been granted to faculty of RVCE and plans are on to file over 50 patents by the end of 2014. An Innovation and Incubation Center is set up by TE Connectivity as a part of the Golden Jubilee Celebration in 2013-14. Further expansion of incubation is planned and already 3 companies have been incubated in the campus last year.

RVCE's unique initiative includes providing even bachelor students with a platform to engage in research and innovation. This has led to development of systems including India's first PICO satellite, Hybrid automobile vehicle, Unmanned Aviation Vehicles (UAV), Tele presence Robot and Racing Cars. The students have consistently won

awards not just in India, but in all parts of the world. The race car team has won the best Asian Team award at Italy consecutively for the last two years. The Autonomous Air Vehicle won a special mention by US Navy during this year's competition in USA. RVCE students have won awards for development/demonstration of innovative ideas from multiple agencies including ISA, Volvo, Motorola, Intel, IBM and KSCST. The architecture students have consistently won the best design award at the national level competition held for the final year project over the last 5 years and the best design award for their novel design for the Bangalore International Airport etc. RVCE has especially leveraged its autonomy and in the last 5 years to make the education more learner centric and experiential. Students are encouraged to attend conferences and workshops and present their work.

RVCE was also awarded the *"Best Innovative Spirit Award"* at CII Innovation Conference in March 2012 for facilitating its students to participate in multiple technological contests. Strong Entrepreneurship development cell motivates the students to take up self-employment ventures. Already close to 10% of the alumni are entrepreneurs. Even last year a start up company by two of our outgoing students Mr. SrikanthTalwar and Ravikiran, competing with Multinationals, got selected to develop the online admission process for the Diploma Program, facilitated by KEA, Government of Karnataka.

KEY ACHIEVEMENTS OF RVCE:
- Ranked among the **top 6 Technical Institutions** in the country for Industry linkages by AICTE-CII-PWC Survey 2012.
- RVCE ranked **2nd among Technical Institutions** selected for the World Bank supported TEQIP Phase II Sub Comp: 1.2, facilitated by MHRD, GOI.
- Under TEQIP Sub component 1.2.1, – **Centre of Excellence in Macroelectronics**.
- RVCE ranked as the **top institute** in the country among the self financed engineering for **Return on Investment(RoI)** / **Value for Moneyfor students** by Outlook in June 2013.
- RVCE is also ranked**Number 1 in sports& Extra Curricular Activities among the two hundred plus Engineering Colleges** under VTU, Karnataka.
- Strong R&D focus: Completed over 100 projects, The institute has about **45 Ongoing projects** from various funding agencies including DST, DBT, DRDO and its affiliated agencies, UGC, VTU, AICTE, CII, and VGST Karnataka *(a transformation from about Rs.7 Crores in the last decade to close to Rs 40 Crores of approvals in the last 3 years).*
- RVCE won *Wipro "Earthian Award"* for its Sustainability based initiatives in Jan 2014.
- **VTU in association with CANEUS-USA & NDRF** and **VIT University, Vellore** have independently awarded RVCE as the **"Best Engineering College"** for promoting Excellence in Higher Education – Research, Innovation and Academics, during April 2013.
- The Higher Education Review Magazine-2013 has awarded RVCE as **"Engineering College of the Year"** – An annual award of the most promising Engineering Colleges of India, during Dec. 2013, in recognition of imparting quality education.

- **Times Group in association with ET-NOW & Skill Tree Consortium** has awarded RVCE **"Skill Tree Education Evangelist of India-2013"**, during Dec.2013.
- Computer Society of India (CSI) has awarded RVCE as "**Best Student Chapter Award-2013**", during Nov. 2013.
- **"BharatiyaVidyaBhavan National Award"** for an Engineering College having best overall performance for the year 2013 at the 43rd Annual Convention of ISTE at Kolhapur, Maharashtra, on 19th Dec 2013.
- RVCE recognized as an **"Evangelistic Institution transforming HE"** in India 2013 by Skill Tree & ET Now TV
- Higher Education Review Ranked RVCE as the **Best in the area of "Electronics Engg Education in India"** for 2013

Research activities can be broadly classified under the following interdisciplinary research areas :*Materials & Manufacturing Engineering with additional capability for Design for Optimization of Manufacturing processes and production. including polymers, composites, wide range of nano materials (metals, ceramics and semiconductors) and amorphous materials,*
- *Sensors, Networks and Communication (up to THz),*
- *Nano Science, Surface Engineering & MEMS ,*
- *Data Mining/ Data warehousing or Business Intelligence, Cloud Computing,*
- *Natural Language Processing,*
- *Environment Friendly and Sustainable Technologies with Enable Smart buildings and Smart Cities including Structural Engg,*
- *Clean & Renewable Energy, Energy Efficiency & Management,*
- *Large Area and Plastic / Printable (Flexible) Microelectronics,*
- *Advanced Instrumentation including Medical Instrumentation,*
- *Highways and Transport technology,*
- *Signal & Image processing.*

Some of the ongoing projects in line with the Institutional Vision of "Innovation for Sustainable and Inclusive Development" include:
1. Running a 100 KW biomass based power plant, and working on a wide range of biomass for fuel (partly facilitated by **DST-TIFAC**)
2. Centre of Excellence in Macroelectronics (**TEQIP CoE**)
3. Developed a novel technology from concept a pilot production facility (100 liters) for converting waste coal and lignite into Methane and Ethanol (**funded by Ministry of Coal**).
4. **DST funded** project for Development of a novel nanomaterial enabled, inexpensive, amorphous silicon based plasmonic solar cell on glass susbtrate.
5. **DST funded** project for Development of high temperature (~400 to 500 C) absorbing solar thermal receiver tubes (1 m) for industrial and power generation applications.
6. Developing environment friendly concrete for housing construction which also uses lesser water and dries faster, including using waste from different sources
7. Developing indigenous process equipment's, materials including metal-metal composites, fiber reinforced polymer composites and nano materials embedded composites for space, Defense and avionic applications.
8. Developing the 4th Generation antennas for communication technology for Defense and space applications (**Multiple agencies**).

9. Study & Development of Image compression Algorithm for satellite Images for use for Bhuvan**(ISRO)**
10. **ISRO** funded facility for monitoring air, wind, weather, noise and water and assessing its quality as also GPS and RS data analysis used for environment monitoring and city and town planning.
11. Developing novel medical instrumentation including compact hand held X-ray sources & Ultrasound sources for affordable healthcare and telemedicine application
12. Developing novel room temperature grown nanocarbons based Thin film transistor.
13. A biofuel production and characterization facility (50 liters)
14. Developing compact wind mills, solar PV and thermal systems and integrated power generation study
15. Developed hybrid automobiles and autonomous aerial and underwater vehicles
16. Harvesting over 7 million litres of Rainwater in the campus (**funded by KPMG**) & Set up an STP plant in the campus for 250,000 litres, scalable to 5 Lakh litres. Also running an Effluent Treatment Plant (ETP).
17. First institute in the country to offer courses and establish clean room facility for development of Large Area and Flexible Microelectronics and Vacuum Nanoelectronics. (technology useful for future use and throw electronics and wearable electronics)
18. RVCE has established seamlessly connectivity with over 30 Kms of wire/fibre and over 100 wireless access points, and in the process of establishing our own intranet cloud computing facility. (**partly funded by DST** for setting up a centre for Cloud computing and High Performance computing).

STUDENT ACTIVITIES AND COMMUNITY SERVICES PROGRAMS:

The students of RVCE are given ample opportunity for holistic development with equal emphasis on co-curricular activities including NSS, NCC, Sports, Cultural Activities, innovative projects, and community work. Sports persons are given adequate facilities in terms of allowances, uniforms and attendance to compete in university, interstate, national and international competitions. There are various cultural clubs in which the students can participate. RV Centre for Social Services & Skills Promotion (SKIP) and Women Empowerment and Soft Skill Training (WEST), is helping the deprived class of the society in training and making them self-reliant. As a part of the social responsibility a FM Community Radio project is in the pipeline.

RVCE has a strong alumni base of ~ 30000 alumni. Prominent alumni include International cricketer Mr. Anil Kumble, Mr. ChetanBabbur in TT, Mr. Ashok Nayak Former HAL Chairman, and Mrs. VijayalakshmiBidri I.A.S. Officer, the list is endless. RVCE alumni also include many top CEOs, MDs, Sr.VP, VPs and General Managers in many National and International MNCs and state and central PSUs. Even during the inauguration process of the recent London Olympics, an RVCE alumni from Architecture Ms Amrita Kulkarni was the Olympic torch bearer in 2012. More than 15% of the RVCE alumni are entrepreneurs and are running their ventures successfully.In conclusion, RVCE is a place that provides Knowledge, Technical Skills, Managerial abilities, Innovative culture and Human values.

Executive Summary

RV College of engineering an institution celebrating its Golden Jubilee year in 2014, has set itself a vision to be a leader in Technical education, interdisciplinary research and innovation with a focus on sustainable and inclusive technologies.

a. **Curriculum Aspects:**R.V.College of Engineering established in1963, was granted the autonomous status in the Year 2007.The curriculum design exercise has been taken up seriously by all the Board of studies for their respective programs of study at the undergraduate level. Though the UGC mandates that the autonomous status needs to be given to the institute, the VTU statutes defined the same program wise. Since in 2007 more than 60% of PG programs did not have two outgoing batches, VTU did not allow autonomy to PG programs. Thus the institution has limited role to play in the design of the post graduate curriculum. In spite of this disadvantage many of our faculties are on the BoS of the VTU and have contributed to the improvements in the post graduate curriculum. Fortunately the VTU also gives an opportunity for the faculty to send comments on the revised curriculum to the University Boards of studies. As far as research programs are concerned the centers of research at RVCE are recognized mainly by VTU and work as per the guidelines of the affiliating university namely the Visvesvaraya Technological University.

There have been three revisions in the Undergraduate curriculum; the first autonomous curriculum was framed the years 2007 and subsequently revisions have happened in 2010 and 2012 schemes of study. Every revision has brought in innovations in the curriculum design orienting the focus towards the Outcome Based Education (OBE) Model as mandated by most of the accreditation agencies in the Engineering/ Technology based academic programs across the world. The First edition in 2007 was an attempt to move away from the university pattern of education by setting up processes and systems to leverage the autonomous status offered to the institution. This was a process of initiating the academic bodies to drive excellence through a strong curriculum design focus. The lessons learnt during implementation of the 2007 scheme were used for the Development of the curriculum and evaluation process under the 2010 scheme. This scheme led to the setting up of industry laboratories on Campus and offering industry based electives to the students from multiple disciplines, this attempt improved the Quality of Employment offers on Campus. In the 2012 Scheme the institution formally announced the implementation of the OBE model and systems are being tuned to the requirements of the OBE Framework of engineering education. The innovation was in terms of introducing more credits for self-learning, introducing a Course on Biology for engineers and introducing more flexibility in the curriculum offerings. RVCE's strength lies in innovative curricular initiatives.

b. **Teaching-Learning &Evaluation**: The Teaching Learning Evaluation process at RVCE has been standardized in line with the guidelines for autonomy issued by VTU. Preparing the lesson plan, lesson notes, teaching material and prescribing experiments for the laboratory and project based courses tuned to the requirements of providing experiential learning platforms to the students of both at the Undergraduate and post Graduate level. The evaluation in the case of B.E. programs consists of Continuous Internal Evaluation (CIE -50% weight age of total marks) and Semester End Examination (SEE – 50% weightage of total

marks), which is an strength and away from the university system. The CIE is based on assessment instruments which includesthree Continuous Internal Evaluationconsisting of tests and Quizzes; the best two performances in test& quiz combined will be considered for the award of final CIE marks. Assignments, Case Studies and Mini Projects are also given to the students in specific courses or in emerging areas, these are also considered for award of CIE marks. The Semester end examination (SEE) is conducted for the whole syllabus, moderated by the external examiners. The question papers for the SEE are set by External and Internal examiners. The final grade will be awarded based on the combined marks obtained in both CIE and SEE. External examiners are invited for evaluating the courses with the Laboratory components as well as for project based courses. Grading on a 10 point scale has been adopted in the Evaluation system. SGPA (Semester Grade Point average) and CGPA (Cumulative Grade point average) are awarded at the end of every semester end examination. The institution started with the Relative Grading pattern of Evaluation for the first batch first year under the autonomous system which was challenging and subsequently switched over to the Absolute Grading System keeping in mind the heterogeneous group of students as per the advice of the Academic council (AC).

c. **Research, Consultancy and Extension Activities**: - From being a teaching institution for three decades, RVCE has graduated to a teaching and research institution, making use of the opportunity of having a large number of Faculty with a Doctoral degree on its roll. Distinguished Scientist and Leaders in Research in several domains are part of the RVCE Faculty team. All the 15 Departments of RV College of engineering have recognized research centers with recognition from Visvesvaraya Technological University, Belgaum – A leading Technological University with a great repute and strong research network to back its research initiatives. Research guidanceinclude incentivizing faculty to take up research through policy initiatives. A shift in policy from a lump sum R&D budget grant to exclusive R& D Budget for every department has motivated every center to improve their R&D infrastructure. These initiatives and will to enhance both PG and R&D provided a platform to rate RVCE among the top institutions by World bank assisted TEQIP Grants under the MHRD, sub component 1.2, which essentially has its mandate to enhance the research competencies in TEQIP Grant institutions. RVCE has several completed funded research projects and Ongoing Research projects funded by the State and National funding agencies such as the UGC, DST, AICTE, DRDO labs, VGST, private industries and many more organizations. The Departments of the institution have built the trust among the funding agencies in terms of its capacity for conducting research as well as its financial prudence and transparent system of accounting the research funds as well as reporting the results of the research for implementation in the Land. Library resources are accessible to researchers without constraints.Relatively the consultancy needs to be strengthened and more revenue generation has to happen. Lack of serious focus on intellectual property has led to many lost opportunities for the institution.
The institution is seriously looking it as challenge and the institution is concentrating on this.

d. **Physical infrastructure&Learning resources**: - RVCE has a sprawling well maintained campus with an area of 52 Acres, out of which the built up portion is around 30% to house all the Departments and Central Facilities. The Green cover on campus has been consciously maintained and any plans for expansion of

buildings to cater to increased students and faculty strengths are taken with a thought of maintaining the green cover and the academic ambience and Learning environment for inspiring the students and the faculty, who join RVCE with the pursuit of Excellence in mind. Every Department is housed in an Independent Block with adequate space provision for class room, tutorial rooms, Curriculum Laboratories, research Laboratories, amenities and such other requirements. A Central Library & Information Centre is located right in the Center of the Campus. This acts as a hub of knowledge, with a collection of Volumes Number of titles and annual subscriptions to several internationally reputed journals in all disciplines of science, engineering and technology. The library has several E-Resources and facilities such as E-Books, Online Portal called D-Space hosting Question papers and other learning resources and are well equipped with access via the internet and the Wi-Fi connectivity to the entire faculty in their faculty rooms and for the students anywhere on the campus. RVCE is a member of the VTU Consortium of libraries and under this scheme access to knowledge resources have no limitation whatsoever. The use of these resources is evidenced in terms of a large number of publications in peer reviewed and refereed international journal.

e. **Student mentoring and Support for Progression**: An effective Student mentoring and Support scheme is practiced at RVCE from decades. The Dean student Affairs leads these initiatives. Counselors are nominated for every batch of 15 to 20 students and given the responsibility of monitoring the academic performance and advise them on personal matters as well. The progress reports are sent to the parents periodically. The Departments conducts Parents Teachers meet as part of the system to involve the parents who are the key stakeholders in the progress of their respective wards. Issues related to the academics and personality developments are discussed with the parents during this meet. Some Parents are forthcoming with suggestion for improvement in the Teaching Learning process. Student's participation in Extra-Curricular activities, sports and other co curricular activities are recorded in the Counseling file. A Separate diary is provided and students are expected to maintain a log of their participation in various events and submit the same to the counselors for earning credits in Innovation & social skills, which count for the Degree award. The system of mentoring has resulted in providing timely corrective advice to keep the students on track in the academic and non academic engagements. Rules for academic progression are published in the "Handbook of Rules and Regulations" given to every student admitted into the undergraduate degree program. These rules are in line with the guidelines for the autonomous institution given by the Viswesaraya Technological University, which finally awards the degree to the graduates based on the recommendations of the institution. Three Batches have graduated under the autonomous system and the proportion of students graduating in the minimum period of four years is reasonably high.

f. **Governance, Leadership and Management:** The institution is governed by the Board of Trustees of the RashtreeyaSikshanaSamithi Trust, an educational trust known for its commitment to society and espousing the cause of Education with a strong foundation of Values and Ethics in all its decision making process and governance initiatives. The trust runs 26 Educational Institutions and is progressive, forward looking and enthusiastic in its contribution to the growth and development of all the institution, with concern for Equity, Expansion, Employability and Excellence. RVCE is the flag ship institution of the Trust and

is Governed under the autonomous system by an eminent Governing body with a healthy composition of eminent academicians, industrialist, UGC Nominee, State Government Nominees, Institutional Nominees and the Head of the Institution as the Convener of the Governing Body. The distinguished personalities with rich experience in the field of Higher Education and the niche segment of Technical education on the Governing body guide all the activities of the institution. The Governing body gives a lot of credence to the autonomy of the academic council, which is the highest academic body overseeing the Teaching-Learning process in the various programs of study administered in the institution. The Leadership of the institution are committed with deep passion and zeal,in enabling all the departments to enhance their contribution towards excellence in engineering education, R &D and Knowledge creation. Several interventions to upgrade the Quality of the Teaching Learning Process have been initiated by the successive leadership team of RVCE. However the key stumbling block in achieving the outcomes, especially as a self-financed institution is the inability to develop a sustainable financial model, due to a nonviable fee structure defined by the governments.

g. **Innovation and Best Practices**: Innovation is the main attraction for the Top Ranking Students to seek admission into RV College of engineering. Several student teams participate in Innovative Design competition at the National & International levels. These competitions involve stringent specifications by global professional organizations. Some of these activities include design and development of racing/supermilage/hybrid/all-terrain vehicles,nano/pico Satellite, Advanced Robotics, Hybrid Energy systems and autonomous aerial and under water vehicles. These innovative projects are student led initiatives, with able support from the Alumni and faculty as mentors. Innovation is also seen in the areas chosen by the faculty for pursuing their research leading to the Doctoral degree. Entrepreneurship development cell is a catalyst to innovation.

Best Practices that stand out in Comparison with the leading institutions in the country include the following:-

Focus on sustainability and research with a futuristic vision bringing in the concept of interdisciplinary and experiential learning.Implementation of programs on Energy & Environment, with the components of building education and awareness among the youth. Establishing a strong Industry Academic Partnership (>30companies). Research as a main drive to improving the quality of teaching learning and involving the undergraduate students as part of the research teams along with faculty. Establishment of a **Centre for Excellence in Flexible Electronics & Macro Electronics** *under TEQIP sub component 1.2.1. Evolving Innovative Curriculum design frameworks with a focus on student centric engineering* **education.**Initiative towards a sustainable campus with Zero Waste, Zero discharge of water and Energy independence, in line with National/ international developmental goal.*

SECTION B: PREPARATION OF SELF-STUDY REPORT

1. Profile of the Autonomous College

1. Name and Address of the College:

Name	R V COLLEGE OF ENGINEERING	
Address	R.V. Vidyaniketan Post, 8th Mile, Mysore Road, Bangalore	
City	Pin: 560 059	State: Karnataka
Website	www.rvce.edu.in	

2. For Communication

Designation	Name	Telephone with STD code	Mobile	Fax	Email
Principal	B.S. Satyanarayana	O: 080 67178020 R: 080 22563216	9900084234	28600337	principal@rvce.edu.in
Vice Principal	K.N. Subramanya	O: 080 67178164 R: 080 23187130	9663699299		subramanyakn@rvce.edu.in
Steering Co-coordinator	K.N. Raja Rao	O: 080 67178147	9742377150		rajaraokn@rvce.edu.in
Co-coordinator	N.S. Narahari	O: 080 67178032 R: 080 26533897	9880311128		naraharins@rvce.edu.in

3. Status of autonomous college by the management

  I.   Government
 II.   Private √
III.   Constituent College of the University

4. Name of University to which the College is Affiliated :

   Visvesvaraya Technological University

5. a. Date of establishment prior to the grant of 'Autonomy' (dd/mm/yyyy)

   01/04/1963

   b. Date of grant of 'Autonomy' to the College by UGC: (dd/mm/yyyy) :

   01/11/2008(For Details Pls. See Annexure-1)

6. Type of the Institution

    a. By gender

        i.   For Men
        ii.   For Women
        iii. Co-education ✓

    b. By shift

        i.   Regular ✓
        ii.   Day
        iii. Evening

c. Source of

        i.   Government
        i.   Grant-in-aid
        ii.   Self-financing ✓
        iii. Any other   (Please specify)

7. It is a recognized minority institution?
   Yes
   No ✓
If yes specify the minority status (Religious/linguistic/ any other) and
provide documentary evidence

8. a. Details of UGC recognition

Under Section	Date, Month & Year (dd-mm-yy)	Remarks (if any)
i. 2 (f)	26/09/2008	
ii. 12 (b)	26/09/2008	

(For Details Pls. See Annexure - 2)

   b. Details of recognition/approval by statutory/regulatory bodies other
      than UGC (AICTE, NCTE, MCI, DCI, PCI, RCI etc.)

Under Section/clause	Day, Month and Year (dd-mm-yyyy)	Validity	Programme/ institution	Remarks
i. AICTE	19/03/2013	2013-14	As per enclosure	Latest Approval
iii. NBA	08/10/2013	UG:7: Sept.'2015 PG:3: Sept' 2016 UG:4: Applied	As per enclosure	Latest Approval

iv. NBA	08/10/2013	UG:7: Sept.'2015 PG:3: Sept' 2016 UG:4: Applied	As per enclosure	Latest Approval

(For Details Pls. See Annexure - 3)

9. Has the college recognized

   a. By UGC as a College with Potential for Excellence (CPE)?

   Yes [√]   No [ ]

   If yes, date of recognition: 18/11/2008

(For Details Pls. See Annexure - 2)

   b. For its contributions / performance by any other governmental agency?

   Yes [√]   No [ ]

   If yes, Name of the agency

   MHRD/NPIU for TEQIP Phase –II and TEQIP-II Center of Excellence

   Date of recognition: TEQIP: 21-06-2011   CoE: 10-06-2013

(For Details Pls. See Annexure – 4 & 5)

10. Location of the campus and area :

Location	Urban
Campus area in sq. mts. or acres	51.4 acres
Built up area in sq. mts	83857 sq. mts

11. Does the College have the following facilities on the campus (Tick the available facility)? In case the College has an agreement with other agencies in using such facilities provide information on the facilities covered under the agreement.

- Auditorium/seminar complex ✓ (1+13)

- Sports Facilities

  - Play Ground ✓
  - Swimming Pool
  - Gymnasium ✓

- Hostel

  - Boys Hostel ✓ (4+2)
  - Girls Hostel ✓

- Residential Facilities

  - For teaching staff: For residential wardens✓
  - For non-teaching staff: For Group –D Employees ✓

- Cafeteria ✓

- Health Centre

    - First aid facility ✓
    - Inpatient facility ✓
    - Outpatient facility ✓
    - Ambulance facility ✓
    - Emergency care facility✓

    Health Centre Staff

    Qualified Doctor✓   Full Time✓   Part Time
    Qualified Nurse✓   Full Time✓   Part Time

- Other facilities
    - Bank✓
    - ATM✓
    - Post Office✓
    - Book Shops✓

- Transport Facilities
    - For Students✓
    - For Staff✓

- Power house ✓

- Waste management facility ✓ Sewage Treatment Plant (STP)
                            Waste segregation & disposal.

12. Academic programs

SI. No.	Programme Level	Name of the Programme/ Course	Duration	Entry Qualification	Medium of instruction	Sanctioned/ Approved Student intake	No. of Students admitted (2012-13)
1.	UG	Civil Engineering	4 Years	PUC / 12th Std.	English	120	120
		Mechanical Engineering	4 Years	PUC / 12th Std.	English	120	120
		Electrical & electronics Engineering	4 Years	PUC / 12th Std.	English	60	59
		Electronics & Communication Engineering	4 Years	PUC / 12th Std.	English	180	180
		Industrial Engineering Management	4 Years	PUC / 12th Std.	English	60	55
		Instrumentation Technology	4 Years	PUC / 12th Std.	English	60	60
		Chemical Engineering	4 Years	PUC / 12th Std.	English	40	40
		Computer Science & Engineering	4 Years	PUC / 12th Std.	English	180	180
		Telecommunication Engineering	4 Years	PUC / 12th Std.	English	60	59
		Information Science & Engineering	4 Years	PUC / 12th Std.	English	60	60
		Biotechnology	4 Years	PUC / 12th Std.	English	60	53
		Architecture	5 Years	PUC / 12th Std.	English	120	118
2.	PG	Structural Engineering	2 Years	BE / B.Tech	English	18	18
		Highway Technology	2 Years	BE / B.Tech	English	18	18
		Product Design & Manufacturing	2 Years	BE / B.Tech	English	36	36
		Computer Integrated & Manufacturing	2 Years	BE / B.Tech	English	18	18
		Machine	2	BE /	English	18	18

	Design	Years	B.Tech			
	Tool Engineering	2 Years	BE / B.Tech	English	18	17
	Power Electronics	2 Years	BE / B.Tech	English	18	18
	VLSI Design & Embedded Systems	2 Years	BE / B.Tech	English	36	36
	Communication Systems	2 Years	BE / B.Tech	English	18	18
	Master of Engineering & management	2 Years	BE / B.Tech	English	18	15
	Bio Medical Signal Processing &Instrumentation	2 Years	BE / B.Tech	English	18	16
	Chemical Engineering	2 Years	BE / B.Tech	English	18	17
	Computer Science & Engineering	2 Years	BE / B.Tech	English	18	18
	Computer Network Engineering	2 Years	BE / B.Tech	English	18	18
	Digital Communication	2 Years	BE / B.Tech	English	36	36
	Radio Frequency & Microwave Engineering	2 Years	BE / B.Tech	English	18	36
	Software Technology	2 Years	BE / B.Tech	English	18	18
	Information Technology	2 Years	BE / B.Tech	English	18	18
	Biotechnology	2 Years	BE / B.Tech	English	18	1
	Bioinformatics	2 Years	BE / B.Tech	English	18	18
	M.Arch : Urban Design	2 Years	B.Arch.	English	20	12
	Master of Computer Application	3 Years	Degree (B.Sc/ BCA)	English	120	120
3.	Integrated	NA				

	Masters						
4.	M.Phil.	NA					
5.	Ph. D.	Ph.D	Min 3 Yrs Max 8 Yrs	M.Tech/ ME	English		173
6.	Integrated Ph.D.	M.Tech + Ph.D integrated dual degree programme.	2+3 years	B.E.	English	--	02
7.	Certificate	NIL					
8.	Diploma	NIL					
9.	PG Diploma	NIL					
10.	Any Other (Please specify)	NIL					

13. Does the Institution offer self-financed programmes?

Yes ✓   No ☐

If Yes, How many? | All Programmes |

14. Whether new programmes have been introduced during the last five years?

Yes ✓   No ☐

If Yes,

| Number | 17 |

15. List the departments: (Do not list facilities like library, Physical Education as departments unless these are teaching departments and offer programmes to students)

Particulars	Number	Number of Students

Science
  Under Graduate
Post Graduate
  Research Centre(s)
	03	20

Arts Under Graduate Post Graduate Research Centre(s)	NA	
Commerce Under Graduate Post Graduate Research Centre(s)	NA	
Any other (Please Specify):		
Engineering Under Graduate Post Graduate Research centre(s)	12	4440 (UG) 349 (MCA) and 780 (M.Tech) 173 (Ph.D)

16. Are there any UG and/or PG programmes offered by the College, which are not covered under Autonomous status of UGC? Give details.

All PG Programmes - Applied for autonomy and waiting UGC concurrence

(For Details Pls. See Annexure-6)

17. Number of Programmes offered under (Programme means a degree course like BA, MA, BSc, MSc, B.Com etc.) (NA)

    a   Annual System   Nil

    b   Semester System   35

    c   Trimester System Nil

18.   Number of Programmes with

a   Choice Based Credit System   12

b   Inter/Multidisciplinary Approach   --

c   Any other (specify   ---

19. Unit Cost of Education

(Unit cost = *Total annual recurring expenditure (actual) divided by total number of students enrolled)*

(a) Including the salary component   Rs. 108000.00

(b) Excluding the salary component   Rs. 47000.00

20. Does the College have a department of teacher education offering NCTE recognized degree programmes in Education?

Yes [   ]   No [√]

If Yes,

a. How many years of standing does the department have?
___Years   (NA)

b. NCTE recognition details (if applicable)
Notification No:_____
Date :_____(dd/mm/yyyy)   (NA)

c. Is the department opting for assessment and accreditation separately?

Yes [   ]   No [√]

21. Does the College have a teaching department of Physical Education offering NCTE recognized degree programmes in Physical Education?

Yes [ ]   No [√]

If Yes,

a. How many years of standing does the department have?

____Years   (NA)

b. NCTE recognition details (if applicable)

Notification No:_____

Date:_____(dd/mm/yyyy)   (NA)

22. Whether the College is offering professional programme?

Yes [√]   No [ ]

If yes, please enclose approval / recognition details issued by the statutory body governing the programme.

(For details Pls. See Annexure-3)

23. Has the College been reviewed by any regulatory authority? If so, furnish a copy of the report and action taken there upon.

Yes the college was reviewed by
   1. Local Inspection Committees of VTU
   2. AICTE Committee
   3. GoK Committee
   4. UGC Committee

(For details Pls. See Annexure-7)

24. Number of teaching and non-teaching positions in the College.

Positions	Teaching faculty						Non–teaching staff		Technical staff	
	Professor		Associate Professor		Assistant Professor					
	M	F	M	F	M	F	M	F	M	F
Sanctioned by the UGC / University /State Government *Recruited Yet to recruit*										

Sanctioned by the Management/Society of the authorized bodies	54		97		243		98		155	
Recruited	59		77		252		98		155	
Recruited Male & Female	45	14	51	26	113	139	80	18	129	26

25. Qualifications of the teaching staff

Highest qualification	Professor		Associate Professor		Assistant Professor		Total
	Male	Female	Male	Female	Male	Female	
Permanent Teachers							
D.Sc./D.Litt	01						01
Ph.D	38	14	35	12	13	07	119
M.Phil	00	00	00	00	03	06	09
PG	06	00	16	14	97	126	259
Temporary Teachers							
Ph.D	04	00	00	00	00	00	04
M.Phil	00	00	00	00	00	00	00
PG	00	00	00	00	00	00	00
Part-timeTeachers							
Ph.D	00	00	00	00	00	00	00
M.Phil	00	00	00	00	00	00	00
PG	32	10	00	00	00	00	42

26. Number of Visiting Faculty/ Guest Faculty engaged by the College. – 9Members

27. Students enrolled in the College during the current academic year, with the following details:

Students	UG		PG		Integrated masters	M Phil	Ph D		Integrated Ph D		DLitt / D Sc	Diploma	PG Diploma
	M	F	M	F			M	F	M	F			
From the state where the College is located	2165	971	617	271	NA	NA	20	15	0	02	NA	NA	NA

From other states of India	1038	266	191	50								
NRI students	NA											
Foreign Students	NA											
TOTAL	3203	1237	808	321			20	15	0	02		

* M - Male   * F - Female

28. Dropout rate in UG and PG (average for the last two batches)

UG	1%	PG	1%

29. Number of working days during the last academic year. | 133 Days |

30. Number of teaching days during the last academic year. | 118 Days |

31. Is the College registered as a study centre for offering distance education programmes for any university ?

Yes | | No | √ |

If yes, provide the

a.   Name of the University

b.   Is it recognized by the Distance Education Council?
Yes | | No | |

c.   Indicate the number of programmes offered.

32. Provide Teacher-student ratio for each of the programme / course offered:

Undergraduate

Programme	Teacher Student Ratio
Biotechnology	1:13
Chemical Engineering	1:12
Civil Engineering	1:15
Computer Science & Engineering	1:12

Electrical &Electronics Engineering	1:12
Electronics & Communication Engineering	1:15
Industrial Engineering Management	1:11.25
Instrumentation Technology	1:13
Information Science & Engineering	1:15
Mechanical Engineering	1:15
Telecommunication Engineering	1:15
Physics	1:14
Chemistry	1:13
Mathematics	1:20

Post Graduate

Master of Computer Applications	1:15
Product Design and Manufacturing	1:12
Digital Communication	1:12
Computer Science & Engineering	1:12
Computer Integrated Manufacturing	1:12
VLSI Design & Embedded Systems Design	1:12
Computer Network Engineering	1:12
Machine Design	1:12
Communications Systems	1:12
Power Electronics	1:12
Bio-Medical Signal Processing & Instrumentation	1:12
Structural Engineering	1:12
Software Engineering	1:12
Information Technology	1:12
Tool Engineering	1:12
Highway Technology	1:12
Bio Technology	1:12

Master of Engineering Management	1:12
Bio Informatics	1:12
Chemical Engineering	1:12
RF & Microwave	1:12

33. Is the college applying for

Accreditation : Cycle 1 [√] Cycle 2 [ ] Cycle 3 [ ] Cycle 4 [ ]

Re-assessment:

34.   Date of accreditation* (applicable for Cycle 2, Cycle 3, Cycle 4 and re-assessment only)

Cycle 1:………NA……… (dd/mm/yyyy) Accreditation outcome/results
Cycle2:………NA ……… (dd/mm/yyyy) Accreditation outcome/results
Cycle3:……… NA……… (dd/mm/yyyy) Accreditation outcome/results
* Kindly enclose copy of accreditation certificate(s) and peer team report(s)

Cycle 1 refers to first accreditation; Cycle 2 and beyond refers to reaccreditation

35.   a. Date of establishment of Internal Quality Assurance Cell?(IQAC)
        12/01/2014 (dd/mm/yyyy)
      b. Dates of submission of Internal Quality Assurance Reports (AQARs)

  i.   AQAR for year …………… on ………(dd/mm/yyyy)
 ii.   AQAR for year …………… on ………(dd/mm/yyyy)
iii.   AQAR for year …………… on ………(dd/mm/yyyy)
 iv.   AQAR for year …………… on ………(dd/mm/yyyy)

36. Any other relevant data, the College would like to include. (Not exceeding one page)

  (i)   Rs. 400 Lakhs grant has been sanctioned under TEQIP-II Sub-component 1.2. for improving competency & enrollment in PG & Research

  (ii)   Rs. 500 Lakhs grants has been sanctioned under TEQIP-II Sub-component 1.2.1. for establishment of Center of Excellence in Macroelectronics

(iii)   No. of Faculty with Ph.D - 125

(iv)   No. Faculty pursuing Ph.D - 154

(v)   Accreditation Status (NBA)

     a. All UG Programs are accredited. Applied for re-accreditation of 4 programs.

     b. All eligible PG programs are either accredited or in the process of seeking re-accreditation by National Board of Accreditation.

2. CRITERIA - WISE INPUTS
CRITERION I: CURRICULAR ASPECTS
1.1 Curriculum Design and Development
1.1.1 How are the institutional vision / mission reflected in the academic programmes of the College?

The Vision & Mission of RashtreeyaVidyalaya College of Engineering (RVCE) are:

VISION

Leadership in Technical Education, interdisciplinary research & innovation, with a focus on sustainable and inclusive Technologies.

MISSION

- To Deliver Quality Technical Education, with an equal emphasis on experiential learning with the state of the art infrastructure.

- To create an open, conducive and interdisciplinary environment for faculty and students to learn and carryout research, consequently excel in their areas of interest.

- To continuously foster Industry-Institution collaboration for teaching and research, leading to innovation and entrepreneurship.

- To focus on development of Technologies that are sustainable and inclusive, addressing social issues.

- To nurture disciplined, ethical, socially concerned and employable engineers.

Quality Policy

- Committed to achieve excellence in education, research and innovation throughBenchmarking against global Best Practices.

The mission and vision of the departments running various programs are derived from the institution Vision and Mission. The **academic programs** of the departments plan their program curriculum so as to achieve the mission of the institution. The process is indicated in the diagram below.
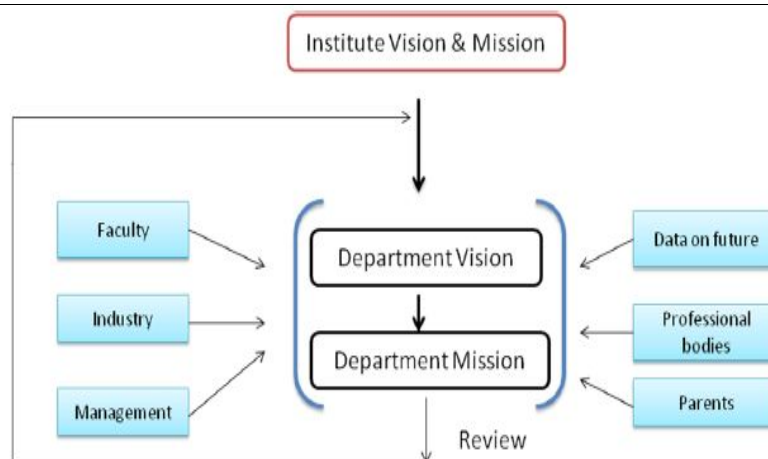
- In line with the vision, the curriculum of every program has been developed not only to meet the program specific objectives but also emphasis is on inclusiveness through interdisciplinary courses and sustainable technologies.
- There are courses on Environment, Engineering Biology, Constitution of India, Entrepreneurship, Sustainable materials etc. Several interdisciplinary electives have been included in the curriculum.
- The students are encouraged to take up projects across disciplines and along with the students of other programs.
- As per the mission several industry based labs have been set up and industry prescribed electives taught to build strong bondage between Institute and Industries. In addition to this, funded projects from various agencies have helped in sustainability as number of instruments and equipments have been procured to enhance research facilities leading to innovation.

1.1.2 Describe the mechanism used in the design and development of the curriculum? Give details on the process. (Need Assessment, Feedback, etc)

- The curriculum is designed as per outcome based education (OBE). Accordingly the mapping of various criteria's are made with curriculum.
- The starting point is the input from faculty, industries, lead societies and road maps.
- Academic Advisory Committee (AAC) identifies faculty members with relevant specialization and assigns the curriculum design to them.
- Faculty members prepare the course curriculum incorporating the latest developments in the respective subject domains.
- AAC lists the courses and prepares semester wise sequence of courses and scheme of study. (Pl see sample Scheme Annexure 1.a)
- Periodically AAC meets & revisits the curriculum. The proposal is placed before the Board of studies (BoS) of the Department, for deliberations and suggestions.
- The assessment of needs are carried out on the basis of the following:
  ✓ Feedback from all the stake holders.
  ✓ Feedback from industry i.e the organizations where the graduates may get employed and from the organization which visit the institution for on-campus placement process are taken.
  ✓ Independent study by faculty covering latest development trends in research, science and technology are also considered.

- ✓ Brain storming among the AAC members and faculty.
- BoS meets and discusses the curriculum developed by the AAC and provides suggestions.
- After incorporating the suggestions of the BoS the curriculum will be discussed & approved by Academic council (AC), before implementation.

The mechanism is detailed in the following chart:
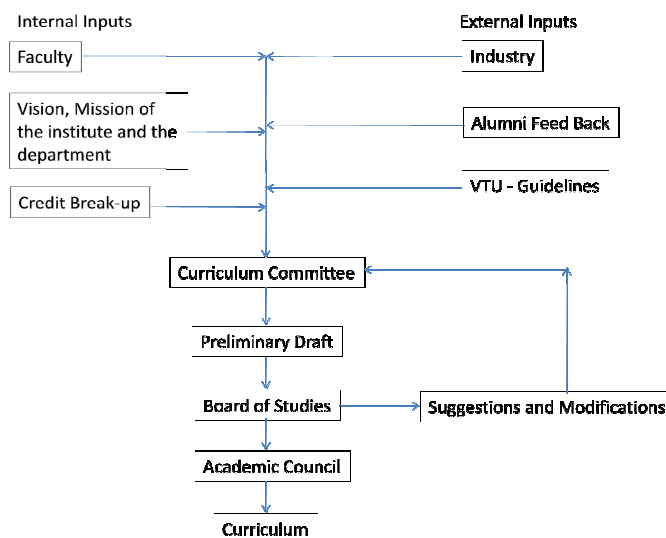
1.1.3 How does the College involve industry, research bodies, and civil society in the curriculum design and development process? How did the College benefit through the involvement of the stakeholders?

- The institution believes that Alumni, industries, companies, academic experts, visiting professors from institutes/ Universities of higher learning are the major stake holders and they are involved in various stages of curriculum design and development process. The Board of Studies and Academic council has representation from industry, research organizations and academia.
- The **Board of Studies** (BoS) consists of two external experts (Cadre of Professors) from the other academic institutions, one industry representative, one distinguished Alumni (from industry or academia), two professors, two Associate Professors and one Assistant Professor (From the parent department).
- The **Chairperson is the Head of the Department**. The respective BoS are empowered to co-opt experts from the industry, employers, professional bodies and experts from academics in addition to permanent members.
- The *Academic council* (AC) comprises of one representative from VTU, two Professors from institutions of repute like IISc/ IIT, one expert from industry, all the chairpersons of BoS, Dean Academics, two Professors, two Associate professors and two Assistant Professors. *Principal is the Chairman* of the AC.
- The presence of stake holders brings in innovative ideas and helps in framing the curriculum that would satisfy the PEOs, POs and Graduate attributes.
- Most of the departments have MoU's with industries to promote latest topics of interest and also provide opportunities that are mutually beneficial.

- ***Twenty five*** labs have already been established by the industries and they are helping to offer electives and laboratory courses.
  (Please see Annexure 1.b for details)
- Feedbacks from companies coming for campus placement and alumni are taken into account in order to refine the curriculum from time to time.

These interactions have helped in higher student placement, better acceptability of graduates, funded projects, live projects and internship opportunities.

In the case of post graduate programs the curriculum is developed by the BoS whose members are nominated by Visvesvaraya Technological University. The BoS has senior Professors from various colleges and they frame the curriculum. The curriculum is put on website for comments from faculty and then final curriculum is proposed to the academic senate of VTU for approval.

1.1.4 How are the following aspects ensured through curriculum design and development?	
Employability	1. During the design and development of curriculum, industry requirements, technological developments and regional as well as National road maps are the guiding factors. Accordingly, the programs are designed with requisite number of *foundation courses, advanced courses, industry-based electives and laboratories* to facilitate enhancement of competence of the students in all the relevant domains and render them employable. 2. The foundation courses are designed as per the requirement of industries; e.g. programming skills, communication skills and strong fundamentals in domain area are a part of the curriculum. The presence of employing organization representatives in BoS, helps in achieving employability benchmark. 3. Students are allowed to specialize in various domains / streams through *elective groups* in the curriculum, meeting the specific requirements of the industry. 4. Inputs are also derived from lead professional societies of respective programs. 5. PG students are provided internship opportunities in industries, which is also a path to get better employment opportunities.
Innovation	• Credit based, Self study components in the curriculum encourages the students to practice multi skill activities leading to innovations. • Rewarding best innovative student project every year brings in a competitive spirit among the students. • Short term mini project is another means of fostering innovation. • Students are encouraged to work in interdisciplinary teams for their final year main project, to bring in product development focus. • Industrial training and visits are encouraged as a part of the curriculum to give practical exposure. • Students are also encouraged and financed to work for innovative projects involving design, fabrication and participating in competitions in India and abroad. (Please see Annexure 1.c for details)

Research	• All departments are recognized research centers under Visvesvaraya Technological University, Karnataka. This helps the students select their project through interaction with faculty and research scholars. • Students are exposed to ongoing funded projects and given opportunity to contribute to the successful completion of the same. • Opportunities are created for internships and student projects in the industries. • UG students are encouraged to publish and present papers in conferences and Seminars. • PG Students have to compulsorily present and publish papers in conferences and journals. • UG & PG students are encouraged and financially supported under TEQIP and CoE. • The students are also supported by Karnataka State Council for Science and Technology (KSCST), GoK. • Students are financially supported for innovative projects like Ashwa, Vyoma etc. (Please see Annexure 1.d for details)

1.1.5 How does College ensure that the curriculum developed address the needs of the society and have relevance to the regional / national developmental needs?

- As articulated above the program curriculum is designed with the help of inputs from industries, lead societies, National as well as Global road maps and as per Graduate attributes defined by NBA. **This ensures that there is a component of relevance, recent trends, future developments in most of the advanced courses.**
- Courses of Social relevance like Environmental Studies, biology for engineers, Constitution of India & Professional Ethics , which are mandatory for all the students. The objective is to ensure that the students are aware of various societal problems.
- The syllabus is designed in such a way that it addresses the national needs such as renewable energy, conservation, corrosion avoidance and drinking water crisis.
- The institution ensures that the students take part in various activities that help the societal needs through.
- Various projects that are taken up by students in environment,
- Regional and National interest are taken care of in projects and students are encouraged to take up projects in emerging areas, renewable energy, designing & prototyping gadgets for differently-abled, agriculture, security etc. demonstrate that the students are taking up societal issues seriously.

(Please see Annexure 1.e for some sample projects)

1.1.6 To what extent does the College use the guidelines of the regulatory bodies for developing or restructuring the curricula? Has the College been instrumental in leading any curricular reform which has created a national impact?

- The UG curriculum is designed as per OBE and includes General Engineering subjects, Basic Science, Humanity and Social Sciences, Core Professional Engineering, Professional Electives and Other Electives.

- The percentage distribution / coverage of courses is as per the guidelines given by VTU/
  UGC/ AICTE and Ministry of HRD, New Delhi.
- The percentage of Credits for Humanities and Social Skills, Basic Sciences, Engineering Sciences, Program specific core courses and various electives are followed as per the guidelines prescribed by the regulatory authorities.
  (Pl See Annexure 1.a and sample scheme of study)
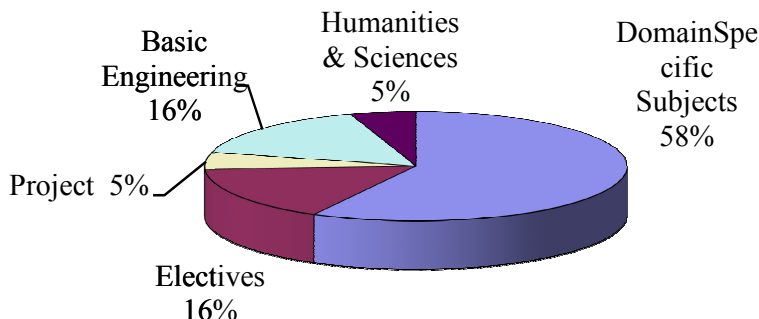
- The Program Specific criterion (PSC) specified by respective professional bodies are the bottom line of curriculum development.
- R.V.College of Engineering volunteered to lead the OBE movement in engineering education and is also a Nodal center for NBA training programs.
- Providing opportunity for UG and PG students to work in Centers of Excellence in Large Area & Flexible Electronics,Multifunctional Materials, Clean and Hybrid Power, Green Infrastructure and Management and Intelligent Transport Systems has helped in creating an National impact resulting in appreciation from various quarters.
- The institutions academic changes have been noticed by several organizations which has led RVCE being recognized through awards:
  - ✓ RVCE awarded **"Best Innovative Spirit Award"** for introducing industry based courses and Industry Institution interaction at CII Innovation Conference in March12
  - ✓ **"Best Engineering College in Higher Education and Research"** award by VIT University in 2013, VTU CANUES, NRDF Award March/ April 2013
  - ✓ "BharthiVidyaBhawan Award" during 2013, as the best performing Engineering college by ISTE,

1.2 Academic Flexibility

1.2.1 Give details on the following provisions with reference to academic flexibility

UG Programs

Core Courses:
- The undergraduate programs are autonomous and the curriculum is framed by the BoS of the Department and approved by the institution AC.
- The criterion for award of degree is earning, of 200 credits, in eight regular semesters or four years. *A student can accelerate credit earning and complete*

the program in three and a half years.

- A student can drop or withdraw courses in each semester, but needs to audit minimum of 20 credits per semester.
- The grading system is a ten point grading system with X, I and W transitional grades awarded.
  - ❖ 'X' grade is awarded to such students who have secured a 'F' Grade with more than 75% in CIE, these students can appear for makeup, 'I' grade is awarded to such students who have not been able to take SEE due to illness or serious accident which disables him/her, if student has represented the university/ nation in any extra-curricular event(s), such students can also take makeup examination provided they have satisfied CIE requirements.
  - ❖ 'W' grade is awarded to such students who withdraw from a course before end of semester. Such students can take up this course either in summer semester (Fast Track) or later in respective semester. Withdrawal is not considered as an attempt.
- Such of the students who are not in a position to satisfy the minimum requirement in the semester shall improve by opting for immediate Fast Track semester under the guidance of Academic Advisory Board of the institution.
- In PG programs, similar flexibility could be introduced when the programmes becomes autonomous.

Elective options(Pl see Annexure for Scheme)

- **Core Program Electives**: All departments run six groups of electives starting from fifth semester. These electives are prescribed from various domain areas and students are advised to choose at least two domains of specialization. These electives include industry based courses with or without hands-on training. The percentage of electives are: 16% in the fifth semester, 33.3% in the sixth semester and 50% in the seventh semester. In each group of electives there is a choice of four or more electives out of which a student can choose one elective.
- **Global Electives:** There are more than thirty interdisciplinary electives that can be opted by students in various semesters irrespective of the program of study. These electives include industry-based elective courses.
- Though the provision is to allot an elective only if minimum of 15 students opt for an elective course, the departments do facilitate electives for 10 students also.

Enrichment courses :

- The institution conducts PDP workshops, Soft skills training, Technical training for overall development of students, employability enhancement and communication skills.
- Technical talks are arranged for curriculum enrichment.
- Live Virtual classes, virtual labs and tutorials are facilitated under QEEE.
- Massive online open courses (MOOCs) and NPTEL are also used by students.
- Industry visits help students to visualize industry scenario.

Courses offered in modular form:

- Most of the Departments conduct Proficiency programs, semester long training in specific field and workshops.

Credit transfer and accumulation facility:

- Students who come from other Universities and non-autonomous/ autonomous colleges or from old schemes have the privilege of credit transfer. If required,

they need to earn additional credits.
- Equivalence Committee in every department decides about the additional courses and course exemption in case of lateral entry students through college / university transfer.
- Credits are accumulated from semester to semester and the final result is declared on the basis of CGPA. The total credits to be earned are 200 for completion of degree.

Lateral and vertical mobility within and across programmes and courses:
- Lateral mobility between programs is facilitated through 'Branch transfer' process which is purely on merit and depends on the vacancy of seat in a particular program.
- A student has to earn Cumulative grade point Average (CGPA) of not less than five and not more than 4 'F' grades (Failure grades) of previous semesters for vertical progression.
- There will be no supplementary examination for any course in the *credit system.*
- To take care of students who would have failed to meet the minimum passing standards prescribed, it is necessary for the failed students to re-register for the course. This re-registration will be allowed only during *fast track (Summer) semester.* However, a student who is detained/ has lost one year due to ineligibility, can also register for failed courses during respective semesters.
- Students who are not in a position to satisfy the minimum requirement in the semester shall normally improve their grades by opting for immediate *Fast Track semester* under the guidance of Academic Advisory Board of the institution.
- A student needs to earn 200 credits within eight years of his/her getting admitted to the program or else he/she will have to discontinue the program.

Post Graduate Programs

Core Courses:
- Though the curriculum is defined by the VTU, the faculty give self learning tasks on latest developments in the specific courses and the learning's are disseminated through seminar and group discussions.

Elective options :
- Electives are offered from first semester to third semester. Generally there are three to four electives in each group.
- Every semester has 40% electives. There are two groups of electives in each of the first three semesters and a student can choose one from each group.
- Though the provision is to allot an elective only if 8 students in PG opt for an elective course the departments do facilitate for 5 students also in PG programs.

Enrichment courses:
- The institution conducts PDP workshops, Soft skills training, Technical training for overall development of students, employability enhancement and communication skills.
- Technical talks are arranged for curriculum enrichment.
- The students are required to attend workshops and seminars to expose themselves to latest developments and interact with researchers.
- Students are encouraged to take-up Internship & Industrial Training, even though there are no credits.

- Internships is also given through CoE in new research areas.
- Employability enhancement courses are run as per the request of students.

Courses offered in modular form:
- In order to improve the soft skills the PG students are given training by external agencies in modular form.
- To enhance employability, the students are asked to do the training need analysis and on the basis of this analysis, training in specific courses are given in modular form in-house or through external agencies.

Credit transfer and accumulation facility:
- There is no credit transfer as per VTU norms however, in case of college transfer and integrated PhD programs the credits/marks are transferable..
- Lateral and vertical mobility within and across programmes and courses: Since Post Graduation are specialized programs and no lateral mobility is permitted as per VTU guidelines.
- For Vertical mobility a student can carry not more than two courses.

1.2.2 Have any courses been developed specially targeting international students? If so, how successful have they been? If 'no', explain the impediments.

Not applicable, the institution does not have any Foreign student quota.

1.2.3 Does the College offer dual degree and twinning programmes? If yes, give details.

No

1.2.4 Does the College offer self-financing programmes? If yes, list them and indicate if policies regarding admission, fee structure, teacher qualification and salary are at par with the aided programmes?

- The institution is a Self-financing institution and the fee is the major source of income. All regular BE and M.Tech. programs are self financing programs, in addition Proficiency courses are also conducted.
- The admission is through CET conducted by Karnataka Examination Authority (KEA) and COMED-K conducted by CUPEKA.
- The students admitted under CET pay tuition fees as prescribed by Govt. of Karnataka from year to year (Pl see the table in annexure 1.f).
- The COMED-K and management quota students also pay tuition fee as prescribed by the Govt. of Karnataka from year to year (Pl see the table in annexure 1.f).
- The faculty qualification is as prescribed by UGC/AICTE for various cadres.
- The salaries are on par with the AICTE VI pay scale of pay.
- All employees get PF, Gratuity and leave benefits as per government norms.

1.2.5 Has the College adopted the Choice Based Credit System (CBCS)? If yes, how many programmes are covered under the system?

- All programs have provision for choice based credit systems through electives, interdisciplinary electives and Global electives as far as UG are concerned.
- All UG programs have choice of credits under Electives, but the total credits to be earned are 200 to get the degree and 150 credits for lateral entry students (Diploma students).
- The total number of credits which were choice based was 28 during 2007; 30 during 2010 and 31 during 2012 revision.

1.2.6 What percentage of programmes offered by the College follows:
Annual System: No program
Semester system: 100% programs
Trimester system: No program
Summer Semester: UG Programs only
1.2.7 What is the policy of the College to promote inter-disciplinary programmes? Name the programmes and what is the outcome?
- The institutions vision is to encourage interdisciplinary courses and programs. Instrumentation Technology for example is a interdisciplinary program in B.E., which consists of courses from Electrical, Electronics, Mechanical, Communication, Biology etc.   - Inter-disciplinary program in M.Tech.: Information Technology & Master of Engineering Management, Bioinformatics.   - Master of Computer application is also a purely interdisciplinary program from the input point of view as any graduate with mathematics as one of the subjects in graduation can join.   - In UG programs, interdisciplinary courses in terms of core and Global elective courses have been introduced.   - Interdisciplinary courses & programs allow the students to think innovatively and execute projects more confidently. They are also choosing projects which are more application oriented.   (Pl see Annexure 1.a for details)
1.3 Curriculum Enrichment
1.3.1 How often is the curriculum of the College reviewed for making it socially relevant and/or job oriented / knowledge intensive and meeting the emerging needs of students and other stakeholders?
- The curriculum is reviewed once in every three years for UG based on OBE framework. Generally every year minimum of three to four BoS meetings are conducted in every department and the recommendations are again deliberated in the joint BoS and academic council.   - During revision, feedback from all stakeholders is considered for quality improvement and for inclusion of latest technology & science contents.   - The BoS of UG programs deliberate the pros and cons of existing syllabus, the outcomes, and comments about the various courses by alumni, employers and students are considered and accordingly courses are redefined, deleted or modified to make them more relevant for employability and professional career.   - The curriculum of MCA is reviewed after three years and M.Tech is reviewed once in two years by the VTU in which the faculty of RVCE participate in the various BoS of the University.   - Electives are modified to suit the demand of the hour. Laboratories and Assignments have been introduced in the last four years which were not there earlier. This has made the PG students to learn the courses more effectively.

1.3.2 How many new programmes at have been introduced in UG and PG level during the last four years? Mention details.

UG Program	Nil	
PG Program	**Year**	**Intake**
Biotechnology	2011	18
Bioinformatics	2012	18
Chemical Engineering	2011	18

Engineering Management	2012	18
RF & Microwave Engg.	2013	18

Programmes in emerging areas: Very few universities are running the following programs and lot of emphasis there on these specialization at the National level.
 (i)   M.Tech. (Bioinformatics)
 (ii)   M.Tech.(RF & Microwave Engg.)

1.3.3 What are the strategies adopted for revision of the existing programmes? What percentage of courses underwent a major syllabus revision?

Strategies:

- Feedback from all stake holders is taken about the existing curriculum, the AAC analyses the same and puts forth in the faculty meeting. After brain storming the proposal for revision is put forth the department's BoS and joint BoS, for consideration. After modification it is put forth the Academic Council. The process flow chart is shown below.
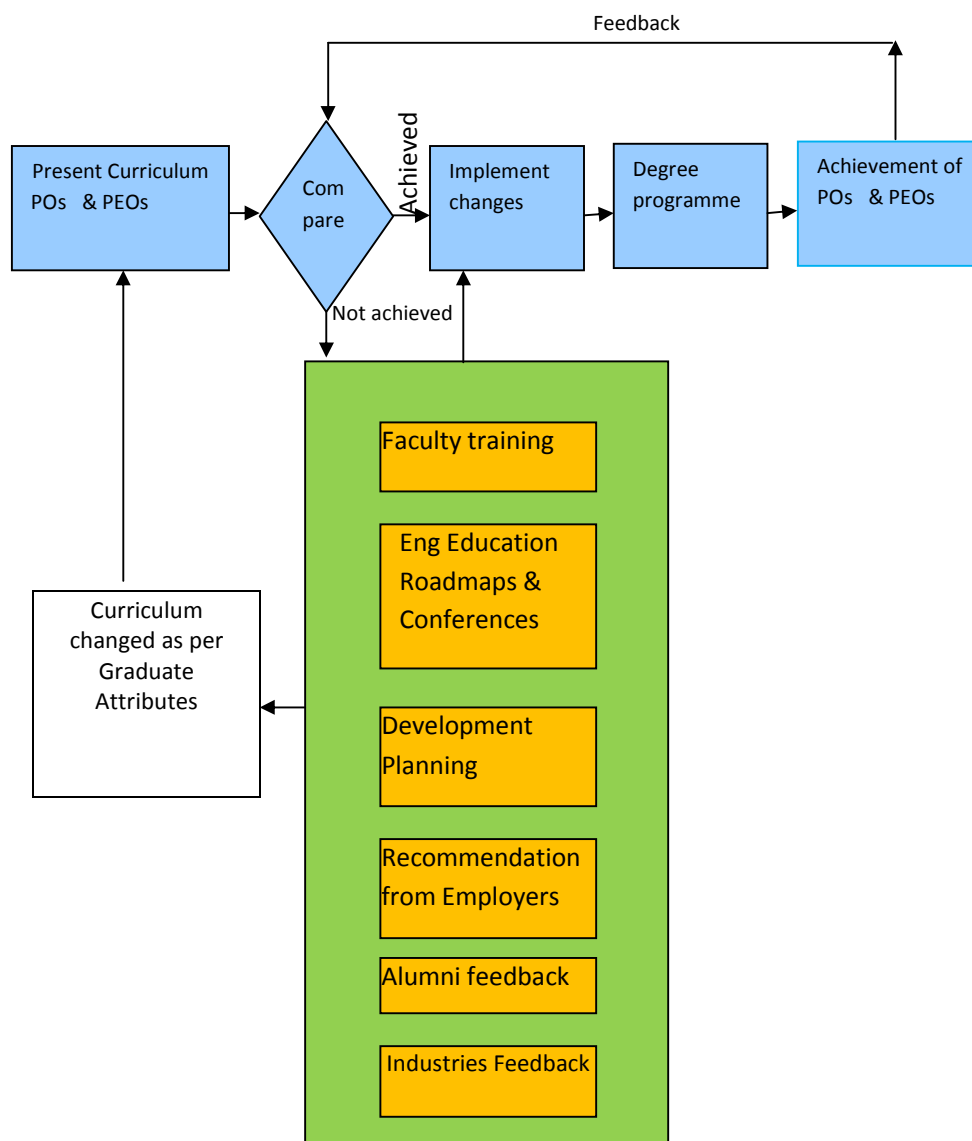
Percentage Change in last two revisions are tabulated below for each of the UG programs:				
Department: Biotechnology				
REVISION: 2010				
S l N o	Name of the course	Se m	Percenta ge of revision	Remarks
1.	Biochemistry & Molecular Biology	III	20%	Combining the two subjects as recommended by BoS members.
2.	Concepts in Biology and Microbiology	III	20%	Concepts in biology and microbiology subjects have been combined to incorporate Environmental Science and Biology for Engineers
3.	Biophysics and Instrumentation Technologies	IV	20%	Combining the Biophysics and Instrumentation Technologies to one subject as suggested by BoS
4.	Genetic Engineering &Immuno Technologies	V	10%	Combining the two subjects as suggested by BoS to incorporate elective subject
5.	Thermodynamics	III	15%	Advanced topics included and named as Biochemical thermodynamics in 10 scheme and in 12 scheme
6.	Process principles & Calculation	III	10%	Common subject for both Biotechnology and Chemical engineering as suggested by BoS of Biotechnology and Chemical engg.
7.	Bioprocess Control and automation	VI	6%	Common subject for both Biotechnology and Chemical engineering as suggested by BoS of Biotechnology and Chemical engg.
8.	Biostatistics	IV	10%	Research relevance and analytical problems were added
9.	Genomics and Proteomics	VI	30%	In 10 scheme this subject is one of the elective subject. In 12 scheme it was made to core subject as suggested by BoS
10.	Plant and animal biotechnology	VII	20%	Two subjects combined
11.	Microarray technology	VII	20%	Unit 1 and 3 were combined and NGS topics added
12.	Alternative energy resources	VII	20%	Quantification of substrates to converted to energy – this topic

				is added.
13.	Bioprocess equipment design and drawing	VII	15%	Change of subject title from economics and plant design, which forms a topic of the bioprocess equipment design and drawing
14.	System biology	VII	20%	Graph theory and networks added
15.	Bio-business	VII	15%	Inclusion of economic and marketing with cluster approach
16.	Biomedical instrumentation	VII	20%	Advanced topics were included in Unit III
17.	Environmental Technology		80%	Biology was part of the course and is common for all branches
18.	Bioprocess engineering	VII		New subject included in VII Sem Electives
Department: Chemical Engg				
2010 Revision				
1.	Technical Chemistry	III	20%	As per the recommendation of BoS
2.	Materials Engineering	III	15%	As per the recommendation of BoS
3.	Renewable Energy Technology	III	100%	Introduced as per the recommendation of BoS
4.	Mass Transfer II	V	10%	Shifted from VI to V sem, as per the recommendation of BoS.
5.	Chemical Equipment Design and Drawing	V	0%	Shifted from VII sem to V sem as per the feedback of faculty.
6.	Chemical Process Integration	VII	25%	As per the feedback from industries this course has been introduced as core.
7.	Process Simulation Modeling and FEM	VII	25%	As per the suggestion of BoS.
Elective A				
1.	Nano Technology	V	_	Introduced in place of Energy Engineering.
	Elective B			
2.	Global Elective	V	_	Introduced as per the recommendation of joint BoS and AC.
Elective C				
3.	Applied Mathematics in Chemical Engineering	VI	0%	Shifted from VII to on the recommendation of BoS.
4.	Chemical Process Engineering economics	VI	_	Introduced on feedback from industries.
Elective D				
5.	Food Technology	VI	_	Introduced on feedback from industries & recommendation of BoS
6.	Desalination & industrial	VI	_	

	water Treatment			
Elective E				
7.	Global Elective	VI	100%	Introduced on the recommendation of joint BoS& AC.
Elective F				
8.	Green Technology	VII	_	Introduced on the recommendation of BoS& AC.
9.	Industrial Safety and risk management	VII	_	New course introduced as per recommendation of BoS.
Elective G				
10	Gas processing	VII	--	New electives introduced as per the recommendation of BoS.
11	Fuel cell Technology	VII	--	
12	Nano Fabrication	VII	--	
Elective H				
13	Global	VII		
Revision 2012				
1.	Engineering Materials	III	70%	Course is made common to Chemical, IEM and Mechanical programs.
2.	Particulate technology	III	0%	Shifted from IV to III
3.	Thermodynamics	III	10%	Course is made common to Chemical & Biotechnology programs.
4.	Environmental Science & Biology for Engineers	IV	50%	As per the recommendation of joint BoS& AC, is common for all branches
5.	Reaction Engineering	IV	0%	Shifted from V sem, as per suggestion of BoS
6.	Bio Chemical Engineering	V	_	Made core as per the recommendation of BoS
7.	Management & Organizational behavior	VI	_	Course Introduced
8.	Transport Phenomena	VI	_	Shifted from VII sem as per the recommendation of BoS
9.	Chemical Process integration	VI	_	
	Elective E			
10	Emerging Technologies			
	Department: Civil Engineering			
	Revision: 2010			
1.	Construction Engineering	III	30%	In place of Building materials & construction, lab was introduced as per the suggestion of faculty &BoS
2.	Engineering Geology	III	80% (removed)	Removed from III sem and some of the concepts introduced in GeoTechnical Engineering as per the suggestion of BoS.

3.	Fluid Mechanics laboratory	III		Shifted to IV sem along with Applied Fluid Mechanics.
4.	Environmental Technology	III	100%	Introduced as per the recommendation of joint BoS& AC.
5.	Constitution of India & Professional Ethics	IV	100%	Introduced as per the recommendation of joint BoS& AC.
6.	Numerical Methods in civil Engineering	IV	100%	Introduced as per the recommendation of BoS.
7.	Civil Engineering Graphics	IV	20%	Introduced manual drawing as per feedback of industries.
8.	Water supply Engineering	V		
9.	Geo Technical Engineering	V	20%	Shifted from VI sem. & introduced concepts of Engineering Geology
10.	Waste water Engineering	VI	100%	Introduced as per the suggestion of BoS.
11.	Irrigation Engineering & Hydraulic structures	VI	10%	Shifted from V to VI sem.
12.	Design & Drawing of steel structures	VI	15%	Shifted from VII to VI on the recommendation of BoS.
13.	Estimation, costing and specification	VII	10%	Shifted from VI to VII sem.
14.	Transportation engineering II	VII	20%	Shifted from V to VII sem.
15.	Technical tour	VII	100%	Introduced as per the suggestion of BoS.
16.	Design and drawing of RCC structures	VII	100%	Shifted to elective-B
	Elective A			
1.	Advanced surveying	V	100%	Removed from V sem and introduced in Surveying II as core subject as per the suggestion of BoS.
2.	Numerical methods in civil engineering	V	100%	Removed from V sem and introduced in IV sem as core
	Elective B			
1.	Global Elective introduced	V	100%	As per the recommendation of joint BoS& AC
	Elective C			
1.	Reinforced soil structures	VI	100%	Removed and few concepts introduced in foundation engineering
2.	Theory of elasticity	VI	100%	Shifted from VII to VI sem.

	Elective D			
1.	Fundamentals of bridge engineering	VI	100%	Introduced as an elective
	Elective E			
1.	Global Elective introduced	V	100%	As per the recommendation of joint BoS& AC
	Elective F			
1.	Valuation engineering	VII	100%	Introduced as per the faculty feedback & suggestions from BoS
	Elective G			
1.	Soil dynamics and machine foundations	VII	50%	Basic concepts of soil dynamics introduced as per the faculty feedback
	Revision: 2012			
1	Environmental science and biology for engineers	III	100%	Introduced as per the suggestion of Joint BoS and AC.
2	Engineering materials	III	100%	Introduced as per the suggestion of Joint BoS and AC.
3	Mechanics of materials	III	30%	Materials testing laboratory shifted from Construction engineering
4	Constitution of India & Professional ethics	IV	70%	Removed and included in V and VI sem as per the suggestion of Joint BoS and AC.
5	Environmental engineering	IV	100%	Introduced As per the recommendation of joint BoS& AC
6	Fluid mechanics	IV	100%	Laboratory shifted to III sem
7	Highway Engineering	V	100%	Shifted from VII Sem as per the recommendation of BoS
8	Emerging technologies	VI	100%	Introduced As per the recommendation of joint BoS& AC
4	Engineering Hydrology	VI	100%	Shifted from IV sem to VI sem
Elective A				
1	Numerical methods in civil engineering	V	100%	Introduced as elective as per the recommendation of BoS
2	Solid waste management	V	100%	Introduced as elective as per the recommendation of BoS
Elective B				
1	Environmental impact assessment	V	100%	Introduced as elective as per the recommendation of BoS
2	Restoration and rehabilitation of structures	V	100%	Introduced as elective as per the recommendation of BoS

Elective C				
1	Structural masonry	VI	100%	Introduced as elective as per the recommendation of BoS
2	Intelligent transport and control	VI	100%	Introduced as elective as per the recommendation of BoS
Elective D				
1.	Green building and services	VI	100%	Introduced as elective as per the recommendation of BoS
Department: Computer Science &Engineering				
Revision: 2010				
1.	Environmental Technology	III	100%	Introduced as per the suggestion of joint BoS& AC
2.	Constitution of India & professional ethics	IV	100%	Introduced as per the suggestion of joint BoS& AC
3.	Theory of Computation	IV	20%	Introduced in place of Finite automata &FL as per the recommendation of BoS.
4.	Operating Systems	IV	100%	Introduced as per the feedback & recommendation of BoS.
5.	Oops with C++	IV	15%	Reframing of lab question
6.	Micro controller and micro processer lab	V	50%	Micro controller was introduced as per the feedback and suggestion of BoS..
7.	Principles of Management	V	100%	Introduced as per the suggestion of joint BoS& AC
8.	Computer Network-I	V	15%	Changed in place of Data Communication & Networking
9.	Software Engineering	V	0%	Shifted from IV to V sem as per the suggestion of Bos.
10.	DBMS	VI	20%	Self mini project introduced
11.	Compiler design	VI	20%	As suggested by BoS
12.	Computer Architecture & Parallel Programming (Theory & Practice)	VII	40%	Lab introduced as per the suggestion of BoS
13.	Cyber Security & cyber laws	VII	100%	New, as per suggestion of BoS
Elective A				
1.	Unix system Programming	V	0%	Introduced as elective instead of core as per the suggestion of BoS.
2.	Game Theory	V	100%	New, as per suggestion of BoS
3.	Advanced Algorithms	V	100%	New, as per suggestion of BoS
4.	Distributed OS	V	100%	New, as per suggestion of BoS
5.	Signals and systems	V	100%	New, as per suggestion of BoS

Elective B				
1.	Global		100%	As per recommendation of joint BoS and AC.
Elective C				
1.	Java & J2E	VI	100%	New, as per suggestion of BoS
2.	Network Programming	VI	100%	New, as per suggestion of BoS
3.	System simulation & Modeling	VI	100%	New, as per suggestion of BoS
4.	Decision support system	VI	100%	New, as per suggestion of BoS
5.	Storage Area Networks	VI	100%	New, as per suggestion of BoS
6.	Real Time OS	VI	100%	New, as per suggestion of BoS
Elective D				
7.	Service oriented Architecture	VI	100%	New, as per suggestion of BoS
8.	Linux Internals	VI	100%	New, as per suggestion of BoS
9.	Client Server Computing	VI	100%	New, as per suggestion of BoS
10.	Fuzzy Logic	VI	100%	New, as per suggestion of BoS
11.	Software Architecture	VI	100%	New, as per suggestion of BoS
12.	Grid Computing	VI	100%	New, as per suggestion of BoS
13.	Embedded System	VI	100%	New, as per suggestion of BoS
Elective E				
14.	Global	VI	100%	New, as per suggestion of BoS& AC
Elective F				
15.	Pattern Recognition	VII	100%	New, as per suggestion of BoS
16.	Software Testing	VII	100%	New, as per suggestion of BoS
17.	Web Programing	VII	100%	New, as per suggestion of BoS
18.	Multicore programming with open CL	VII	100%	New, as per suggestion of BoS
19.	Network Management	VII	100%	New, as per suggestion of BoS
Elective G				
20.	Data Mining and Ware Housing	VII	100%	New, as per suggestion of BoS
21.	Natural Language Processing	VII	100%	New, as per suggestion of BoS
22.	Performance evaluation of Systems	VII	100%	New, as per suggestion of BoS
23.	Fuzzy Graphs & Applications	VII	100%	New, as per suggestion of BoS
24.	Android mobile computing applications	VII	100%	New, as per suggestion of BoS
Revision : 2012				
1.	Data Structure	III	5%	Lab Programs Revised
2.	Digital Logic Design.	III	20%	Common
3.	Engineering Materials	III	100%	As per recommendation of joint

				BoS and AC.
4.	Environmental Science and Biology for Engineers	IV	100%	As per recommendation of joint BoS and AC.
5.	Operating System	IV	50%	Lab component introduced as per the suggestion of BoS.
6.	Intellectual Property Rights & Entrepreneurship	V	100%	As per recommendation of joint BoS and AC.
7.	Management & Organizational Behavior	VI	100%	As per recommendation of joint BoS and AC.
8.	Emerging & Organizational Behavior	VI	100%	As per recommendation of joint BoS and AC.
Elective-A				
1.	System Simulation & Modeling	V	100%	New, as per suggestion of BoS
2.	Introduction to Machine Learning	V	100%	New, as per suggestion of BoS
3.	Artificial Intelligence	V	100%	New, as per suggestion of BoS
4.	Graph Theory & applications	V	100%	New, as per suggestion of BoS
Elective-B				
1.	Introduction to Mainframes	V	100%	New, as per suggestion of BoS
2.	Middleware Technologies	V	100%	New, as per suggestion of BoS
3.	Advanced Algorithms	V	100%	New, as per suggestion of BoS
4.	Fundamentals of Computer Vision	V	100%	New, as per suggestion of BoS
Elective-C				
1.	Embedded Systems	VI	100%	New, as per suggestion of BoS
2.	Artificial Neural Networks	VI	100%	New, as per suggestion of BoS
3.	Game Theory	VI	100%	New, as per suggestion of BoS
Elective-D				
1.	Mobile Computing Development	VI	100%	New, as per suggestion of BoS
2.	Software Architecture & Testing	VI	100%	New, as per suggestion of BoS
3.	Genetic Algorithms	VI	100%	New, as per suggestion of BoS
Department: Electrical & Electronics				
Revision 2010				
1.	Network Analysis	III	10%	Initial conditions included as per the faculty feedback & suggestions from BoS
2.	Signals & Systems	III	20%	Discrete signals introduced reducing analysis on continuous

				signals, as per the suggestion of BoS.
3.	Constitution of India & Professional ethics	IV	_	Introduced as per the suggestion of Joint BoS and AC.
4.	Microcontrollers	V	0%	Shifted from VI sem as per the feedback from alumni and suggestion of BoS
5.	Principles of Management	V	_	Portions in entrepreneurship deleted and principles of management strengthened.
6.	Switch gear and protection	VI	_	Shifted from VII semester in view of introduction of High voltage engineering as core in VII sem
7.	IPR & Entrepreneurship	VII	100%	Introduced newly
Elective A				
1.	Advanced Power Electronics	V	_	Shifted from VII to IV to help students do mini projects, as per suggestion of BoS
2.	OOPs & C++	V	_	Made elective as per the suggestion of BoS
Elective B				
3.	Global Elective introduced	V	100%	As per the recommendation of joint BoS& AC
Elective C				
4.	Communication System	V	30%	Introduced as elective in place of Digital communication which was core as per the suggestion of BoS.
5.	VLSI circuits & Design	V	100%	Introduced as a new elective on the basis of recommendations of industry members in BoS
Elective D				
6.	Data Structures with C++	VI	100%	To train students on Basics of software development
7.	Reactive Power management	VI	_	Shifted from VII sem to VI sem as per BoS recommendations
Elective E				
8.	Global Elective introduced	VI	100%	As per the recommendation of joint BoS& AC
Elective F				
9.	Electromagnetic Compatibility	VII	_	Shifted from VIII sem to VII sem as per BoS recommendations
10.	Power System operation and control	VII	_	Shifted from VIII sem to VII sem as per BoS recommendations

Elective G				
11.	Embedded System	VII	_	Shifted from VIII sem to VII sem as per BoS recommendations
12.	Energy Auditing and Management	VII	_	Shifted from VIII sem to VII sem as per BoS recommendations
Elective H				
11.	Global Elective introduced	VII	100%	As per the recommendation of joint BoS& AC
Revision 2012				
1.	Analog Electronics systems	III	30%	Common with IT & TE
2.	Signals and systems	III	30%	Common with EC & TE. Shifted from IV to III Sem
3.	Microprocessor & Microcontroller	IV	60%	Introduced 8086 microprocessor and advanced Processors Common with E&C, TE. Earlier Microcontroller was in V sem
5.	Fields & Waves	IV	20%	Common with EC & TE
6.	Electrical Machines 1	IV	5%	Introduced 'Special Machines'
7.	Mathematics IV	IV	_	Deleted and the contents moved to Mathematics III
8.	Control Systems	IV	15%	Shifted from V to IV Sem. Controller design added. Common with IT
9.	Measurements and Instrumentation	IV	_	Shifted from III to IV sem as per BoS recommendation
10.	Management and Organisational Behavior	V	50%	Organisational Behavior added along with Principles of Management
11.	Digital Signal Processing	V	10%	Shifted from VI to V sem
12.	Electrical Machines-II	V	20%	Introduced new unit on 'Special Machines'
13.	Power System Analysis-I	VI	20%	New unit added on switchgear and protection
14.	Power Electronics Theory and Practice	VI	5%	Shifted from IV to VI sem
15.	Communication Systems	V	40%	Introduced Cell Phone Technology and Wireless Technology instead of a chapter on communication networks

	Elective A			
1.	Digital Image Processing	V	_	Shifted from VI to V sem. Changed title from Image and video processing to Digital Image Processing
2.	Embedded System Design using ARM	V	30%	Earlier Embedded design. Shifted from VII to V
Elective B				
3.	Fuzzy logic Control	VI	5%	Shifted from VI to V Sem
Elective C				
4.	Algorithms and Data structures	VI	100%	New Elective introduced
5.	Discrete control system	VI		Shifted from VII to VI Sem
6.	Wave let Transform	VI	100%	New Elective introduced
Elective D				
7.	Network Synthesis	VI	100%	New Elective introduced
8.	Computer Organization	VI	100%	New Elective introduced
9.	PLC and Automation	VI	100%	New Elective introduced
Revision: 2012				
1	Engineering Materials	IV	100%	Introduced newly in IV Sem
2.	IPR & Entrepreneurship	VI	100%	Introduced newly
Department: Electronics & Communication				
Revision:2010				
1.	Elements of Electronics Engineering	I/II	10%	As per the feedback of students &BoS
2.	Analysis and Design of Digital Circuits (Theory & Practice)	III	25%	Nomenclature and Changes made as per the suggestion of Industries &BoS
3.	Object Oriented Programming in C++ (Theory & Practice)	III	50%	As per the changes Suggested by Students and stakeholders
4.	Signals and Systems	III	15%	Discrete signals modified as suggested by faculty member & BOS
5.	Analysis of Networks and Control Theory	III	50%	Control theory merged as per suggestion of BoS
6.	Analog Microelectronic Circuits(Theory & Practice)	IV	40%	Changes suggested by Industry &BoS
7.	Fields and Waves	IV	15%	Change suggested by industry &BoS
8.	Analog Communication	IV	25%	Change suggested by industry, students and BoS
9.	Embedded Systems & Microcontrollers (Theory & Practice)	V	30%	Change suggested by industry

10.	Information Theory & Coding	V	60%	Change suggested by industry
11.	Digital Communication (Theory & Practice)	VI	30%	Change suggested by industry ,faculty members and BoS
12.	Computer Communication Networks (Theory & Practice)	VI	10%	Change suggested by industry
13.	Very Large Scale Integration (VLSI) Design (Theory & Practice)	VI	20%	Change suggested by industry and BoS
14.	Analog and Mixed Mode VLSI Design	VII	40%	Change suggested by industry
15.	Wireless Cellular Communication (Theory & Practice)	VII	100%	New course suggested by industry, BoS
16.	Microwave Systems	VII	50%	Change suggested by industry, BoS
17.	Testing & Testability for Digital Ics	VII	100%	New course suggested by industry, BoS
Elective A				
1.	Real Time Operating Systems	V	60%	Change suggested by industry and parents
2.	Telecommunication Switching & Systems	V	20%	Change suggested by industry
3.	Analog System Design	V	100%	Change suggested by industry and students
Elective B				
1.	Global Elective	V	100%	Recommended by joint BoS& AC.
2.	**Elective C**			
3.	Antenna & Wave Propagation	VI	25%	Change suggested by faculty members
4.	Image Processing	VI	10%	Change suggested by industry &BoS
5.	Data Structures Using C++	VI	10%	Change suggested by industry & students
6.	Adaptive Signal Processing	VI	20%	Change suggested by industry
Elective D				
1.	Advanced Embedded System Design	VI	100%	New course suggested by industry, BoS
2.	Multimedia Communication	VI	100%	New course suggested by industry, BoS

Elective E				
1.	Global	VI	100%	Recommended by joint BoS& AC.
Elective F				
1.	Satellite Communication & GPS	VII	60%	Change suggested by industry, BoS
2.	Wavelets &Multirate Filter Banks	VII	100%	New course suggested by industry, BoS
3.	ATM Networks	VII	30%	Change suggested by industry, BoS
4.	Low Power VLSI Design	VII	15%	Change suggested by industry, BoS
Elective G				
1.	Global Elective	VII	100%	Recommended by joint BoS& AC.
Elective H				
1.	Artificial Neural Network	VII	20%	Change suggested by industry, BoS
2.	Testing & Testability	VII	100%	New course as suggested by industry &BoS
Revision : 2012				
1.	Network Analysis & Control Theory	III	15%	Introduced as Common course for EC & TC Dept. as per changes Suggested by BoSs
2.	Signals and Systems	III	5%	Introduced as Common course for EC & TC Dept. as per Changes Suggested by BoSs
3.	Microprocessors & Micro Controller (Theory & Practice)	IV	50%	Introduced as Common course for EC,EE & TC Dept. as per Changes Suggested by BoSs
4.	Field & Waves	IV	5%	Introduced as Common course for EC,EE & TC Dept. as per Changes Suggested by BoSs
5.	Digital Signal Processing	IV	15%	Introduced as Common course for EC & TC Dept. as per Changes Suggested by BoSs
6.	Embedded System Design	V	50%	Changes Suggested by BoS& faculties
7.	Communication Systems –I (Theory & Practice)	V	60%	Changes Suggested by faculties
8.	Very Large Scale Integration Design (Theory & Practice)	V	40%	Changes suggested by Industries &BoS
9.	Communication System-II (Theory & Practice)	VI	30%	Changes Suggested by faculties
10.	Emerging Technologies	VI	100%	Changes Suggested by Industries & faculties

Elective A				
1.	Cryptography and Network Security	V	100%	Changes suggested by Industries &BoS
Elective B				
1.	Image & Video Processing	V	10%	Changes suggested by Industries &BoS
2.	Data Structures Using C++	V	10%	Changes suggested by Industries &BoS
3.	al Time Operating stems	V	5%	Changes suggested by Industries &BoS
4.	System Verilog	V	100%	Changes suggested by Industries &BoS
Elective C				
1.	Automotive Electronics	VI	100%	Changes suggested by Industries &BoS
Elective D				
1.	Advanced Processors	VI	50%	Changes Suggested by faculties
2.	Database Management Systems	VI	100%	Changes Suggested by Industries &faculties
3.	Flexible Electronics	VI	100%	Changes Suggested by Industries &faculties
Department: Industrial Engineering & Management				
Revision 2010				
1.	Constitution of India and Professional Ethics	III	100%	Shifted from I/II to III/IV sem to facilitate lateral entry students
2.	Mechanics of Materials	III	20%	Renamed from Strength of Materials
3.	Industrial Engineering I	III	5%	Shifted from IV sem to III sem
4.	Engineering Economy	IV	5%	Shifted from III to IV Sem
5.	Environmental Technology	IV	30%	Shifted from I/II to III/IV sem to facilitate lateral entry students
6.	Statistics for Engineers	IV	20%	Renamed from Statistics for Decision making
7.	Elements for thermal and Fluid systems	IV	40%	Fluid systems was added
8.	Theory of machines	IV	40%	Renamed from Mechanics of machine and Machine Design
9.	Machine Design and Drawing	IV	40%	Machine Design syllabus retained and drawing added as lab component
10.	Industrial Engineering –II	IV		Introduced as a core from elective
11.	Principles of Management	V	50%	Renamed from Management and Entrepreneurship
12.		V	5%	Shifted from VI to V sem and

				re-titled from Quality Assuranceand Reliability engineering
13.	Engineering Economy and Financial Accounting	V	50%	Shifted from III to V sem with Financial Accounting added
14.	Productivity Engineering and Management	VI	100%	Introduced as a core from elective
15.	Simulation Modeling and Analysis	VI	_	Shifted from V to VI sem, to take care of common subjects under HSS.
16.	Computer Integrated Manufacturing	VI	_	Shifted from V to VI sem
17.	Human Resource Management	VI	20%	Introduced as a core from elective
18.	IPR & Entrepreneurship	VII	20%	Change in nomenclature from Management & Entrepreneurship.
Elective A				
1.	Advanced Manufacturing Methods	V	5%	Renamed from Modern Manufacturing methods
2.	Ergonomics and Safety Engineering	V	50%	Safety component added
3.	Estimation and costing	V	100%	Introduced on the recommendation of BoS.
4.	Software engineering	V	_	Shifted from VII to V, on the suggestion and feedback of students and BoS.
5.	Marketing Management	V	_	Shifted from VI to V, on the suggestion and feedback of students and BoS.
6.	Multivariate Statistical Analysis	V	100%	Newly introduced as per recommendation of BoS
7.	IT services and business management	V	100%	Newly introduced as per recommendation of BoS
Elective C				
1.	Tool Design	VI	100%	Newly introduced as per recommendation of BoS
2.	Services Operations Management	VI	100%	Newly introduced as per recommendation of BoS
3.	Innovation and Value Engineering	VI	100%	Newly introduced as per recommendation of BoS
4.	Database management Systems	VI	_	Shifted from VII to VI, as per the feedback and suggestion of BoS.
5.	Project planning and control	VI	20%	Change of nomenclature from project management and shifted from VIII to VI, as per suggestion of BoS.

6.	Banking Finance Service and operation	VI	100%	Newly introduced as per recommendation of BoS
Elective D				
1.	Hydraulics and Pneumatics	VI	100%	Newly introduced as per recommendation of BoS
2.	TQM	VI		Shifted from VII to VI sem
3.	Concurrent Engineering	VI	100%	Newly introduced as per recommendation of BoS
4.	Management Information systems	VI	_	Shifted from core to elective and renamed
5.	Financial Management	VI	_	Shifted from VII sem to VI sem
6.	Health care, Hospitality and Retail management	VI	100%	Newly introduced as per recommendation of BoS
Elective F				
1.	Lean Manufacturing Systems	VII	100%	Newly introduced as per recommendation of BoS
2.	Design for Manufacturing	VII	100%	Newly introduced as per recommendation of BoS
3.	Software Quality Assurance	VII	100%	Newly introduced as per recommendation of BoS
4.	Organisational Behavior	VII	_	Shifted from VI sem to VII sem
5.	Reliability Engineering	VII	20%	Renamed from Principles of Reliability engineering
6.	Infrastructure and Construction Management	VII	100%	Newly introduced as per recommendation of BoS
Elective G				
1.	Rapid Prototyping	VII	100%	Newly introduced as per recommendation of BoS
2.	Product life cycle management	VII	100%	Newly introduced as per recommendation of BoS
3.	Enterprise resource planning and ecommerce	VII		Shifted from core to elective
4.	Entrepreneurship and new venture planning	VII	100%	Newly introduced as per recommendation of BoS
5.	Principles of soft computing	VII	100%	Newly introduced as per recommendation of BoS
6.	Energy Management	VII	100%	Newly introduced as per recommendation of BoS
Revision2012				
1.	Engineering Materials	III	50%	
2.	Mechanics of Materials	III	50%	BoS shifted to civil
3.	Design of Work Systems	III	5%	Renamed from Industrial Engineering -I
4.	Environmental Science & Biology for Engineers	IV	50%	Made common as per the suggestion of joint BoS& AC.
5.	Manufacturing Process – II	IV	20%	As per the suggestion of BoS
6.	Statistics for decision	IV	5%	Renamed from Statistics for

	making			Engineers
7.	Applied Ergonomics	IV		Renamed from Industrial Engineering –II as per the suggestion of BoS
8.	Metrology and Measurements	IV		Shifted from III Sem to IV Semester
9.	Engineering Economy	IV	50%	Accounting deleted and shifted from V sem to IV sem
10.	Management and Organisational Behavior	V	30%	Organisational behavior component enhanced
11.	Design of Machine elements-I	V		Renamed from Machine design and drawing
12.	IPR and Entrepreneurship	VI		Shifted from VII to VI sem
13.	Operations Management	VI		Shifted from V to VI sem
Elective A				
1.	Modern manufacturing methods	V	20%	Renamed from Advance manufacturing methods and additive manufacturing component added
2.	Design of Experiments	V		Shifted from VI to V semester
3.	Financial Accounting and Costing	V	20%	Renamed from Estimation and costing
4.	Tool Engineering and Design	V	5%	Renamed from Tool Design
Elective B				
1.	Technology Management	V	100%	Introduced as a new Elective
2.	Reliability Engineering	V		Shifted from VI to V sem
Elective C				
1.	Applied Statistics	VI		Renamed from Multivariate Statistical Analysis and shifted from V to VI sem
2.	Human Resource Management and Development	VI	30%	Shifted from core to elective and HRD component added
Elective D				
1.	Marketing Management and Research	VI	30%	Titled changed from Marketing Management. Marketing research component added
Department: Instrumentation Technology				
Revision : 2010				
1.	Instrument Transducers	III	0%	Shifted from 4th to 3rdsem, to accommodate advanced microprocessor & microcontrollers in 4thsem
2.	Instrumentation lab	III	100%	Introduced based on the BoS feedback
3.	Linear IC's	IV	100%	Introduced as a separate course

	&Applications			
4.	Electromagnetic theory and applications	IV	100%	Removed as a separate subject
5.	Communication Systems	V	0%	Shifted as Elective as per the suggestion BoS
6.	Digital Signal Processing	V	20%	Only theory retained, lab introduced in 7thsem along with Fixed & Floating point DSP
7.	Industrial Automation Technology	VII	100%	Introduced on the recommendation of BoS.
Elective A				
1.	OOPs & C++	V	30%	As per the suggestion of BoS as a prerequisite to JAVA & J2EE.
2.	Fiber optic communication	V	100%	Removed as per suggestion of BoS
3.	Microcontrollers & Applications	VI	100%	Introduced a new course "low power embedded system".
Elective B				
1.	Aircraft Instrumentation	VI	0%	Shifted to Group C, as Group B was made global elective.
2.	Digital Image Processing	V	0%	Introduced as Global Elective and Shifted to Group B.
3.	Analytical Instrumentation	VI	0%	Shifted from 7thsem on the recommendation of BoS.
Elective C				
1.	Internet Technologies and Applications,	VI		Removed on the feedback of students
2.	Bio-Medical Instrumentation & Imaging Techniques,	V	20%	Imaging techniques removed on the feedback of students &BoS. "Imaging Techniques" introduced as a separate subject.
3.	Digital signal Processor Architecture,	VII	50%	Introduced as a core subject "Fixed and Floating point DSP", on the recommendation of BoS.
4.	Real time Systems & Applications	VII	20%	On the recommendation of BoS
Elective D				
1.	Pattern Recognition	VII	100%	New elective introduced
2.	Adaptive Signal Processing	VII	100%	Removed on the suggestion of BoS, as other related subjects have fundamental treatment.
3.	Operation Research	VII	100%	Offered as Global elective by IEM. Elective B
Elective E				
1.	Artificial Intelligence	VII	100%	Removed and introduced as "Genetic algorithms" and

				introduced in group F
2.	Micro Electro-Mechanical Systems & NANO Technology	VII	10%	Introduced as Global elective, G group
3.	Low Power VLSI	VII	100%	Removed and Introduced "ASIC" on the recommendation of BoS.
Elective F				
1.	Bioinformatics	VII	100%	Introduced as Global Elective and offered by Biotechnology Dept.
2.	PLCs for Automation	VII	100%	Introduced on the recommendation of BoS.
Revision2012				
1.	Analog Electronics Lab	III	50%	Simulation tool was added, Linear IC content increased.
2.	Logic Design Lab	III	50%	Separate lab was introduced with changes.
3.	Engineering Materials	IV	100%	Introduced as a common subject for all programs as per the recommendation of Academic council.
4.	Fluid Mechanics and neasurements	IV	100%	As per the inputs of lead society and BoS.
5.	Instrumentation transducers changed to Transducers & Smart Sensors	IV	10%	Shifted to 4thsem, with change in nomenclature. To accommodate common subjects.
Elective A				
1.	Biomedical Instrumentation	V	0%	Shifted as Elective to A group as per the suggestion BoS
2.	Power Electronics	V	100%	Introduced on the suggestion of BoS
3.	Computer Organization & Architecture	V	100%	Introduced on the suggestion of BoS
Elective B				
1.	Digital Image Processing	V	100%	Introduced as departmental elective
2.	Smart Sensors and Intelligent Controllers (EL E)	VI		Removed and 20% introduced in 4thsem along with transducers.
3.	Data Communication Networks	VII	20%	Change of nomenclature as "Computer Communication Networks" & Shifted to 6th sem.
Department: Information Science & Engineering				
Revision : 2010				
1.	Computer Networks – I	V	25 %	Application layer protocols introduced as per the feedback.

2.	Microprocessor	V	25 %	Microcontroller added introduction to processors shifted to computer organization as per the suggestion of Bos.
3.	Web Programming	VII	20 %	Java script in web browser were introduced based on student/ employer feedback.
4.	Object Oriented Modeling & Design	VII	20%	Reduced the content as per the reduction in credit, on the recommendation of BoS.
5.	Digital Logic Design	III	20 %	Linear applications were removed and nomenclature changed.
6.	Discrete Mathematical Structures	III	10 %	Graph theory component introduced in detail as per the recommendation of BoS.
7.	Software Engineering	VI	10 %	On the feedback of students some portions have been truncated.
Revision2012				
1.	Discrete Mathematical Structures	III	30 %	Graph Theory contents has been removed and introduced as new course as per student feedback
2.	Object Oriented Programming in C++	III	30 %	Credit is increased and Lab component is introduced as per BoS recommendation
3.	Computer Organization	IV	30 %	Introduction to processors has been moved from microprocessors as per the suggestion of Bos
Department: Mechanical Engineering				
Revision : 2010				
1.	Elements of mechanical engg. (theory & practice)	I/II	15%	Both theory & lab component of this subject treated as one single subject as per the decision taken by the BOS members
2.	Computer Aided Engineering Drawing	I/II	15%	Development of lateral surfaces chapter was removed as suggested by members of BoS
3.	Strength of Materials	III	25%	Both theory & lab were integrated as a single subject as per the decision taken by the BOS members
4.	Basic Thermo Dynamics	III	10%	A chapter on compressibility factor was introduced as per the suggestions of BoS

5.	Applied Thermo Dynamics	IV	15%	One chapter on psychometric charts was introduced to fulfill the pre-requiste requirement of Refigeration in higher semester.
6.	Energy Management & Auditing	VI	100%	This subject was newly introduced to keep in line with the mission of the institution and also to make students learn about optimal utilization of energy as per the suggestion of BOS.
7.	Modern automotive engineering	VI	30%	Topics on automotive electricals& electronics included as suggestion of industry experts and members of BOS
8.	Operations research	VI	__	Previously this subject was a core subject presently it has been introduced as elective subject as per the decision taken by the BOS members.
9.	Industrial Robotics	VII	100%	Introduced as core subject as per the feedback of Alumni and BoS.
Elective A				
1.	Stress Analysis	V	10%	Instead of theory of elasticity with addition of Holography as per the recommendation of BoS.
2.	Composite material	V	100%	Introduced as an elective as per the suggestion of BoS.
Elective B				
1.	Global			
Elective C				
1.	Acoustic & Noise control	VI	__	Shifted from VII to VI sem in order to maintain continuity for vibration studied in V sem, as per thje suggestion of BoS.
2.	Tool Engineering	VI	__	Shifted from VII to VI sem as per thje suggestion of BoS.
Elective D				
1.	Mechatronics	VI	__	Shifted from VII to VI sem as per thje suggestion of BoS, to facilitate students interested in related projects.
2.	Jet and Rocket propulsion	VI	__	Shifted from VII to VI sem as per thje suggestion of BoS, to facilitate students interested in related projects.
3.	Product Data Management	VI	100%	Newly introduced as per the feedback of industries and Alumni.

Elective E				
1.	Global Elective			
Elective F				
1.	Design for Manufacture	VII	100%	Newly introduced as per the suggestion of BoS.
2.	Micro and Nano Technology	VII	100%	Newly introduced as per the suggestion of BoS.
Elective G				
1.	Tribology & Bearing design	VII	100%	Newly introduced as per the suggestion of BoS.
2.	Nuclear reactive engineering	VII	100%	
3.	Hydraulics and Neumatics	VII	100%	
4.	Plastic Processing Technology	VII	100%	
Revision: 2012				
1.	Engineering Materials	III / IV	100%	Introduced as per the recommendation of joint BOS and AC.
2.	Environmental Science and biology for Engineers	III / IV	100%	Introduced as per the recommendation of joint BOS and AC
3.	IPR & Entrepreneurship	V	50%	Introduced in place of Principles of Management
4.	Design of Machine Elements- I	V	20%	Gear Design has been included as per BOS reco
5.	Dynamics of Machines	V	--	Subject moved to VI sem. as discussed in BOS
6.	Heat Transfer – I	V	50%	Earlier Heat & Mass Transfer was one single subject, now it has been split into two core subjects
7.	Energy Conversion Engg.	V	20%	Has been moved to elective B as per suggestion of AAC and BoS.
8.	CAD/CAM	V	10%	Has been moved from VI sem to V sem as per BOS recommendation
9.	Management and organizational behavior	VI	100%	Introduced as per recommendation of joint BoS and AC.
10.	Design of Machine Elements- II	VI	10%	Design and drawing of Screwjack ,toolhead, machine vise introduced in laboratory.
11.	Dynamics of Machines	VI	20%	Concepts of vibrations has been introduced as per the recommendation of AAC and BoS.

12.	Heat Transfer-II	VI	20%	Split into two courses and Application of Heat and Mass transfer concepts introduced as per suggestion of BoS.
Elective A				
1.	Materials Technology	V	50%	In place of Material Science & Metallurgy as per the suggestion of AAC and BoS.
2.	Quality & Reliability Engg	V	50%	Additional topics in quality control and reliability engineering included as per BoS recommendation.
Elective B				
1.	Stress Analysis	V	20%	Stress analysis moved from Elective A to B.
3.	Energy Conv. Engg	V	20%	Earlier core course now an elective for students willing to specialize in thermal engineering.
4.	Operations Research & Management	V	50%	Earlier operations research and management were taught as two separate elective subjects in 5th and 7th sem; now it is integrated into one subject as per BoS recommendation.
Elective C				
1.	Polymer & Composites	VI	100%	Newly introduced as per the recommendation of BoS members.
2.	Gas Dynamics & Combustion	VI	100%	Newly introduced as per the recommendation of BoS members.
3.	Mechatronics	VI	10%	Changes as per BoS recommendation.
Elective D				
1.	Fatigue, Fracture & Failure Analysis	VI	30%	Fatigue and failure included, as per inputs from industry and BoS.
2.	Flexible Manufacturing System	VI	100%	New subject introduced, as it was suggested that it will be useful for students going to manufacturing stream.
3.	Solar Energy Systems	VI	100%	New subject introduced, as it was suggested that many students are doing projects and is a part of institutional vision.

4.	Emerging Technology	VI	100%	Recommended by joint BoS& AC.
Department: Telecommunication Engineering				
Revision : 2010				
1.	Analog Microelectronics	III	50%	Introduced additional topics in op-amps. As per the feedback and recommendation of BoS.
2.	Microprocessors & Microcontrollers	IV	40%	Microprocessor included as per the suggestion from BoS.
3.	Wireless & Mobile Communication	VII	30%	As per the feedback from Alumni and faculty , emphasis on CDMA, UMTS, WPAN.
Elective A				
1.	CMOS integrated circuits	V	100%	In place of JAVA & Distributed computing
2.	Digital Signal Processors	V	100%	
3.	Video Engineering	V	100%	Shifted from VI semester
4.	Control systems	V	50%	Shifted from V sem, elective B, as per the suggestion of BoS.
Elective B				
1.	Global Electives introduced	V	100%	On the recommendation of joint BoS& Academic council
Elective C				
1.	DBMS	VI	0%	Shifted from group A of V sem
2.	Cryptography	VI	5%	Shifted from VII sem& included encryption (AS & DS) as recommended by BoS
3.	Multimedia communication	VI	0%	Shifted from VII sem as recommended by BoS
4.	Analog & Mixed Signal VLSI	VI	100%	Introduced in place of RADAR systems
Elective D				
1.	Error control coding	VI	100%	Introduced as per the suggestion of BoS
2.	Microwave integrated circuits	VI	100%	
3.	Adhoc networks	VI	100%	
4.	Artificial Neural Networks	VI	100%	
Elective E				
1.	Global Elective	VI	100%	On the recommendation of joint BoS& Academic council
Elective G				
1.	Real Time embedded systems	VII	40%	Introduced real time operating system concepts as per recommendation of Bos

	Revision : 2012			
1.	Environmental Science & Biology for Engineers	III	50%	Changes made as per the Joint BoS& AC
2.	Analog Electronics circuits	III	10%	Made common to TE, EEE & IT programs
3.	Digital Logic Design	III	20%	Made common for TE, EEE, CSE, ISE & IT
4.	Network Analysis & Control theory	III	30%	Made common for TE & ECE
5.	Engineering Materials	IV	100%	In Place of Constitution of India & Professional ethics, proposed in VII sem with modifications.
6.	Data structures using C	IV	15%	Introduced in place of communication channels, which is shifted to V sem as per suggestions by BoS
7.	Communication channels & Microwave Engineering	V	80%	As per the suggestion of BoS
8.	Analog & Digital communication	V	10%	Common to TE, ECE, EEE as per joint BoS
9.	Switching & Networks	V	40%	Switching introduced as per suggestion of BoS
Elective A				
1.	Modern control Theory	V	20%	As per the feedback and recommendation of BoS
	Elective B			
2.	Arm Processor	V	100%	Introduced as recommended by BoS.
3.	Digital System Design using HDL	V	100%	
4.	Cryptography	V	40%	Shifted from VI sem group C
5.	Operating Systems	V	0%	Shifted from VI sem group D, as per the suggestion of BoS.
Elective C				
1.	Digital image processing	VI	100%	Introduced on the recommendation of BoS
2.	ASIC design	VI	100%	
3.	Error control coding	VI	0%	Shifted from VI sem, Group D
	Elective D			
4.	Video Engineering	VI	20%	Shifted from Group A, V sem
5.	Multirate systems & Filter Banks	VI	100%	Introduced on the recommendation of BoS
6.	Real Time embedded systems	VI	0%	Shifted from VII sem Group G, as per recommendation of BoS.
Elective E				
1.	Emerging Technologies	VI	100%	Introduced as per the recommendation of Joint BoS& AC
Department: Mathematics				

1.	Applied Mathematics	I		The percentage is normally in the range of 10-15 percent for every revision
2.	Applied Mathematics	II		
3.	Applied Mathematics	III		
4.	Applied Mathematics	IV		
5.	Bridge course Mathematics			
6.	Linear algebra			
7.	Advanced Numerical Methods			
Department: Physics				
8.	Applied Physics (2010) 10PH12/22	I& II	30%	As per the suggestion of BoS
9.	Engineering Physics (2012) 12PH12/22	I& II	20%	One unit is replaced by new unit, based on the recommendation of BoS
Department : Chemistry				
1	Applied Chemistry (10CH12/22-2010)	I &II	10%	As per the suggestion of BoS
2	Engineering Chemistry (12CH12/22-2012)	I &II	30%	One unit is replaced by new unit, based on the recommendation of BoS
3	Polymer Science and Technology (10CH553)	V	100%	Introduced as per the recommendation of BoS
4	Polymer Processing (10CHC653)	VI	100%	Introduced as per the recommendation of BoS
5	Chemical Technology (10CH61)	VI	100%	Introduced as per the recommendation of BoS
Global Elective				
1.	Chemistry of Materials (10HG715)	VII	10%	Shifted from VIII sem VII, as per recommendation of BoS.

1.3.4 What are the value-added courses offered by the College and how does the College ensure that all students have access to them?

There are several value added courses run for the students of both UG and PG. For lateral entry students bridge courses are also run to bring their competency on par with regular students.

- The institution as a policy guide line conducts, the value added courses offered are:
- Communication skill, soft skills training courses.
- English language lab for communication improvement.
- Personality Development Programs
- Entrepreneurship awareness camps, workshops and training programs
- Bridge courses for lateral entry diploma students.
- Scilab for mathematical modeling.
- Matlab for computation and modeling.
- Proficiency programs
- Hands on training programs in niche areas relevant to the program of study.

(Please see annexure 1.g for details)

1.4 Feedback System

1.4.1 Does the College have a formal mechanism to obtain feedback from students regarding the curriculum and how is it made use of?

Yes,

- Online feedback system is introduced. It is a practice to take a feedback, course wise and faculty wise, from all the students every semester.
- Exit survey is conducted from graduating students in order to improve the curriculum which can meet overall expectations of the students and the stake holders.
- During farewell function the students share their experiences and suggest ideas for the improvement of teaching learning process.
- The head of the department holds departmental meeting with faculty and technical staff to take relevant measures based on the student's feedback for improvement of curriculum.
- The credit structure underwent minor changes in the year 2010, with more importance to outcome based approach. With inputs from students and parents, also provisions were made for appearing in fast Track to a maximum of five courses or 15 Credits.
- During 2012 Global electives in emerging Technologies and courses introduced depending on industry needs. (Pl see Annexure 1.g)
- In the year 2012, Self study component was introduced as per the feedback from companies to inculcate self learning attitude and innovation in students.

1.4.2 Does the College elicit feedback on the curriculum from national and international faculty? If yes, specify a few methods adopted to do the same - (conducting webinar, workshop, online forum discussion etc.). Give details of the impact on such feedback.

Yes, in order to achieve continuous improvement and stay abreast with the current industry needs and technology, the institution has a feedback system which contains:

Feedback from BOS members:

- The BoS consists of nominated members from industries and other institution. Experts in specific area are also invited to give their inputs.

Feedback from Academic Council members:

- The Academic Council consists of distinguished academicians (from IISc, IITs etc.) researchers and professionals (industries like TCS, Alcatel Lucent, HHV etc.) from industry, who give valuable inputs.

1.4.3 Specify the mechanism through which alumni, employers, industry experts and community give feedback on curriculum enrichment and the extent to which it is made use of.

- Feedback from alumni is taken on course content and achievement of PEOs.
- Board of Studies also consists of industry experts, few employers and distinguished Alumni who actively participate in curriculum development and defining core and elective courses.
- The feedback and suggestions from alumni (pursuing higher studies or employed) are also sought for while revising the curriculum.
- The alumni meet is organized at the college level every year on 2nd, October. During the meet, the alumni share their experiences and give constructive suggestions for the all round development of the college.

(Pl see sample Annexures 1.h)
1.4.4 What are the quality sustenance and quality enhancement measures undertaken by the institution in ensuring effective development of the curricula?
The vision of the institution defines clearly that sustainability and inclusiveness, these are of primary importance in academic activities curriculum formation.   - The Academic council and respective Board of Studies play a pivotal role in Quality sustenance and enhancement measures.   - Feed back on the syllabi from industry experts, Scientists from IISc and other reputed R & D institutes helps in effective development of curriculum and its review from time to time.   - New electives are introduced based on the feedback. Moreover, there is a provision to include elective subjects every year, in the emerging area of science, engineering and technology.   - Self study component introduced for the students for improving their creativity.   - Supporting laboratories with theory courses improves the quality of learning and the experiments are designed & updated regularly commensurate with industry and research needs.   - Fundamental courses always sustain the quality of learning and are prerequisites for courses of present day relevance e.g. courses like Network Analysis, Control Systems, Signals and Systems, Thermodynamics, Mechanics of materials, Programming languages etc. are foundation courses even today despite being taught from decades   - The quality of teaching, delivery, test papers, timely completion of topics and quality of outcome are scrutinized by Internal Quality assessment committee and Grading advisory committee.   - To keep the quality and sustenance Joint BoS discussions are helpful as many common issues are discussed in this forum. For example for better transparency and to avoid any doubts in the minds of stake holders the institution shifted from relative grading to absolute grading.
Any additional information regarding Curricular Aspects, which the institution would like to include.
- After the institution became autonomous in 2007, three revisions of the Curriculum have been made in line with the vision. The major changes have been: 2007:   - Grading system introduced.   - Focus on Humanities, social sciences, Environmental Technology etc.   - Separate HSS Board created.   - Introduction of Quizzes, both online and off-line.   - Credits for Co-curricular activities leading to leadership, team work and professional development.   2010:   - Global (interdisciplinary) electives introduced.   - Industry based electives and laboratories introduced.   2012:   - Out of a total of 200 credits, teaching credits are 150 and 50 credits for

experiential learning.
- Innovation and Social Skills introduced along with self learning component.
- Separate Humanities Board of Studies constituted.

CRITERION II : TEACHING-LEARNING AND EVALUATION

2.1 Student Enrolment and Profile

2.1.1 How does the College ensure publicity and transparency in the admission process?

Publicity:

- RVCE isa 50 years old institute and has close to 30000 alumni, who have passed through the portals of this college, and thus established its reputation as one of Karnataka and India's top institute. The publicity is more through the word of mouth, and the experience of parents, students, employers, researchers and otherorganizations & personnel associatedwith the institute.
- RVCE web site www.rvce.edu.inand the management web site www.RVinstitutions.com also are a source of publicity.
- The Karnataka Examination Authority (KEA) and various other agencies facilitating the state and the national admission entrance exam also act as publicity sources, as they display the 12 UG and the 23 PG programs offered by RVCE and the cut off ranks for admission to RVCE.
- The management annually places advertisement in DailyNews papers, as also in the college and the Trust website during the admission season i.e. between May to August every year.
- The institution participates in educational fairs, technical exhibitions, innovation contests, sports and cultural and co-curricular activities, where the students also have won many awards. This also leads to good publicity.
- The college also conducts many technical conferences and also annual cultural, debate, quiz programs, which also act as a source of publicity.
- Various institutional activities are covered by both print and electronic media regularly and work as a huge source of publicity.

Transparency:

- The admissions are done as per the Government of Karnataka norms and the admission matrix is announced by them every year.
- Out of the total seats 45% of the seats are filled by the Common Entrance Test conducted by Karnataka Examination Authority (KEA), 30% of seats are filled through Common Entrance Test conducted by Private managements association and 25% by Management, all by merit.
- All admissions are approved by the VTU and DTE.

2.1.2 Explain in detail the process of admission put in place for UG, PG and Ph.D. programmes by the College. Explain the criteria for admission (Ex. (i) merit, (ii) merit with entrance test, (iii) merit, entrance test and interview, (iv) common test conducted by state agencies and national agencies (v) others followed by the College?

Admission process for UG is done through

- Common entrance test(CET) is conducted by Karnataka Examination Authority (KEA) a state agency for candidates who are domicile of Karnataka for seven years or more.
- Common test is conducted by Karnataka Unaided Private Engineering Colleges Association Authority (i.e.COMED-K) for both Karnataka & Non-Karnataka candidates aspiring for Engineering, Medical and Dental seats.
- The above admissions are purely based on merit and as per reservation

norms laid down by the Government of Karnataka.
- A few seats are available under Govt. of India Quota for which nominations come from central government through DTE, Karnataka.
- The minimum percentage of marks in PCM is 45% under GM and 40% under SC/ST.
- The admission process for UG programs is followed as per the Government of Karnataka norms which consists of:
    o KEA (CET) entrance examination quota (Only for Karnataka students): 45%.
    o COMED-K entrance examination quota (All India) : 30%
    o Management Quota : 25%

Admission process for PG
- **Admission to M.Tech.** programs is through Graduate Aptitude Test for Engineering (GATE) is conducted on all India basis and admissions to various programs are done as per the eligibility criterion of VTU on merit and alsoCommon entrance testconducted by state agencyie PGCET for merit & Karnataka students.
- **Admission to MCA** programme for Karnataka candidates is made based on PGCET and for Karnataka & candidates from other state on the basis of KMAT.
- The minimum percentage for admission to PG programs is 50% in case of GM and 45% in case of SC/ST
- The admission process for PG programs is followed as per the Government of Karnataka norms which consists of:
    i. GATE/ PGCET (KEA) entrance examination quota (Only for Karnataka students):80%
    ii. Management Quota : 20%
- The admission process for MCA program is followed as per the Government of Karnataka norms which consists of:
    i. Karnataka students through PGCET : 50%
    ii. Students from all over the country are selected for MCA through KMATexam and they constitute the remaining 50% quota or intake.

Admission to M.Tech-CSE QIP
- The institution is a recognized extension center of VTU for QIP studies i.e. M.Tech in CSE. This is a three year weekend program and is for sponsored candidates. Faculty from engineering colleges and polytechnics and personnel working in industries can apply to this program through their respective employers.
- The admission to this program is based on merit in the qualifying examination (B.E./B.Tech), written test/interviews and experience.

Admission to PhD:
- Admission to PhD is through common entrance test conducted by VTU. Successful candidates are called for interview at VTU premises for final selection and admission in RVCE a VTU approved research center. .

2.1.3 Does the College have a mechanism to review its admission process and student profiles annually? If yes, what is the outcome of such an analysis and how has it contributed to the improvement of the process?
- The admission section prepares a cutoff rank list for every program, to keep

track of the priority or favorability of a given program among students, and also to ascertain the distribution of the background of the students.

- The same is discussed in the IMPPACT (HoDs) meetings, Governing Body (GB) meeting and Board of Management. This enables the institution to plan for appropriate facilitation to ensure that students from disadvantaged background are given additional inputs to help them catch up with the rest effectively and do not feel left out. Further the data over a period time is also used as a basis to look at modifying the curriculum as also expansion of the program if nesseary.

2.1.4 What are the strategies adopted to increase / improve access to students belonging to the following categories

SC/ST:
- Since the admission policies are defined by the Government of Karnataka, the same policy applies to this institution.
- There is special reservation of seats for SC/ST Candidates.
- The SC/ST students get scholarships in UG and Assistant ship in PG programs.

OBC:
- Since the admission policies are defined by the Government of Karnataka, the same policy applies to this institution, reservation of seats to all categories have been provided.
- OBC freeships and financial support is available.

Women:
- Since the admission policies are defined by the Government of Karnataka, the same policy applies to this institution.
- There is no special quota for girl students.

Different categories of persons with disabilities:
- Some seats as per Govt. norms (for certain programs) are available for candidates with disability and they get preference. The counseling of such candidates is conducted before general counseling thus providing them first opportunity for choice of seats.
- Exemption of fees depending on the need is given by the management.

(Pl see annexure: 2.b)

Economically weaker sections:
- Exemption of fees depending on the need on a case by case basis is provided by the management.
- 5% of the seats are allocated as supernumerary quota for economically weak students over and above the approved strength and these students do not pay any fees.
- In addition the College has provision to support students who are economically weaker, over the entire period of the program (close to 100 students) through means-cum-merit scholarships. These programs aresupported by Corporates, Alumni association, independent alumni and other NGO organizations including Cognizant Foundation, ABB, Alumni Association, NGOs, Arunodhaya Scholarships, and Sarthaka Trust)

Outstanding achievers in sports and extracurricular activities:
- Seats are allocated to extraordinary sports persons every year from management as well as KEA quota.

- There is a separate quota for NCC and physically challenged.
- Outstanding achievers in sports and extracurricular activities are honored annually on 26th January every year, when all the RV join to getehr and celebrate the achievements of all the stake holders.

2.1.5 Furnish the number of students admitted in the College in the last four academic years.

(For Program wise information please see Annexure 2.c)

2013-2014	UG		4439	Boys :3207	Girls: 1232
	PG		1129	Boys :808	Girls:321
		Total	**5568**	**Boys :4015**	**Girls:1553**
2012-2013	UG		4064	Boys :2949	Girls:1115
	PG		1080	Boys :786	Girls:294
		Total	**5144**	**Boys :3735**	**Girls:1409**
2011-2012	UG		3770	Boys :2697	Girls:1073
	PG		940	Boys :713	Girls:227
		Total	**4710**	**Boys :3410**	**Girls:1300**
2010-2011	UG		3711	Boys :2649	Girls:1062
	PG		803	Boys :618	Girls:185
		Total	**4514**	**Boys :3267**	**Girls:1247**

2.1.6 Has the College conducted any analysis of demand ratio for the various programmes offered by the College? If so, indicate significant trends explaining the reasons for increase / decrease.

- The first indicators of the demand of the various college programs come from the ranks of the students who join each program, from the state run Common entrance exams in the first list. As in each program it is typically observed that typically the top rankers join the institute for each program inc comparison to other colleges.
- Next the college monitors the placement of the students from each department to assess both the performance of the department and also the demand for the students in the market.
- Based on the same necessary corrective steps be it better teaching, additional training, adding of new subjects, or enhancement of more fundamental component is carried out to facilitate the demand and placement. .
- The analysis and urge to enhance research capabilities and demand for more post graduate qualified engineers led to starting of PG programs in Product Design Manufacturing and Digital Communication in 2004 or nearly doubling our PG intake in the last 5 years.
- On the basis of the analysis and interaction UG and PG programs have been added. (Please see annexure 2.d).
- As the Govt. of India defined their IT/ BT polices and requirement to have more under graduate engineers in this domains the institution started Telecommunication Engineering, Information Science & Engineering, Biotechnology programs. (Please see annexure 2.d).
- To give impetus to research, PhD programs were added during 2004 -13 in various departments.
- In the year 1996 & 1997 intake of Electronics and Communication,

Mechanical Engineering & Computer Science was increased from 60 to 120 and subsequently from 120 to 180 in the year 2012-2013.

- It was also found that due to the increased infrastructure and information technology activities in the country in the last decade, there was need for more Civil and Computer Science Engineering graduates. Hence, conscious decision was taken to increase the number of seats in these two programs.
- Thus there is a constant endeavor to analyze the demand and facilitate the students to match up to the needs of the state, the nation and the industries.

2.2 Catering to Student Diversity

2.2.1 Does the College organize orientation / induction programme for freshers? If yes, give details of the duration of programme, issues covered, experts involved and mechanism for using the feedback in subsequent years.

Yes!

- The institution organizes orientation programs for the fresher's after the inauguration of classes normally for a full day. This helps them to interact with the senior faculty and students. Orientation sessions are conducted by Heads of the Departments of different programmes and also experts from outside, if necessary.
- A brief introduction about the institution, academic activates, rules & regulations of autonomy, Achievements , research opportunities, Social responsibility, student activities, cutting edge research and industry – institute collaboration etc. are presented to the students.
- There are sessions on anti-ragging, discipline issues and counseling facilitation.
- The Institution also organizes orientation sessions for lateral entry students to give information about autonomous scheme, examination processes, and various details about available facility in the college.
- Even the higher semester students are given an orientation on antiragging policy and how to behave with their juniors. For such meeting, area inspector of police or ACP is invited. Students come out with specific queries and facilitation required in these meetings.

2.2.2 Does the College have a mechanism through which the "differential requirements of student population" are analyzed after admission and before the commencement of classes? If so, how are the key issues identified and addressed?

- Based on their performance, students are identified as slow, average and fast learners.
- Scholar Support Programme is implemented in the college to support the slow learners with the assistance of the Remedial Coaching Classes provided.
- Student Counselors are allotted to different sections of students in a class.
- The morale of the slow learners is boosted by counselling sessions, remedial classes and intensive interactive sessions before and after the regular class hours.
- Students with different proficiency levels in English Language are admitted into this institution, as an institutional policy a course on Communicative English is included in the autonomous scheme as a Mandatory Audit course for all the students.

- Bridge courses are conducted for lateral entry students in mathematics and English language.
- For students differentlyabled even the examination system has been customized to help the same through formal approvals from respective statutory bodies.

2.2.4 Has the College conducted a study on the incremental academic growth of different categories of students; - student from disadvantaged sections of society, economically disadvantaged, physically challenged and slow learners etc.? If yes, give details on how the study has helped the College to improve the performance of these students.

- Diagnostic test have been conducted in English language for slow learners based on the result of these tests specific measures are taken by the Dean Academics.
- Remedial classes are conducted for academically disadvantaged students.
- The earlier diagnostics showed the following:
    - Lateral entry students are weak in Mathematics and English. Bridge courses in Mathematics and additional training in English is provided.
    - In the case of MCA students come from varying back grounds (Arts, Science and Commerce), they need both Language and personality orientation to become professionals.
    - In the case of M.Tech. Students, most of them lack in communication skill and programming. Special attention is given to buildup these skills. Besides to create some level of normalization over view of mathematics and core domain fundamentals are also given in the beginning of the semester.

2.2.5 How does the institution identify and respond to the learning needs of advanced learners?

The curriculum provides an opportunity to the students for self learning or experiential learning. Assignments in advance topics are given to the students, tohelps the advance learners to give them an overview of the emerging areas and possibly come out with new ideas. Provision is being introduced in the autonomous rules and regulations of the structure for providing option to completing the degree in 3.5 Years for advanced learners. Mentoring is also done for slow learners.

- Digital Library facility and high speed Wi-Fi Internet connectivity helps the advanced learners to gain access to latest developments.
- Interested students are encouraged to participate in innovative projects including development of race cars (Ashwa), hybrid vehicles (Baja), Autonomous Aerial Vehicle [UAV] (Vyoma), Pico / Nano Satellite and Solar Car development, which helps them to come out with new ideas and design, as also understand system integration.
- Identified advanced learners are involved in research projects awarded to faculty in the college by various government agencies including DST, DBT, CSIR, ISRO, ARB and NRB and industries.
- There is a provision for accelerated completion of the program for fast learners in autonomous system. Students are encouraged to participate in science expos in order to design and execute working models to give shape to their inherent ideas.

- Students are encouraged to attend conferences and make presentation of the papers and also publish papers in journals.
- Major & minor projects and case study activities are encouraged in interdisciplinary areas by forming teams with other discipline students as a part of the curriculum.

2.2.6 How does the institution cater to the needs of differently-abled students and ensure adherence to government policies in this regard?

- The institution is sensitive towards the needs of the differently abled students. Their applications for admission are considered and such students have been given fees concession on admission.
- Necessary arrangements like the assistance of scribes, enlarged printing of question papers etc., during examinations are made.
- Ramp and lift facility is provided at the entrance of the dept to ensure comfortable mobility for the differently-abled students.
- Extra time is also provided during the CIE and SEE upon prior permission and considering the seriousness of the case.
- During examinations, physically disabled student is given an extra 30 minutes of examination time, if requested, special arrangements are made for their comfort.
- For students differently abled even the examination system has been customized to help the same through formal approvals from respective statutory bodies. Eg Case of an MS student exam is divided into two half's with the two question for the two separate half's.

2.3 Teaching-Learning Process

2.3.1 How does the College plan and organize the teaching, learning and evaluation schedules? (Academic calendar, teaching plan and evaluation blue print, etc.)

The Teaching-learning process includes several practices for the efficient outcome, this involves:

- Appointment of various Deans to facilitate the students.
- Dean (Academics) and Dean (Student Affairs) have been assigned responsibility to draft the calendar of events for a full academic year. After discussion in theIMPPIACT meeting, the calendar is placed in Academic Council.
- The academic calendar is prepared well in advance, with well defined schedule for various activities including Continuous Internal Evaluation, Project presentation, Seminars, Presentation based on Experiential learning, Personality Development Program, Techno-cultural events, and list of holidays.
- The Academic Council discusses and approves the academic calendar. (Please see annexure 2.e).
- The semester runs for 18 weeks, where a student can plan approximately for 25 credits including theory, laboratory practices, project work, field work / Humanities.
- Each course of four credits contains approximately 48-52 hours of syllabus, A laboratory of 2 hours is considered as one credit, a tutorial of 2 hours is considered as one credit and a Self learning /Experiential Learning component of 4 hours is considered as one credit. Besides this the students

also earn appropriate credits for activities including mini projects, major projects, seminars, co curricular activities. (Please refer annexure 2.f).

- Teaching plan: Teaching plan involves the preparation of lesson plan, model question papers, study material, presentation methods, topics for seminars/experiential ealrning, objectives for the projects and related aspects well in advance. The distribution of the above among the students will be done during the beginning of the semester.
- Evaluation: In a semester, there are three tests and three quizzes out of which best of two amongst the Three are considered for final CIE.
- The marks obtained by each student in quizzes, tests, assignments, lab performance, seminars and project reports are collated in every semester. The weightage is equally given to the semester end examination (SEE) and Continuous Internal Evaluation (CIE).
- All the faculty members are required to maintain the work diaries.
- Retest for the students who have missed a test due to participation in sports, extracurricular, co curricular activities, NCC or serious medical ailments is facilitated by the departments provided the students have taken prior permission.

2.3.2 Does the College provide course outlines and course schedules prior to the commencement of the academic session? If yes, how is the effectiveness of the process ensured?

Yes,

- The entire course schedule and overview of the program for both UG and PG is provided to each student in the beginning of the semester, which also includes Rules & Regulations and the entire Course Structure in the form of a printed booklet.
- The lesson plan, model question papers and study materials are provided well in advance. Based on the academic calendar, the CIE events are conducted and students plan their curricular and co-curricular activities according to the schedule given. Every faculty is expected to provide the students, lesson plan containing hourly planned calendar of the course, course learning objectives & outcomes, at the start of the semester.
- Self learning exercises are given well in advance for the student to learn and design. The presentation and discussion of their ideas are assessed in three phases.
- Students are encouraged to execute projects related with the subjects & submit assignments in latest cutting edge technologies.
- Every department is expected to arrange Industrial/ site visits and/or facilitate the students to work in laboratories set up in collaboration with the industries for necessary exposure.

2.3.3 What are the courses, which predominantly follow the lecture method? Apart from classroom interactions, what are the other methods of learning experiences provided to students?

Each BoS and Academic advisory committee has proposed various styles of learning for different courses. There are more than fifteen courses in each program which involve laboratories, self learning, seminars, interactive sessions; project based learning and so on. (Please see annexure 2.i for details)

a) Lecture Method:

The lecture method is used to the extent of 60 to 75 % to explain abstract and

conceptual parts of the subject, which demands critical thinking and analysis. Teacher presents the relevant data and diagrams through power point presentation / chalk–board mode.Environment Science & Biology, Materials Engineering, Intellectual Property Rights&Ethics, Principles of Management are mainly taught following Lecture methods.

b) Interactive Method:
The lecture method of teaching is supplemented with the discussion and interactive method, wherever needed. Case study & Case based discussions are part of the pedagogy in some of the courses.

c) Self learning/Experiential Learning topics:
In case of UG programs, the whole class is given a single or a set of topics related to the courses they study in a given semester. The students are divided into groups or the whole class works together. The process includes assigning an interdisciplinary topic and establish a the correlation of the multiple subjects to latest product. For example the topic could be a tablet or an hybrid vehicle. The topic is is subdivided into 60 to 70 questions, with the whole class working on a latest product or the technology together. Each student works on one of the question, linking it to each of the subject studied in that semester. The questions are so framed that it could include the best fivesimilar products, 10 key patents that enable the product, and 40 to 50 questions that combine the design & specifications, standards, system integration and manufacturing aspects. Thus every semester the student not only studies the regular subjects, but also learns the link between each paper to the product in the market. Further he also learns about working in a team, develops oral, written and presentation skills, self-learning skills, and understands about unresolved and emerging areas of opportunities in a given domain.The student groups could also from the very first semester provide innovative solutions for questions they are assigned. This helps the students to not only understand the interdisciplinary nature of engineering education &technology, appreciate that all the fundamental subjects are relevant to their chosen domain, get a more holistic overview of education, a correlation of their courses to latest products and even come out with unique solution to engineering system design. An example of the same is that based on students doing experiential learning about hybrid vehicle. The students in their second year formed a team to develop a solar care to participate in the 3000 km Australian solar car race. Already many international and national companies are working with the student team to help the students realize the dream of becoming the first solar car team from India to participate and complete the rally. The technologies developed for the same can find applications in multiple domains including leading to entrepreneurship.

(d) Project-based learning:
This method is mostly used for self learning /experiential learning to improve the ability of student to use knowledge gained. Being a technical institute, this method is extensively used to provide practical evidence of the theory learned. Students are asked to prepare projects involving application of the concepts, principles or laws learnt. The teacher guides the students at various stages of developing the project to give timely inputs for the development of the model. Plus students are encouraged to participate in projects like the race car, hybrid car, solar car, all terrain vehicle, UAVs and nano satellite development.

(e) Seminar Method:
Both in the case of UG and PG from time to time, the teacher assigns seminar topics

to involves the students in active learning process. A student is advised to come prepared on a pre-assigned topic and present a seminar before the faculty and students. This method is very effective in motivating students to undertake extensive reading, and develop communication and presentation skills. Due weightage is assigned in the internal assessment in both UG and PG level.

(f) Computer – Assisted Learning (CAL):

Computer- assisted Learning is one of the effective methods in teaching and learning process particularly in core subjects. It is used for visualizing, analyzing and understanding complex topics and in interpretation of large data. To enable student to access the software at any time with due permission the whole college is connect with wired and wireless access. Over 4000 journals, close to 30000 e-books, all NPTEL content, any many more databases are provided on the intranet for the student.

(g) Guest Lectures / Expert Lectures have been conducted by inviting the industry/institute experts.

(Pls See Annexure 2.h)

2.3.4 How is 'learning' made more student-centric? Give a list of participatory learning activities adopted by the faculty that contribute to holistic development and improved student learning, besides facilitating life-long learning and knowledge management.

The learning is being made student centric by supporting the students at various levels. The students are encouraged to interact with the faculty and the counselor regularly and when there is a need.

Self learning/ experiential learning components have been introduced in which innovative topics are given in groups to bring out the system design and learning capability of students. There are total of 24 credits for self learning during the entire B.E. program. When we add credits for individual co-curricular and extra curricularactivites and the minor and major final year project it comes to close to 50 credits, clearly making it student centric.(Pls See Annexure 2.i)

In case of PG programs seminars and design problems are assigned and to be verified in laboratory, this gives an opportunity for experiential learning.

For acquisition of knowledge and management skills

- Students are trained and encouraged to participate in paper presentations / seminars and prepare project proposals and thus carryout the extension of their learning.
- Students are motivated to apply their acquired knowledge by designing and fabricating working models and develop software etc.,
- Students are encouraged to contribute technical articles to improve written skills.
- Seminars /Guest Lectures/ Conferences are organized so that the students refer many journals and reference books for seeking additional information.
- Final year students are advised to become members of Professional technical societies.
- **During the content delivery of the management course, the students are encouraged to participate in   Business Plan competitions in teams.**
- **Students are motivated to take up innovative projects and publish papers in refereedjournals and conferences.**
- **Students are encouraged to address the research problems through mini projects and major Project courses.**

- Habit of life-long learning is infused by motivating the students to acquire latest knowledge in their respective fields.
- Internships help students to acquire deeper understanding, both theoretical and practical.
- Student groups take up projects like autonomous vehicle, unmanned aviation vehicles, robotics etc. to bring their ideas in practice and thereby developing self-discipline, managerial skills, problem solving capabilities.
- Even all the co-curricular and extra-curricularactivities are planned and organized by the students from concept to the execution of the event leading to nurturing of management skills, financial management and acquiring of knowledge.

2.3.5 What is the College policy on inviting experts / people of eminence to provide lectures / seminars for students?

- The college motivates the students to participate in co-curricular activities for the betterment of the students and mould them to face challenges.
- Every department is encouraged to invite experts from other academic institutions, R&D organizations, industries and training centers to supplement the teaching learning process
  (Pl see Annexures 2.h of such programs)
- The experts are paid honorarium from the college funds or TEQIP grants.
- Several workshops and training programs have been conducted under employability enhancement, skill development and R&D areas under TEQIP for students of PG as well as UG.
- Hands on Training arranged to the students by experts from Industry.
- Talks are arranged by Technical Associations of different Departments in collaboration with Professional societies.

2.3.6 What are the latest technologies and facilities used by the faculty for effective teaching? Ex: Virtual laboratories, e-learning, open educational resources, mobile education, etc.

- At least 80% of classes and laboratories are equipped with multimedia projectors to enable the faculty to provide better teaching ambiance and information.
- In some of the courses like Bioinformatics, Simulation based subject are taught using modern tools & online videos.
- The students and faculty are encouraged to use Edusat materials, e-books, e-Journals, NPTEL e-learning material, QEEE(Quality Enhancement in Engineering Education)-online teaching by the professors of IIT's, Tools like Matlab, are used by the faculty for effective teaching

- Digital Media center has been established in the campus to produce educational CDs which will help in self learning.

2.3.7 Is there a provision for the services of counselors / mentors/ advisors for each class or group of students for academic, personal and psycho-socio guidance? If yes, give details of the process and the number of students who have benefitted.

- Yes, there is a strong mentoring system setupfor both UG and PG students. The counselors have been trained by experts from outside agencies and through outbound training programmes.

- There are totally 45 counselors for the I/II semester students. The counselors are so chosen that he / she will be handling the class of their students.
- From third semester to eighth semester the department allots a counselor (for a group of 18-20 students) who takes initiative to counsel the students periodically and also need based.
- Counselors are responsible for registering the mentees in the beginning of every semester.
- They are expected to Counsel the mentees regarding choice of electives, dropping of courses, withdrawal of courses and number of credits they can audit.
- Regular meeting with the students and parents if required are arranged by the counselors.
- The performance of mentees Academic, extra-curricular, sports and other activities) are keenly observed by counselors.
- Maintenance of student's academic file which includes student's report card, medical certificate if any, certificate of extra-curricular actives etc. are maintained.
- Advice and personal support if required is given to the mentees.
- College has appointed Faculty for psycho-socio counseling services and guidance, through a Qualified Clinical psychologist is attached to the placement office.

2.3.8 Are there any innovative teaching approaches/methods/ practices adopted/put to use by the faculty during the last four years? If yes, did they improve the learning? What methods were used to evaluate the impact of such practices? What are the efforts made by the institution in giving the faculty due recognition for innovation in teaching?

- The institution conducts orientation and Pedagogy Training; This training provides an insight into the modern teaching processes. Thereby the teacher can be more effective and learns the ability to handle student learning activity.
- Faculty Development Programs in different areas to fill the competency gaps and to enhance knowledge in current trends in the subject area.
- The college conducts Training Needs Analysis (TNA) to know about the training requirements. SWOC is one of the pre requisite for the TNA. The departments plan to conduct the Faculty Development Programs on various areas and emerging technologies.
- Efforts are being made for the last few years to change the Teaching – Learning environment into 'activity' based learning. Following are the methods adopted to transform the academic environment:
  - o Changing the teaching methodology by encouraging the faculty to use power point presentation where ever and whenever the curriculum demands.
  - o Extensive use of online – content and NPTEL, and other Video lectures to supplement the Class – room teaching.
  - o Use of Model is encouraged and the entire faculty was trained by experts.
  - o Comprehensive individual assignments to PG students are practiced and students need to present the assignment before submission.
  - o Seminars, term paper and mini – projects are introduced in the

curriculum to make the environment 'activity based'.

o Students are encouraged to form small groups for conducting effective survey in subject related matter to learn additional information as **Self Learning/ Experiential Learning**component.

The impact can be seen through:

- Improved results and pass percentage.
- Improved student understanding in domain knowledge and overall development.
- Reduced backlogs and detention.
- Enhanced engagement of students in research and possible publication in conferences.
- Students even starting new product development projects like the new Solar car team to participate in the Australian Challenge.

2.3.9 How does the College create a culture of instilling and nurturing creativity and scientific temper among the learners?

- From the first year itself the students are assigned topics related to various modern systems and they are required to use the knowledge they have gained in different courses of that semester to design such system. (Please see Annexure 2.i for Sample)
- The students are required to carry out mini project during the 6th/ 7^{th}semesters or during the break and a major project in the 8th semester.
- Innovative project and Best projects are awarded.
- Students are encouraged to participate in the National and International Conferences and present their skills.
- Companies conduct interviews and select students for internships, which helps students to get exposed to industry practices. It also enhances Industry – Institute Interaction.
- Students are also allowed to apply for projectsgrants to agencies like KSCST and other agencies and when selected they execute the same with assistance from the said agency.
- Interdepartmental projects are encouraged.
- Interdepartmental electives (Global Electives) are offered by each department, where in the student can register for any subject of any department. This helps the student to broaden their horizon.
- Students are encouraged to involve in funded research projects.Every year one Innovative project from each department is nominated for competition conducted by EDC cell. Prizes and Certificates for all teams are given. Best & Second Best Project Teams are awarded a Prize.
- Student groups from different departments work on various innovative projects; these are funded by the college as well as sponsors. These groups of students take part in competition both in India and abroad.
- As mentioned earlier students also participate in various product development contests facilitated by the SAE and other agencies like the race cars, hybrid vehicle, pico satellites, UAVs etc. (Please see Annexure 1.d)

2.3.10 Does the College consider student projects a mandatory part of the learning programme? If so, for how many programmes is it made mandatory?

Number of projects executed within the College

Sl No	Department	Year	Number of Projects	
			Mini-Projects	**Major-Projects**
1	Biotechnology	2009-10	0	11
		2010-11	17	16
		2011-12	17	16
		2012-13	17	19
2	Chemical Engg.	2010-11	11	11
		2011-12	11	11
		2012-13	13	13
		2013-14	13	13
3	Civil Engg.	2009-10	1	09
		2010-11	1	10
		2011-12	1	08
		2012-13	1	12
4	Computer Science &Engg	2009-10	36	38
		2010-11	36	36
		2011-12	48	49
		2012-13	48	43
5	Electronics &Commn. Engg.	2009-10	----	21
		2010-11	48	33
		2011-12	39	38
		2012-13	41	32
6	Electrical & Electronics Engg.	2009-10	18	17
		2010-11	18	18
		2011-12	18	17
		2012-13	18	17
7	Industrial Engg. & Management.	2009-10	13	13
		2010-11	14	14
		2011-12	13	14
		2012-13	17	13
8	Information Science &Engg.	2009-10	32	15
		2010-11	33	20
		2011-12	35	21
		2012-13	26	17
9	Instrumentation Engg.	2009-10	17	16
		2010-11	16	17
		2011-12	17	16
		2012-13	17	22

10	Mechanical Engg.	2009-10	0	25
		2010-11	0	20
		2011-12	0	26
		2012-13	27	27
		2013-14	36	40
11	Telecommunication Engg.	2009-10	-	11
		2010-11	24	15
		2011-12	24	18
		2012-13	23	18
		2013-14	23	18
Post Graduate				
1	MCA	2009-10	120	60
		2010-11	150	60
		2011-12	210	60
		2012-13	240	120
2	Biotechnology	2012-13	0	16
		2013-14	0	15
3	Bioinformatics	2013-14	0	13
4	Power Electronics Engineering	2009-10	0	18
		2010-11	0	18
		2011-12	0	18
		2012-13	0	18
5	Biomedical Signal processing and Instrumentation	2009-10	0	18
		2010-11	0	18
		2011-12	0	19
		2012-13	0	18
6	Computer Science & Engineering	2009-10	0	16
		2010-11	0	17
		2011-12	0	17
		2012-13	0	18
7	Computer Network Engineering	2009-10	0	18
		2010-11	0	18
		2011-12	16	18
		2012-13	16	16
8	Chemical Engineering	2013-14	0	17
9	Master of Engineering Management	2013-14	0	09
		2012-13	0	12
10	Information Technology	2009-10	0	10
		2010-11	0	6
		2011-12	0	1
		2012-13	0	6
11	Software Engineering	2009-10	0	8
		2010-11	0	4
		2011-12	0	1
		2012-13	0	6

		2009-10	17	3
12	Digital Communication Engineering	2010-11	51	4
		2011-12	53	17
		2012-13	48	15
		2013-14	54	23
13	Product Design & Manufacturing	2009-10	0	18
		2010-11	0	18
		2011-12	0	31
		2012-13	0	35
14	Machine Design	2009-10	0	18
		2010-11	0	18
		2011-12	0	18
		2012-13	0	19
15	Computer Integrated Manufacturing	2009-10	0	8
		2010-11	0	18
		2011-12	0	14
		2012-13	0	17
16	Tool Engineering	2009-10	0	02
		2010-11	0	18
		2011-12	0	15
		2012-13	0	17
17	VLSI & Embedded systems	2009-10	18	01
		2010-11	18	02
		2011-12	17	04
		2012-13	19	12
18	Communication Systems	2009-10	18	05
		2010-11	18	05
		2011-12	18	08
		2012-13	18	09
19	Structures	2009-10	0	17
		2010-11	0	16
		2011-12	0	17
		2012-13	0	16
20	Highway Technology	2009-10	0	NA
		2010-11	0	18
		2011-12	0	17
		2012-13	0	16
21	RF and Microwave Engineering	2013-14	27	-

Names of external institutions associated with the College for student project work

The following are the external institutions associated with the department for the student projects.

Biotechnology

Karnataka State Council for Science & Technology,
Bioneeds Pvt. Ltd.
Institute of Bioinformatics, Bangalore
Molecular connections Pvt. Ltd.

Monsanto Pvt. Ltd.
Indian Institute of Science, Bangalore,
GKVK Agricultural University, Bangalore
CIPLA Pvt. Ltd, Bangalore.
 Victoria Hospital, Bangalore.
St.John's Hospital, Bangalore.
NIMHANS, Bangalore.
CFTRI, Mysore
BIOCON Pvt. Ltd., Bangalore

Chemical
Akzonobel
MNRE
BHEL
Cipla
Millipore
IISc

Civil
Karnataka State Council for Science & Technology,(KSCST)
VGST
CPRI .
HUDCO
Karnataka Polution Board

Computer Science & Engineering
Google
Microsoft
INTEL
CISCO
IBM
NETAPP
BROCADE
INFENION
Mind Tree
e-bay
DELL
Success Factor
Thought works
Unisys
Citrix
Oracle
Tata Consultancy Services
Samsung

Electrical & Electronics
Raman Research Institute,
Riversilica technologies, Bangalore,
ABB , Bangalore
Schneider Electric, Bangalore
ISRO, Bangalore
PRDC, Bangalore
CPRI, Bangalore

National Centre for Biological Sciences, Bangalore
M/S BHEL R&D Division, Hyderabad
WIPRO Academy of Software Excellence, Bangalore
Tata Elexi Pvt. Ltd., Bangalore
Valtech Software Pvt. Ltd., Bangalore
Integrated Electric Company, Bangalore
Centum , Bangalore
BEL, Bangalore

Electronics & Communication
Indian Space Research Organization (ISRO)
National Aerospace Laboratories (NAL)
Indian Institute of Science (IISc)
DRDO Labs, DBEL, Schneider Electricals.
BHEL, BEL, HAL, ADE & DRDO
L&T
Tejas Networks
Ittiam Systems pvt ltd
Infineon Technologies India pvt Ltd
National Instruments
Adventura Technologies Pvt Ltd
Poseidon Design systems
Whizchip Design Technologies Pvt. Ltd.
GE Medical Systems Pvt Ltd
Intel Mobile Communications
Texas Instruments
G.E Health care
Mind Tree
Reneas mobile Industry
Honeywell Technologies
KPIT Cummins Info system
RV-VLSI Design Center
Transwitch India pvt ltd
LRDE, ADE-DRDO
BCSInnovatiations
LSI R&D
Alcatel Lucent
LSI India pvt ltd
Nihon Communication solutions Pvt. Ltd
Broadcom India Research Pvt.

Industrial Engineering & Management
AnsaldoSTS, Bangalore
Ashok Leyland Ltd., Bangalore
Auto CNC Machining Pvt. Ltd. Bangalore
Bellary Thermal Plant, Bellary
Bharat Electronics Limited, Bangalore
Bharat Heavy Electricals Ltd, Bangalore
Bharat Vikas Group India Ltd., Bangalore
BOSCH Limited, Bangalore
Bowring & Lady Curzon Bangalore

Directorate of Health and Family Welfare Service
DRDO Bangalore
Duroflex Pvt. Ltd., Bangalore
Dynamatic Technologies Limited, Bangalore
Future Supply Chain Solutions Ltd. Bangalore
Genpact Ltd, Bangalore
Goodrich Aerospace Services Pvt. Ltd, Bangalore
HOPCOMS, Bangalore
IFB Industries Ltd., Bangalore
INTEL India Ltd
ITC Limited – Food Division,
Juniper Networks, Bangalore
Kirloskar Electric Company Ltd. Bangalore
LAPP India Pvt. Ltd., Bangalore
MACER Automotive Pvt. Ltd., Bangalore
Manipal Hospital, Bangalore
Mallik Engineering PvtLts., Bangalore
Max Fashions Bangalore
Mu Sigma, Bangalore
Nilgiri'sMechanised Bakery Pvt. Ltd., Bangalore
Petroleum Conservation Research Association, Bangalore
R & D, R.V. College of Engineering, Bangalore
Rajashri Foods Pvt. Ltd., Bangalore
Rapsri Engineering Industries, Bangalore
RexmaPharma Packaging, Bangalore
Silver Spark Apparel, Bangalore
Sunfeast Biscuit Manufacturing Industry, Food Creations (P) Ltd.
TAFE, Bangalore
TE Connectivity, Bangalore
Texport Overseas, Bangalore
Thorogood Associates
Toyota Kirloskar Motors, Bidadi
Tulip Apparels Indusfila Ltd., Bangalore
UTC Aerospace System, Bangalore
V R L Logistics Limited, Bangalore
Wipro GE Healthcare, Bangalore

Information Science & Engineering
NetApp India, Bangalore
ZTE India R&D Centre Bangalore
Mind Tree, India, Bangalore
Wipro Technologies Bangalore
Unisys India Private Limited, Bangalore
Intel Technologies India Pvt. Ltd, Bangalore
IBM, Bangalore
Tata Consultancy Services, Bangalore
Honeywell Technology Solution Lab Pvt. Ltd, Bangalore
Global Edge Software Ltd. Bangalore
Dyaus IT Services, Bangalore.
NDS Pay T.V.Technology , Bangalore

In
Instrumentation Technology Indian Space Research Organization (ISRO) National Aerospace Laboratories (NAL) Indian Institute of Science (IISc) DRDO Labs, DBEL, Schnider Electricals. BHEL, BEL, & HAL CPRI, etc.
Mechanical Toyota Kirloskar Motor Pvt Ltd (TKM) National Aerospace Laboratories (NAL) Hindustan Aeronautics Ltd (HAL) Aeronautical development agency (ADA) Aeronautical development Establisnment (ADE) BEML Bosch Ltd. Bosch Rexroth Tyco Electronics IISc. Mercedez Benz Volvo L&TKomutsupvt. Ltd. Kennametal UTC Aerospace systems. General Electric
Telecommunication RV-VLSI PACE BSNL ISTRAC DRDO(GRTE) Electronic Dimensions Tata Teleservices BharatiAirtel ADE BEL Eagle Photonics CISCO Philips Tech Mahindra C-DOT DELL Power Grid Cadential Technologies. Aeronautical Development Establishment ISRO Satellite Centre Alcatel-Lucent India Ltd. Samsung India Software Operation Pvt. Ltd Wipro Technologies

RDA/ISTRAC. Aeronautical Development Establishment LRDE Motorola India Pvt.Ltd Intel India Pvt.Ltd Broadcom India Pvt. Ltd, Mind Tree Wireless Pvt.Ld Infineon Technologies India Pvt.Ltd, Nokia Siemens Networks LSI India R &D Ltd DSP Group India Pvt. Ltd
Master of Computer Applications Avin Network Software Ag Biz Time Simbus I2soft Technologies Wipro McAfee Robert Bosch NAL Mcompass Advertising PvtLTd Orangetrips Informatica IGSLABS Technologies Datatalk MCUBE ESPADE IT SPIGOT software Cerner Elixir Software MUSIGMA Trendwise Analysis Commvault ITC INFOTECH QCISSoftwares JDA, Bangalore LIVE360.CO Vcreate Logic Media Options ARICENT Matsya Technologies Fidelity Collaboration Technologies SUCCESSFACTORS SGIPvt Ltd Mango Games Holiday IQ Tejosma ESPADE IT

Orangetrips
Ibbhan Tech Pvt Ltd
Capegemini, Pune
Teradata Softwares
Principa Axis (off campus)
CTS
Krayons
Prime Focus Technologies
Texas Instruments
Media Options
Datatalk
LSI
L & T, Mysore
Zyxware Tech, Kochi
Itie
Infomonk S/w Technologies Pvt Ltd
Practo
ISRO
Matsya Technologies
Delloite, Bangalore
Mahindra Comviva, B'lore
Infosys, Mysore
Accenture
Sapient
Tsepak Technologies
Akamai, B'lore
Abyeti Technologies, B'lore
Abiba Systems

Role of the faculty in facilitating such projects

- In most of the cases, the industry HR department conducts interviews to award projects/ project internship. In some cases, faculties use their network to get the opportunity to the students.
- The selected students are given area of projects by the industry. Faculties in that field are assigned as Guides.
- The Guides discuss the details of the project with the external guide in the beginning of the semester.
- Faculties pay regular visits to check for the progress of the project assigned to the students.
- If there are any clarifications regarding the project work, internal guide acts as a liaison between the department and the company.
- Internal guides provide regular updates to the project coordinator and the HoD on the status of the project work and any deviations are immediately reported to the HoD for suitable action
- Faculty facilitates the students/ batch of students with their projects such as standardizing the protocol, providing the necessary information to the students, encouraging them to attend the conferences, writing research articles/ papers etc.
- After the completion of the project final demo and seminar will be given by the students in the company in the presence of guides and a senior professor.

- Guides ensure that the student is regular and punctual to their work and adheres to the schedule given by the departments in preparing for the seminars, report documentation in lieu with the university requirements.
- Conduct seminars and get feedbacks and evaluate the seminar presentations.
- Ensure that the project report is of quality standards as per university requirements and is submitted within time frame specified.

2.3.11 What efforts are made to facilitate the faculty in learning / handling computer-aided teaching/ learning materials? What are the facilities available in the College for such efforts?

- Faculty is trained with recent technological developments by making/encouraging them to attend the seminars, workshops and conference.
- Under TEQIP several workshops have been conducted on various application softwares.
- The faculty is provided with computers with internet & intranet facility.
- There are 3588 International Journals, Conference papers etc. subscribed by the college to enable faculties to update their knowledge in the subject domain.
- The college has subscribed for DELNET, N-List, CDs/ISIS and the faculty uses these facilities very often.
- The faculty can utilize the facilities after the working hours
- E-Learning facility - MIT , Stanford, Harward, NPTEL and VTU course materials
- The college has provided for both staffs and students with internet facility with the speed of 50Mbps which can be effectively used for information collection, seeing webinars etc.
- The faculty members and staff are trained through Industry based FDP, TEQIP programs, workshops.

2.3.12 Does the College have a mechanism for evaluation of teachers by the students / alumni? If yes, how is the evaluation used in achieving qualitative improvement in the teaching-learning process?

Yes
Students Feedback:
Feed back is taken from students about the effectiveness of teaching, syllabus coverage, and evaluation for respective teachers. Each student will give feedback for every faculty who is handling theory and lab. Each theory subject may be taught by more than one faculty. Each lab batch may be handled by more than one faculty. An automated feedback system was developed by a team of faculty to generate course related Feedback.
Outgoing Students Feedback:
Feedback from outgoing students is taken during the farewell function held for the outgoing batch, The students share their experiences and suggest ideas for the betterment of teaching learning process.
Alumni Feedback:
The alumni meet is organized at the college level every year. During the meet the alumni share their experiences and give constructive suggestions for the all round development of the college.
Peer feedback
The head of the department organizes departmental meeting with faculty and technical staff to take relevant measures.

These statistics are used by the college to encourage the faculty to improve their quality of teaching.

(Please see Annexure 1.h for sample feedbacks)

2.3.13 Does the institution face any challenges in completing the curriculum within the planned time frame and calendar? If yes elaborate on the challenges encountered and the institutional approaches to overcome these.

Yes,

Though, the calendar of events is prepared much earlier, in the beginning of the semester, there are certain unforeseen challenges in keeping up with the schedule, such as bandh, demise of a national leaders etc. These challenges are met by conducting special classes on Saturdays. All efforts are made to compensate for the classes missed and see that the syllabi are effectively covered.

2.3.14 How are library resources used to augment the teaching- learning process?

- The central and department libraries are equipped with not only text books but also reference books, handbooks, journals, conference proceedings, project reports and Digital library access to help faculty gain knowledge in new areas. The library has a special reference section where in there are a total of 27279 Volumes.
- The library has facilities like DELNET, N-List, CDs /ISIS, OCW of MIT, NPTEL etc.
- Library is a consortia member of INDEST-AICTE through which college has subscribed for IEEE, ASME, ASCE, Springer link, Infotrac engineering collection (IEC) and Science Direct e-portals.
- Every year, the Library adds new books and Journals to enable both faculty and students to go through the latest publications and journal articles.
- Assignments are given to students where in the students are made to refer library books at the department or at the college centre library to find solutions to the given problems.

(Please see list of Journals in Annexure-2.j)

2.3.15 How does the institution continuously monitor, evaluate and report on the quality of teaching, teaching methods used classroom environments and the effect on student performance.

- There are several committees formed in the institution headed by Professors. These Committees look after the academic activities, infrastructure and laboratory requirements of the departments. These committees periodically check:
  - Course files of each course which reveals the quality of teaching content and methods adopted for teaching the course.
  - Coverage of syllabus content and adherence to the schedules.
- The committee also inspects the teaching methodology followed by the Faculty, which includes verification of the attendance, work diary, student list, lesson plan, question papers (including model question papers), mapping of the course objectives with the program outcomes and any other details.
- The Dean academics schedules and monitors the academic calendar.
- The student feedback system is fairly robust and reflects the teaching capability of faculty. HoDs and faculty analyze the same to assess the course outcome and program outcome.
- Student feedback is taken twice a semester, one after the first internal test

and the other in the end of each semester. Verification on quality of question papers and assignment question and student answer scripts by internal quality assurance cell.

- Every department has project andSeminar evaluation committee for evaluation of projects and seminar components; this includes scheduling of student seminars, seminar topics, evaluation guidelines etc.
- In addition in tune with changing education system outcome based education audit (OBE) committee is constituted to guide the faculty in transforming the process of teaching learning and evaluation regularly.

(Pl see annexure 6.f)

2.4 Teacher Quality

2.4.1 What is the faculty strength of the College? How many positions are filled against the sanctioned strength? How many of them are from outside the state?

Under Graduate

Sl.No.	Department	Sanctioned	Total Faculty	Outside Karnataka
1.	Biotechnology	13	16	06
2.	Chemical Engg.	16	12	02
3.	Civil Engg.	20	17	02
4.	Computer Science &Engg	40	40	03
5.	Electronics &Comm. Engg.	40	40	08
6.	Electrical & Electronics Engg.	15	18	02
7.	Industrial Engg. &Mgmt.	14	15	01
8.	Information Science &Engg.	15	19	01
9.	Instrumentation Engg.	13	15	04
10.	Mechanical Engg.	32	36	04
11.	Telecommunication Engg.	14	12	02
12.	Physics	07	08	03
13.	Chemistry	11	11	06
14.	Mathematics	12	20	05
15.	Humanities	02	02	00
	Total	**262**	**281**	**50**

Post Graduate

01	Bitechnology	06	06	02
02	Civil Engg	06	07	00
03	Chemical Engg	03	03	02
04	Computer Science &Engg	06	06	01
05	Electronics & Communication	09	08	02
06	Electrical Electronics	03	03	01
07	Industrial Engineering	03	03	01
08	Instrumentation Technology	03	04	00
09	Information Science	06	06	00
10	Mechanical Engineering	15	16	00
11	Telecommunication	09	11	02
12	MCA	24	24	04

	Total		93		97		14

2.4.2 How are the members of the faculty selected?

- The vacancies for all the positions will be advertised in the National news papers.
- Applications are short listed on the merit basis.
- Candidates are called for teaching demonstration, where first round of assessment is done.
- Interviews are conducted in the department for the candidates who have been short listed after teaching demonstration.
- Short listed candidates are further interviewed by the institutional committee along with the VTU nominee.

Pl see the flow chart in Annexure-2.g

2.4.3 Furnish details of the faculty.

	Highest Qualification	Professor		Associate Professor		Assistant Professor		Total
	Dept. of Biotechnology							
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
UG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	-	01	01	02	04	00	08
	M.Phil.	-	-	-	-	-	-	-
	M.Tech.	-	-	-	-	05	02	07
P.G.	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	01	01	02	00	01	00	05
	M.Phil.	-	-	-	-	-	-	-
	MSc	-	-	-	-	01	-	01
Temporary	Nil							
Part Time Teachers	PhD	1	0	0	0	0	0	01
	Dept. of Chemical Engineering							
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
UG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	1	-	-	-	-	-	1
	M.Phil.	-	-	-	-	-	-	-
	M.Tech.	-	-	2	-	4	4	10
PG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	1	-	1	-	1	-	3
	M.Phil.	-	-	-	-	-	-	-
Temporary	Nil							
Part Time Teachers	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	1	-	-	-	-	-	1
	Dept. of Civil Engineering							
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Femal**	

		Mal e					e	
UG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	1	-	3	-	-	-	4
	M.Phil.	-	-	-	-	-	-	-
	M.Tech.	-	-	1	-	6	6	13
PG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	2	-	-	1	-	-	3
	M.Tech.	-	-	-	-	2	1	3
Temporary	Nil							
Part Time Teachers	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	1	--	--	--	--	--	1

Dept. of Computer Science & Engineering

Permanent	Qualification	Mal e	Female	Male	Female	Male	Female	
UG	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	01	02	02	--	--	--	05
	M.Phil.	--	--	--	--	--	--	--
	M.Tech.	01	--	02	02	04	26	35
PG	DSc. / D.Lit	--	--	--	--	--	--	
	PhD	02	--	--	01	--	--	03
	M.Tech.	--	--	--	01	--	02	03
Temporary	Nil							
Part Time Teachers	Nil							

Dept. Electrical & Electronics Engineering

Permanent	Qualification	Mal e	Female	Male	Female	Male	Femal e	
UG	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	1	1	3	--	0	0	5
	M.Phil.	--	--	--	--	--	--	--
	M.Tech.	--	--	--	2	4	6	12
PG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	1	-	-	1	0	0	2
	M.Tech.	-	-	-	-	-	1	1
Temporary	Nil							
Part Time Teachers	DSc. / D.Lit							
	PhD	1	--	-	-	-	-	1

Dept. Electronics & Communication Engineering

Permanent	Qualification	Male	Female	Male	Female	Male	Female	

Permanent	Qualification	Male	Female	Male	Female	Male	Female	
UG	DSc. / D.Lit	1	--	--	--	--	--	1
	PhD	2	2	--	2	--	--	6
	M.Phil.	--	--	--	--	--	--	--
	M.Tech.	--	--	--	--	11	20	31
PG	DSc. / D.Lit	--	-	-	-	-	-	-
	PhD	2	1	1	--	--	--	4
	M.Tech.	-	-	1	-	1	2	4
Temporary	Nil							
Part Time Teachers	DSc. / D.Lit							
	PhD							
	M.Phil.							
	P.G.	2	--	--	--	--	--	02
	Dept. of Industrial Engineering & Management							
Permanent	Qualification	Male	Female	Male	Female	Male	Female	
UG	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	1	--	1	1	--	--	3
	M.Phil.	--	--		--	--	--	--
	M.Tech.	--	--	1	--	8	3	12
PG	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	1	--	1	--	--	--	2
	M.Tech.	-	-	-	-	-	1	1
Temporary	Nil							
Part Time Teachers	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	--	--	--	--	--	--	--
	Dept. of Information Science & Engineering							
Permanant	Qualification	Male	Female	Male	Female	Male	Female	
UG	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	--	01	01	--	--	--	02
	M.Phil.	--	--	--	--	--	--	--
	M.Tech.	--	--	01	01	02	13	17
PG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	04	--	-	--	--	--	04
	M.Tech.	-	-	--	-	01	01	02
Temporary	Nil							
Part Time Teachers	Nil							

	Dept. Instrumentation Technology							
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
UG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	--	1	1	-	-	-	2
	M.Phil.	-	-	-	-	-	-	-
	M.Tech.	-	-	1	1	4	6	12
PG	DSc. / D.Lit	-	-	-	-	-	-	-
	PhD	--	1	2	-	-	-	3
	M.Tech.	-	--	--	--	--	1	1
Temporary	Nil							
Part Time Teachers	Nil							
	Ph.D	1	--	--	--	--	--	1
	Dept. Mechanical Engineering							
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
UG	DSc. / D.Lit	--	--	1	--	--	--	1
	PhD	2	--	5	--	--	--	7
	M.Phil.	--	--	--	--	--	--	--
	M.Tech.	1	--	1	--	19	4	25
PG	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	6	--	4	--	1	--	11
	M.Tech./MS	--	--	--	--	4	--	4
Temporary	Nil							
Part Time Teachers	DSc. / D.Lit							
	PhD	1	--	--	--	--	--	1
	M.Phil.	--	--	--	--	--	--	--
	M.Tech.	03	--	--	--	--	--	3
	Dept. Telecommunication Engineering							
Permanant	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
UG	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	1	--	--	--	--	--	1
	M.Phil.	--	--	--	--	--	--	--
	M.Tech.	1	--	1	--	4	5	11
PG	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	1	1	--	--	--	--	2
	M.Tech.	--	--	1	1	3	3	8
Temporary	Nil							

Part Time Teachers	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	1	--	--	--	--	--	1
	M.Phil.	--	--	--	--	--	--	--
	P.G.	--	--	--	--	--	--	--
Dept. of Master of Computer Applications								
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	--	2	1	4	--	--	7
	M.Phil.	--	--	--	--	1	1	2
	M.C.A./M. Tech.	--	--	1	--	7	7	15
Temporary	Nil							
Part Time Teachers	Nil							
Physics								
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	1	--	2	--	1	1	5
	M.Phil.	--	--	--	--	--	1	1
	MSc.	--	--	--	--	--	2	2
Chemistry								
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	2	--	1	--	5	1	9
	M.Phil.	--	--	--	--	1	1	2
Temporary	Nil							
Mathematics								
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	
	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	2	1	--	2	1	4	10
	M.Phil.	--	--	--	--	1	4	5
	MSc	--	--	--	1	2	2	5
Temporary	Nil							
Program : Humanities								
Permanent	**Qualification**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	

	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	--	--	--	--	--	1	1
	M.Phil./ LLM	--	--	--	--	--	1	1
Temporary	Nil							
Part Time Teachers	DSc. / D.Lit	--	--	--	--	--	--	--
	PhD	--	--	--	--	--	--	--
	M.Phil./ M.A.	--	--	--	--	--	--	--
		--	--	--	--	--	--	--

2.4.4 What percentage of the teachers have completed UGC-CSIR-NET, UGC-NET, and SLET exams? In that what percentage of teachers are with PG as highest qualification?

Biotechnology	5%
Physics	Nil
Chemistry	9.09% (one faculty out of eleven) has completed SLET exam.. 81.81% of faculty (9 out of 11) are with Ph.Dashighest qualification. 18.18% of faculty (2 out of 11) are with M.Scashighest qualification.
Mathematics	5%
Engineering	32% are PhDs and all the remaining M.Tech.

2.4.5 Does the College encourage diversity in its faculty recruitment? Provide the following departments-wise details.

Department	% of faculty who are product of the same College	% of faculty from other Colleges within the State	% of faculty from other States	% of faculty from abroad
Biotechnology	0	57%	43	0
Chemical Engineering	0	56%	31%	13%
Computer Science & Engineering	18%	51%	29%	02%
Civil Engineering	08%	88%	04%	0
Electronics & Communication Engineering	15%	60%	25%	0
Electrical & Electronics Engineering	05%	76%	19%	0
Industrial Engineering	10%	60%	15%	15%

&Management				
Information Science Engineering	20%	64%	12%	04%
Instrumentation Technology	16%	63%	21%	0
Telecommunication Engineering	13%	74%	09%	04%
MCA	08%	80%	13%	0
Mechanical Engineering	19%	55%	15%	11%
Physics	0	44%	56%	0
Chemistry	0	55%	45%	0
Mathematics	0	35%	65%	0

2.4.6 Does the College have the required number of qualified and competent teachers to handle all the courses for all departments? If not, how do you cope with the requirements? How many faculty members were appointed during the last four years?

Yes, depending on the streams and number of courses in that stream competent teachers are appointed. Also keeping in view the fast technological changes faculty are sent for faculty development programs and PhD depending on their areas of interest.

Close to 300 faculty have been appointed in the last four years to enhance quality, retain the student teacher ratio due to increase in intake, introduction of new programs and fill the vacancies created in lieu of vacancies created due to superannuation and resignations.

2.4.7 How many visiting Professors are on the rolls of the College?

12 members

2.4.8 What policies/systems are in place to recharge teachers? (eg: providing research grants, study leave, nomination to national/international conferences/Seminars, in-service training, organizing national/international conferences etc.)

- **Support for attending workshops, short term training and Faculty Development Programs:** Withthe fast changing technology and pedagogy, Faculty members are encouraged to participate in workshops and acquire special knowledge and skills. Sponsorships for attending the UGC Refreshers programs and Summer/Winter Courses under the Continuing Education Centers in AICTE Recognized technical institutions and other regional & national agencies are generously offered to the students and the faculty members. Training Need Analysis is carried out and the departments conduct FSD programs.
- **Research encouragement & Facilitations:**The Faculty Members are encouraged to upgrade their Qualifications by permitting them to register for their Doctoral Programs in any of the AICTE/UGC Recognized Research Centres and work in any of the scientific labs set up by Government of India.

Faculty members are facilitated by the institution by giving them academic load reduction and leave facilities for enabling them to pursue their research programs. At any given time 10% of the faculties are given opportunity to go for higher studies under Quality Improvement Program(QIP) full time, and they are given the provision of Study Leave and associated salary benefits for the same. There is no restriction on enabling the faculty to carry out any higher education program under part time and some work load reduction is also provided for the same.

- **Sponsorship for Conferences & Seminars:**As per the institutional norms, the faculty members are sponsored for **One** international and **Two** national conferences with in the country per year, and also for **One** international conference abroad. Further in case of invited talks and other seminars or workshops, the college on a case by case basis also supports beyond the norms.

- **Faculty as Resource persons:** Some Faculty members are invited as resource persons in several professional forums and Short Term Training Programs conducted by other institutions and agencies as part of their mandate for continuing education to in service teachers and technical staff. This helps the faculty to interact with outside world and overcome their shortcomings.

2.4.9   Give the number of faculty who received awards / recognitions for excellence in teaching at the state, national and international level during the last four years.

Over 10 to 15 faculty might have received awards from state or national professional bodies and international agencies in the last 4 years.

Year	Awards		Recognitions	
	National	International	National	International
2010-11	06	--	05	--
2011-12	02	01	17	--
2012-13	08	01	14	--
2013-14	28	07	41	04

2.4.10 Provide the number of faculty who have undergone staff development programmes during the last four years. (Add any other programme if necessary)

Academic Staff Development Programmes	Number of faculty
Refresher courses	52 faculty
HRDprogrammes	78 Professors and Associate Professors
Orientation programmes	5 Programs
Staff training conducted by the College	78 staff were trained
Staff training conducted by University/other Colleges	131
Summer / winter schools, workshops, etc.	72
Any other (please Specify)	

Conferences/ symposia in India	47
Conferences Abroad	16
Pedagogy Training	86

2.4.11 What percentage of the faculty have

∗ been invited as resource persons in Workshops / Seminars / Conferences organized by external professional agencies

22%

∗ participated in external Workshops / Seminars / Conferences recognized by national/ international professional bodies

30%

∗ presented papers in Workshops / Seminars / Conferences conducted or recognized by professional agencies

25%

∗ teaching experience in other universities / national institutions and others

12%

∗ industrial engagement

10%

∗ international experience in teaching

2%

2.4.12 How often does the College organize academic development programmes for its faculty, leading to enrichment of teaching-learning process?

∗ Curricular Development

This is a continuous process. There is an academic Advisory committee in every department and also a BoS for the under graduate programs. The academic advisory committee meets at least twice every semester.

∗ Teaching-learning methods

Pedagogy training is conducted and the road map is to have 100% training by March 2015.
Teaching learning methodology involves

∗ Examination reforms

- Under autonomous Examinationsystem credit system has been implemented.
- Flexible system introduced with minimum 20 credits per semester.
- Makeup and Fast track examinations introduced instead of supplementary examinations.
- Initially makeup was allowed for students with 60% CIE but later in 2012 increased to 75% to make it available to genuine students.

∗ Content / knowledge management

- Lesson plan along with COs are made available to the students in advance.

- Faculty are required to prepare teaching material in advance and make available to students.
- Departments are expected to use e-learning material and open source content like NPTEL,
- College is selected for QEEE online learning and many courses are accessed through web teaching by IIT professors.
- NIMIT and Classmite are used for knowledge management.

∗ Any other (please specify)

2.4.13 What are the teaching innovations made during the last five years? How are innovations rewarded?

The key innovation has been the introductionof essentially experiential learning or self learning component through a sequence of steps. The effort started 4 years back. This was partly based on our own SWOTanalysis and observing India trying to become a member of the Washington Accord (which it is now since July2014).Towards making our engineers employable and raising our engineering education standards, government has already signed the "Washington Accord". The National Board of Accreditation (NBA) was trying to upgrade India's accreditation process to be compatible with the ABET system followed internationally. Even as ABET or an equivalent process is followed across the world, MIT USA observed, that the outcome based education was inadequate. The advancement in technology had led to, too much of engineering science and engineers were losing touch with the actual product world. Students were less hands on, the curriculum did not motivate them to innovate, identifying an incremental need, work in interdisciplinary, intercultural and international team environment. More importantly the engineers were not in a position to look at societal issues or the whole life cycle of a product, from its concept stage, to design and development, production and use, and even end of life disposal. With a view to address these issues they conceived a new system for engineering education curriculum called Conceive-Design-Implement-Operate (CDIO) as a complimentary process to ABET in 2000. Hence if we would like to enable our students to become employable, innovative, and entrepreneurial ship, we need to work towards a new paradigm in engineering education leveraging the best practices from all these systems. Thus to inculcate both theoretical and design skills to actually implement projects, work towards integrated system building, work in an interdisciplinary & team environment, innovation, entrepreneurship, and sustainable technologies relevant to our society we developed our adaptation of the best of all these processes. Hope to enable both the teacher and the student to comply by all our norms and yet leverage the teaching learning process for all the expectations of engineering education system. Hence introduced the experiential / immersive or self learning component to our curriculum, with in the frame work of the university guidelines, as we do not have full autonomy.

With a two year discussion with the university we got a permission to introduce 24 credits of self learning or experiential learning component in our 200 credits engineering program. Also we had introduced six months project in the final semester with 18 to 20 credits. Credits were also introduced for curricular and co-curricular activities over the 4 semesters. Over 40 Industry based courses and labs were introduced in the curriculum. Provision to do the final year major projects in any department in an interdisciplinary fashion. ***Thus this enables the student to carry our for over 50 credits experiential or self learning process in the 200 credit engineering program. Which we believe is a first of its kind practice in India***.

a) One example of this self learning is the introduction of just a single or a couple of

assignment topics to a class. To enable the students to appreciate the interdisciplinary nature of technology, and the correlation of the multiple subjects to latest product, a single assignment is offered to the whole class. It could be for example a tablet or an hybrid vehicle. The topic is subdivided into 60 to 70 questions, with the whole class working on a latest product or the technology together. Each student works on one of the question, linking it to each of the subject studied in that semester. The questions are so framed that it includes the five best similar products, 10 key patents that enable the product, and 40 to 50 questions that combine the design & specifications, standards, system integration and manufacturing aspects. Thus every semester the student not only studies the regular subjects, but also earns 20% of his internal assessment for each paper by linking it to a product in the market. Further he also learns about working in a team, develops oral, written and presentation skills, self-learning skills, and understands about unresolved and emerging areas of opportunities in a given domain, from the very first semester. The topics are so chosen that the the work and the literature collected by the student is relevant to the inter-disciplinary areas of research or the ongoing industry / funded project areas in the college. So that the teacher can make use of the same for multiple research related activities including literature survey, to even doing simple elementary proof of concept, or feasibility study or setting up of experimental facility or developing manuals for software / hardware usage etc using the same.

b) For some of these innovation including the introduction of core interdisciplinary research, multiple industry based courses and labs for experiential learning, student projects like race car, hybrid vehicles, pico satellite &UAV activities, research of over Rs 30 crores and over Rs 15 crores of industry based labs, *MHRD chose RVCE for review and approval of India's accreditation by International Observers. Today is a full fledged member of the Washington Accord and we are happy to have contributed at least in a small part to India's higher education process*. So NBA also recognized *RVCE as one of India's 13 nodal centers* for training other college on the OBE based accreditation processes.

Annually the teachers are awaeded the best teacher award by the management and in the last 5 years we have also introduced two gold medals in collaboration with M/s Cognizant technology for best teachers.

2.4.14 Does the College have a mechanism to encourage

∗ Mobility of faculty between institutions for teaching?
∗ Formally we donot have nay such agreement. But our teachers frequently deliver guest lectures in many colleges. We have also had request for teaching a complete subject in some college for a semester, or even hold labs for some of the new government engineering colleges in our own college premises. We also offer special industry based labs for other institutes.

∗ Faculty exchange programmes with national and international bodies?
As we have got autonomy only now we are planning to initiate such activites once our autonomy process is fully established.

If yes, how have these schemes helped in enriching quality of the faculty?

2.5 Evaluation Process and Reforms

2.5.1 How does the College ensure that all the stakeholders are aware of the

evaluation processes that are operative?

- Hand book consisting of rules and regulations, details of examination process is given to all the students during first year. During the first week of the admission orientation programs are been conducted to make the students aware of the examination process.

  Time to time the office of Controller of Examinations will send circulars related to dates and timetable for examinations and other activities related to examination process.
- The Question paper pattern for both CIE and SEE are published in the syllabus book for every course.
- Scheme of evaluation is made known to the students.
- Blue Books are distributed to the students and their queries are addressed by the faculty, in case of discrepancy students can meet the HoD also.
- Parent Teacher meeting is held and parents meet the concerned faculty for clarification.
- In SEE photocopies are issued on request and there is provision for revaluation and challenge valuation.

2.5.2 What are the major evaluation reforms initiated by the College and to what extent have they been implemented in the College? Cite a few examples which have positively impacted the evaluation management system?

- In the under-graduation credit system is followed and a student has to earn 200 credits to be eligible for under graduate degree.
- Flexibility in choosing the number of credits has been provided. There is also provision to drop or withdraw a course. Minimum number of **credits to** be earned is 20 in a semester.
- The institution has shifted from marks based result to grading system.
- The vertical progression is decided on the basis of CGPA and a student has to earn a minimum of 5CGPA to move to next higher odd semester.
- The eligibility for transitional grade 'X' is increased from 60% to 75% from 2012.
- Passing standard for courses having both theory and laboratory component is modified to see that students take both components seriously. The students are required to obtain minimum passing marks for theory and laboratory separately. This reform has been implemented from 2012.
- The above two changes has reduced the misuse of the provision and has also improved the academic standard of the students.
- Barcoding of answer scripts has been introduced – This has reduced the errors during coding/decoding.

2.5.3 What measures have been taken by the institution for continuous evaluation of students and ensuring their progress and improved performance?

- Continuous evaluation is an important part of both Under graduate and Post graduate programs. In the case of UG programs the CIE carries 50% weightage and SEE 50% weightage. In the case of PG programs CIE carries 33% weightage (As specified by VTU).
- The components of Continuous Internal Evaluation (CIE) are test, quiz, assignment (project/paper presentation/field work) and self study, which will be conducted at regular intervals.
  CIE break-up

UG Programs	Test	Quiz	Assignment/Seminar
Courses without self study component	60%	30%	10%
Courses with self study components	50%	30%	20%
PG Programs	60%	--	40% (including Laboratory where ever applicable)

.
- Remedial classes are conducted for below average students and Regular counseling through faculty counselor/HoD and others.
- Parent faculty meeting is conducted every semester to apprise and to get a feedback about the student's performance.

2.5.4 What percentage of marks is earmarked for continuous internal assessment? Indicate the mechanisms strategized to ensure rigour of the internal assessment process?

- o The percent weightage of CIE to Semester End Examination (SEE) is 50:50 in case of UG programs.
- o In the case of PG programs CIE to SEE is 33:67 (VTU norms)
- o A student has to answer all questions in both test and quiz question paper.
- o Test and quiz are conducted with the same rigor as SEE (question paper scrutiny, proper seating arrangement for students, invigilation process, squad monitoring, conduction of quiz and test).

2.5.5 Does the College adhere to the declared examination schedules? If not, what measures have been taken to address the delay?

Yes, the college adheres to the declared examination schedules in case of UG programs.
In the case of PG programs the calendar of events are provided and implemented by VTU.

2.5.6 What is the average time taken by the College for declaration of examination results? Indicate the mode / media adopted by the College for the publication of examination results e.g., website, SMS, email, etc.

- The average time taken by the college for declaration of examination results is 5 working days from the date of last examination, in case of UG programs.

- The college publishes the results on its website and also in the notice boards of the respective departments.
- In the case of PG the average time taken is three weeks.
- The PG results are also available on the website, SMS and department notice Boards.

2.5.7 Does the college have an integrated examination platform for the following processes?

* Pre-examination processes – Time table generation, OMR, student list generation, invigilators, squads, attendance sheet, online payment gateway, etc.

At present the above processes are done manually. The institution is procuring an Institutional Management Software to take care of all these activities.

* Examination process – Examination material management, logistics.

- The required materials for the examination are procured in advance.
- Question papers are made ready and are kept in sealed covers under the custody of CoE and are handed over to the chief superintended 45 min prior to the examination.

* Post examination process – attendance capture, OMR based exam result, auto processing, generic result processing and certification.

- The auto processing of answer scripts, marks entry, generic result processing, declaration of result, generation of grade cards and certificates is carried out through a in-house developed software platform.
- The proposed MIS software will also take care of all the above mentioned processes.

2.5.8 Has the College introduced any reforms in its Ph.D. evaluation process?

- The PhD program comes under VTU and the evaluation process is carried out by the university. However periodic progress is taken care of by the respective departments.

2.5.9 What efforts are made by the College to streamline the operations at the Office of the Controller of Examinations? Mention any significant efforts which have improved process and functioning of the examination division/section?

- The Controller of Examination and the examination section is an autonomous unit.
- The unit is guided by Examination Board consisting of Principal, Senior Professors with CoE as the convener.
- There is a grading advisory committee which meets and analyses the results and gives suggestions related to academic and evaluation matters.
- Partial automation of examination related to following activities in place are:
  - Process of sending the request for Question paper
  - Coding of question paper received from examiners
  - Bar-coding of answer scripts
- Software for generation of grades and grade point average, result

analysis, grade cards and PDC.
- This has reduced processing time for different activities
- Effective monitoring of different activities
- Reduction in errors

2.5.10   What is the mechanism for redressal of grievances with reference to evaluation?

- The following mechanisms are in place to address the grievances:
    1. Re-totaling
    2. Photo copy of answer scripts
    3. Revaluation/Challenge Valuation

- The redressal process has been strengthened by inviting external examiners for revaluation.
- For challenge valuation a panel of three examiners with at least one external expert has further improved the credibility of the system/process

2.6.   Student Performance and Learning Outcomes

2.6.1   Does the College have clearly stated learning outcomes for its programmes? If yes, give details on how the students and staff are made aware of these?

Yes, College has clearly stated outcomes for its programmes. For each programme the PEOs are spelt out in consultation with the BoS. The PEOs and PSC are derived from the lead professional societies, printed in the syllabus copies and distributed to students and faculty. Most of the departments display the same in the department notice boards, printed in the lab manuals and also published in institute website.
In the lesson plans Course learning objectives and course outcomes are provided and faculty discuss with the students in class rooms.

2.6.2   How does the institution monitor and ensure the achievement of learning outcomes?

The extent of achievement of learning outcomes both through direct evaluation and indirect evaluation is carried out every semester. Feedback forms are circulated among stake holders Viz. Alumni, employers, parents, BoS and BoE members.Attainment of course outcomes are arrived at from the performance of students in CIE and SEE. Rubrics are developed for Projects, Seminars and co-curricular activities.

2.6.3 How does the institution collect and analyse data on student learning outcomes and use it for overcoming barriers of learning?

The student's performance is evaluated regularly through CIE and SEE. The course survey is done at the end of each semester, % achievements is calculated from the performance of students (as prescribed by the institution). If achievement is less, faculty is advised to improve the content and mode of delivery.
If the achievement is below the expected attainment, the academic advisory committee will analyze the reason for performance below expectation and suggest remedies, including modification of syllabus.

2.6.4 Give Programme-wise details of the pass percentage and completion rate of students.

UG program detail for batch admitted during 2010

Sl.No.	Program	Pass Percentage	Completion rate
1.	Biotechnology	88.33	46/52
2.	Chemical Engg.	95.92	47/49
3.	Civil Engg.	75.47	40/53
4.	Computer Science &Engg	90.41	132/146
5.	Electronics &Commn. Engg.	85.71	120/140
6.	Electrical & Electronics Engg.	91.89	68/74
7.	Industrial Engg. &Mngmt.	86.36	57/66
8.	Information Science &Engg.	91.89	68/74
9.	Instrumentation Engg.	87.32	62/71
10.	Mechanical Engg.	87.84	130/148
11.	Telecommunication Engg.	92.86	65/70

PG program details (MCA and M.Tech)
For MCA details of students batch admitted duirng 2010
For M.Tech details of students batch admitted during 2011

1	MCA	93.22	111/118
2	Biotechnology	94.12	16/17
3	Power Electronics	88.89	16/18
4	Biomedical Signal Processing and Instrumentation	100	18/18
5	Computer Science & Engineering	89.47	17/19
6	Highway Technology	77.78	14/18
7	Structural Engineering	83.33	15/18
8	Computer Integrated Manufacturing	70.59	12/17
9	Machine Design	63.16	12/19
10	Product Design and Manufacturing	91.43	32/35

11	Tool Engineering	76.47	13/17
12	Communication Systems	66.67	12/18
13	VLSI Design and Embedded Systems	100	19/19
14	Computer Networks and Engineering	94.12	16/17
15	Digital Communication Engineering	91.43	32/35
16	Information Technology	77.78	14/18
17	Software Engineering	100	18/18
18	Engineering Management	83.33	15/18

Criterion III: RESEARCH, CONSULTANCY AND EXTENSION
3.1 Promotion of Research
3.1.1 Does the College have a research committee to monitor and address the issues of research? If yes, what is its composition? Mention a few recommendations which have been implemented and their impact.

Yes.

Following are the duties and responsibilities of the research committee:

- To identify thrust areas of research.
- To advice and encourage the faculty to carry out research.
- To review the proposals before submitting to funding agencies.
- To identify the physical and human resources to carryout research.
- To identify the budgetary requirements and resources for funding the research.
- Scrutiny of research papers for publication.
- Recommendation for sponsoring for international conferences.
- Selection of research scholars and assistants
- Recommending Seed money grants for upcoming research areas

1	Prof. B.S. Satyanarayana	Principal
2	Prof. K.N. Raja Rao	Advisor& TEQIP Coordinator
3	Dr. K.N. Subramanya	Vice Principal
4	Dr. Pushpa Agrawal	Dean (PG Studies)
5	Dr. K. Ramachandra	Former Director GTRE & Adjunct Prof. ME
6	Dr. H.N. Narasimha Murthy	Dean PG studies (Non Circuit Programs)
7	Dr. M.A. Lourdu Antony Raj	Dean Student Affairs & Prof. Chemical
8	Dr. P. Ramakanth Kumar	Dean Academics & Prof. ISE
9	Dr. K. Uma Rao	Prof. Electrical & Electronics
10	Dr. M.Uttara Kumari	HoD, ECE & CoE , Coordinator
11	Dr. M.Krishna	Dean, R&D and Convenor

Impact:

- The faculty is advised to do research in the areas that the institution has defined in its road map.
- The students and staff have clear idea of the areas in which they need to do research and propose for funded projects.
- The institution is able to zero in into five Centers of Excellence, as spelt out in later sections. More inter disciplinary projects are being executed.
- Quality in research publications and funded projects improved.
- Checking plagiarism is mandatory.
- Increase in Publications.
- Easy to convince the Governing Body for financial assistance for travel for conferences and presentations.
- No. of workshops/seminars/conferences have increased.

3.1.2 What is the policy of the College to promote research culture in the College?

- As a policy the institution has graduated from teaching institution to teaching with research culture during the last decade or more. Several policy initiatives have been introduced to encourage research.
- The college has sixteen R & D centers, which facilitate various research activities including registration to MSc (By research) and PhD.
- Conduction of the relevant workshops/training programs are encouraged enhance the knowledge on the research activity. This is one of the most common practices at RVCE.
- The college has a research committee which has defined five areas of Centers for inter disciplinary research. As per the policy change the college has been able to secure a Centre of Excellence in Macro electronics under TEQIP sub component 1.2.1. The Centre of Excellence in Macro electronics has opened up new opportunities for both staff and students to work in the emerging areas.
- Faculty members are encouraged to present and publish papers at reputed conferences and high impact factor journals with financial support.
- Young faculty members are encouraged to enroll for Ph.D in research centre at RVCE or other recognized centers.
- Faculty is encouraged to apply for funded projects in different fields. College provides incentives for the faculty in this task.
- College sponsors the registration fees for FDPs and for PhD work either through college or TEQIP.
- Work load reduction for faculty pursuing Ph.D, M.Tech(QIP) and QIP for PhD and M.Tech encouraged.
- Periodical review of progress of sanctioned projects to ensure timely completion.
- Both post graduate and undergraduate students are encouraged to participate in funded research projects
- Under-graduate and Post-graduate students are Encouraged to publish papers in reputed referred journals by creating awareness on how can one move towards research.
- State of the art research facilities are established in advanced fields of research like alternative materials, large area flexible electronics, rapid prototyping, wireless communication, data mining, VLSI Design, etc.,
- Department wise R & D laboratory and computing with internet facilities are created for research work.
- The research centers are encouraged to organize International/National Workshops / Seminars /Conferences in specific domain areas.
- R&D cell of the institution ensures information dissemination to all departments with regard to opportunities for securing externally funded R&D projects and also recommends suitable incentives to promote R&D.
- Awards have been instituted for researchers who excel.
- Consultancy is encouraged and sharing policy defined.
- Patents are encouraged and supported financially.
- Faculty is encouraged to apply for funded projects in different fields. College provides incentives for the faculty in this task.

3.1.3 List details of prioritized research areas and the areas of expertise available with the College.

Looking at the competency of various faculty members and research interests and also the regional and national priorities, the institution research committee has identified five CoEs:

1. Centre for Clean and Hybrid Power (CCHP)
2. Centre for Green Infrastructure and Management (CGIM)
3. Centre for Intelligent Transport Systems (CITS)
4. Centre for Macro electronics (CME)
5. Centre for Multifunctional Materials (CMM)

These are also in line with the vision of the institute.

3.1.4 What are the proactive mechanisms adopted by the College to facilitate smooth implementation of research schemes/ projects?

- Advancing funds for sanctioned projects: Advance is released as seed grant from the college in case of delay in the release of the grants from the sanctioning authority for the funded projects.
- Providing seed money: Seed money is provided for promoting research activity to PI, based on the priority of the research.
- Autonomy to the principal investigator/coordinator for utilizing overhead charges: The amount received goes to the Principal's account, PI can justify and utilize the overhead for research with prior permission of research committee.
- Timely release of grants: Timely release of funds is facilitated and if required seed money is also provided for satisfactory and timely completion of the projects.
- Timely auditing: Separate auditors both internal and external audit the accounts quarterly.
- Progress reports are submitted as per milestones mentioned in the proposals.
- Submission of utilization certificate to the funding authorities: Principal and PI submit the utilization certificate along with the auditor's report, as per the prescribed format by the funding agencies.

3.1.5 How is interdisciplinary research promoted?
Between/among different departments of the College and Collaboration with national/international institutes / industries.

- Sponsored interdisciplinary funded projects with PI and Co-PI(s) from various departments are encouraged.
- Workshops are conducted by a group of departments in the areas of research for the benefit of the faculty, Ph.D. scholars and M.Tech students.
- College / TEQIP encourages interdisciplinary research projects by providing seed money.
- Through the five centers of excellence interdisciplinary research works are initiated.
- Dissemination workshops are conducted by principal investigator and team to foster interaction between coordinators from different departments.
- Seminars to foster interaction between students, research scholars, and Investigators.
- Professionals/ academicians from Industries/Colleges respectively can register for research work leading to PhD.

- Industry Institute consultancy projects are encouraged. Some of the industries with whom joint consultancy has been taken up are Hindustan Hi Vacuum (HHV), Nano Ram , GE R&D, IBM , Claas India, Samsung, CISCO etc.
- Laboratories established by industries in various departments have helped in enhancing interdisciplinary research facilities. The total investment on these laboratories by companies is worth of Rs.1500 lacs. Companies who have set up laboratories are ABB, Lapp Cable, Bosch Rexroth, Cognizant, Cisco, Freescale Semiconductor, Texas Instruments, NXP Semiconductors, Intel,General Engineering,Hind High Vacuum, Intel,IBM, Infosys,K-Pack, Pace Electronics, Agilent Technologies, Tejas Networks, Mind tree, SAP, Samsung Electronics, Sparx Technologies, TE Connectivity.
- Five interdisciplinary centers with state of the art researchfacilities in the areas of **Large Area & Flexible Microelectronics**, **Multifunctional Materials, Clean and Hybrid Power, Green Infrastructure and Management, Intelligent Transport Systems** have been established.
  (Pl see Annexure 1.b)

3.1.6 Enumerate the efforts of the College in attracting researchers of eminence to visit the campus and interact with teachers and students?

- Many Joint Research projects and Journal publications with universities in India and abroad are being carried out.
- Researchers and eminent professionals are invited for conferences/workshops and technical seminars.
- Faculty pursuing Ph.D. are asked to invite their guides to the college and department for interaction and Workshops
- College attracts researchers as trainers and resource persons.
- The Principal project's the capability of the faculty and students during the visit of eminent personalities from industries and R&D organizations. The senior professors also take them to various facilities developed for R&D. This enables them to visualize the capabilities which lead them to offer projects.
- Many Researchers from other institutions are provided with exclusive laboratories and facilities to carry out their research work in the college.

3.1.7 What percentage of faculty have utilized sabbatical leave for research activities? How has the provision contributed to the research quality and culture of the College?

- 5% of the faculty members have utilized sabbatical leave for research activity, this has brought new ideas in research and teaching.
- It has helped in knowing the areas in which the industries are working and hence re-orient the topics of research.
- Joint Publications have come out.
- Industry professional have shown interest in QIP M.Tech. & PhD programs.
- College has a policy to have at any given time 10% of the faculty in a department can go on sabbatical. To enable faculty to do research the college has consciously tried to have a faculty student ratio of about 1:13 & 1: 14 in most departments and consciously trying to move towards 1:12 by the end of 2020 for all departments.

3.1.8 Provide details of national and international conferences organized by the College highlighting the names of eminent scientists/scholars who participated in these events.

Department(s)	Dates	Broad Area	Eminent scientists/scholars	National/ International
Telecommunication, Information Science, Electronics & Communication & Computer Science	15th – 17th, May, 2014	Research Conference on "Broadband for Sustainable Development"	Padma Bhushan Dr.V.K.Atre, Dr. S.Pal, Former Group Director, ISTRAC, Bangalore	National
Civil Engineering, Chemical, Biotechnology,	Three days 9th to 11th October 2013	Workshop on Green Systems for Sustainable Environment; Focus on Zero Discharge of Water	Mr. Vishwanath S, Director, Biome Environmental Solutions Er. V.C. Kumar, Executive Engineer, BWSSB. Er. Mahesh T, Env. Officer, KSPCB Mr. M.D.N. Simha, Former CEO of KSPCB Mr. A.N. Prakash, G M K- Pack Ms. Rohini and Mr. G S Santhosh, CDD Society	National
Dept. of Civil Engg, Mechanical, Chemical, Biotechnology, Chemistry, Physics and Electronics	3 days (28th to 30th Nov 2013)	'Multifunctional Engineering Materials'	Dr. Vijay Parihar, Senior Director, Applied Materials, Sanfrancisco, Dr. K. S. Nanjunda Rao, Department of Civil Engineering, IISc Mr U Basavaraju, Scientific officer - R&D,HHV Pvt. Ltd, Dr.SantanuMahapatra, Department of Electronic Syst. Engineering, IISc. Dr. Sukumar Roy, Dy GM, BHEL, Corporate R & D, Ceramic Technological Institute Mr.Laxman kumar, Scientist, Thin-film Division, H HV	National

Dept. of Civil Engg	30.11.2013	Hands On Training On Valuation Of Real Properties	T. S. Chandrasekhara Chairman, Institution of Valuers, Bangalore Centre, Bangalore-21	National
Dept. of Civil Engg, & Instrumentation Technology	3 days (4th to 6th Dec 2013)	'Applications of Geospatial Technologies for Faculties of Technical Institutions	Dr.V. Jayaraman, Former Director, NRSC, ISRO. Dr.M.Prithviraj, Ex. Secretary, KSCST, IISc. Prof. M.S.Mohan Kumar, Secretary, KSCST, IISc. Dr. G. Namasivayam. Former Additional Director, Survey of India Mr. Karthik, Senior Engineer, Geotech, B'lore Mrs.K.Nagajyothi, RRSC, Bangalore Mr.H.Hemanth Kumar, NRDMS, KSCST, IISc. Prof.A.Perumal, Chair Prof. Sir MV Chair, KSCST Mr. Nagaraj, Senior Technical Manager, NIITGIS, ESRI INDIA	National
Dept. of Civil Engg,	16th to 18th Dec 2013.	'Structural Masonry – Analysis and Design'	Prof. Sarangapani G, NIE, Mysore Prof. Vijayendra,BIT, Prof. Mangala Keshava& Prof. S Raghunath, BMSCE, Bangalore Dr. K S Nanjunda Rao, IISc, Bangalore Dr. R Yogananda, Mrinmayee Consultants,	National
Dept of Civil Engg	One day (30-12-2013)	Trends in Highway construction and machinery practices	Prof.Sitaramanjaneyulu - Pavement Evaluation Division, CSIR, Delhi Prof.Satender Kumar, Consultant, Ex – Scientist, CRRI, New Delhi Dr. Anjaneyappa, Professor, RASTA,B'lore	National
Dept of Civil Engg	Three days(27-01-2014to 29-01-2014)	Research Avenues in Geotechnical Engineering	Prof. T G Sitharam Professor, IISc, B'lore Dr. Deepankar Choudhary Professor, IIT-B Dr. Chandan Ghosh Prof.& Head, NIDM,	National

			Delhi Dr M R Pranesh (Rtd) Professor, IIT Madras , Dr. K S Rao, Prof.IIT-D Dr. B R Srinivasamurthy Rtd. Professor, IISc. Dr. G L Shivakumar BabuProfessor, IISc . Dr. H N Ramesh, Professor &Dr. S Gangadhara Associate Professor, UVCE , B'lore	
Dept of Civil Engg, Biotechnology,Chemical Engg,	One Day (05.06.2014)	Hydroponics	Mr. Manikandan Pattabiraman Geekgardener, Bangalore Mr Roxy Philip Geekgardener, Bangalore	National
Mechanical	25-29 March, 2013	Computer Fluid Dynamics	Dr.Satya Prakash, ADA, CV Raman Nagar,B'lore. Prof.N.Balakrishnan, Associate Professor,Dept. of Aerospace Engg., IISc. Dr.J.S.Mathur, Scientist F, Head of ComputationalTFDD, NAL,B'lore. Dr. K.P.Singh, Scientist-H, CFD Chairman, ADA, Bangalore. Dr.N.K.S.Rajan, Principal Research Scientist Dr. S.V.Raghurama Rao, Associate Professor, Dept. of Aerospace Engg., IISc, Bangalore.	National
	8-10 April 2013	Seminar on Scanning Electron Microscope	Dr .E. S. Dwarakdasa , CEO and MD of Hybrid micro device, Bangalore Dr. N Ravishankar,Associate professor,Dept of MRC,IISC, Bangalore Dr.B.Venkatraman, Head, SurfaceEngineering Division, DMRL, DRDO, Dr Sujata Bhaumik NAL Campus, Bangalore Dr.Satpathy,DGM,BHEL Dr. RMV Gopalkrishna	National

			Rao,NAL,	
	29 July-2 August-2014	Advanced material charterization	Dr Manjunatha pattabhi, Chairman, Dept of Materials Science, Mangalore University. Dr Rajeev ranjan, Associate professor, Dept of MRC,IISC. Mr.Manjunatha Rao, Senior Engg, Sinsil Industries, Bangalore Dr. N Sukumar Roy& Dr .C D Madhusoodhana, DGM, Cermaic technology , BHEL, Blore Dr N Ravishankar, Associate professor, Dept of Materials Engg, IISC. Dr. B C Charkraborty, Scientist 'F',NMRL, Pune.	National
	12 to 17 August-13	Robotics and Low Cost Automation	Mr. S K Vijay, AGM, PED, TVS, Motor Dr. Guruprasad, AP, NIT, Suratkal, Karnataka Dr. Vasuki, Professor, Dept. of ME, NIE,Mys. Mr. Bhimsen, DGM Projects, Sartorius, B'lore Mr. Vishwas P R, ACE Designer, Bangalore Mr. Akhilesh GM, Manager Production, Fanuc India Ltd MR. G Murthy, Composite Structural Consultancy, Chennai	National
Telecommu nication & Information Science	17th and 18th May 2013	"Advances in Information &Communicati on technology"	Dr.A.Chockalingam , Prof,IISc, Bangalore	National
Electronics & communicat ion Engineering	19th to 20th April 2013	"Low power solutions for communication "	Dr. Sathya Sudhakar, Sankhya Labs Mr. SujitSudhaman, Emphasis Ltd. Dr. P G Poonachcha, IIIB	National
	14th Oct 2011	Radar Signal Processing & Wireless Commn.	R.C.Kuloor, Sri.Saha & Dr.A.K. Singh, Sr. Scientists,LRDE, B'lore	National

	23rd&24th Oct 2009	VLSI and Multimedia Communication	Dr. Sujatha Jaganath, Wipro Sri.Venkatesh Prasad,CEO , RV-VLSI Dr.Ajith Rao, Team Leader, TI Mr.Chandrashekar, Senior Software Engr., Synopsis Mr.Bhaskaran Srinivasan, Senior Director Philips health care ,Bangalore	National
MCA	20th – 22nd December 2012	Future Computing	Dr. Sufian Yousef, Principal Lecturer, Anglia Ruskin University, Chelmsford, U.K Dr. Ajith Kumar Verma, Professor, Haugesund University College, Haugesund, Norway	International
Telecommunication & Information Science	17th and 18th May 2012	"Signal Processing and Communications"	Dr.K.Natarajan,President, ISSS,Bangalore	National
Industrial Engineering Management in association with M/s ABCON Information Systems Pvt. Ltd., Bangalore	3rd – 5th February 2011	"Operational Excellence for Global Competitiveness" (ICOEGC – 2011)	Mr.Gaurav Gupta, IAS,MD–KSRTC, B'lore Mr.Joseph F Paris Jr Chairman, Xonitek Group of Companies, USA Mr.Raj Kumar, Vice President, ADC Telecom Networks, Bangalore Mr.M.Chellapandian, ABB (I) Ltd, Bangalore Ms.CarleyJ Jurishica, Rockwell Automation, USA Prof.Y.Narahari, Chairman, Dept. of CSE & Automation, IISc. Prof. B Mahadevan, DeanAdministration, IIMB, Bangalore Mr.Anantha Radhakrishnan, Vice President, Infosys BPO Ltd, Bangalore Mr.Sankalpa Bhattacharjya, Associate Director, KPMG, Delhi	International

			Mr.Udayshankar Ravoory, Operations Director, Goodrich Aerospace Co., Bangalore Prof. K S P Rao, Chairman, Dept. of IE, Anna University, Chennai	
Computer Science & Engineering in partnership with CSI, ISE & MCA	14th - 15th Oct 2011	Technological Innovations by Adolescent Minds	Mr.Gopala Ratnam, Vice President CISCO, India(PVT.) Ltd. Mr.Amarnath B K, CEO, Mind Matters, Hyderabad.	National
MCA & CSE	21st May 2011	"Relevance of Sustainable Technology for growth of women"	Dr. Geetha Bali, Vice Chancellor, Karnataka States Women's University,Bijapur	National
CSE, E&CE, IT	29th -30th April 2011	Computers Communications and Controls	Dr.Chandrashekhar, Professor IISC Dr.M.H.Kori, Alcatal – Lucent Mr.ShankarnarayanBhat, QUALCOMM Mr.Murali, Corell	National
CSE, E&CE, IT	29th - 30th April 2011	"Recent Trends in Computer Technology" [RTCT-2011]	Prof. H.B. Walikar, Hon'ble vice Chancellor of Karnatak University. Mr. Srikanth Narasimhan of Cisco System India(pvt.) Ltd. Mr. Kumar Anand of Tech Mahindra India(pvt.) Ltd. Mr. Sridhar K from Dell India(pvt.) Ltd. Mr. Tharakarama Raju from Dell India(pvt.) Ltd.	National
BT, EEE, MCA & IT	20th May 2010	"e-waste management and recycling"	Dr. Parthasarathy, CEO, e-parisara Dr.Sadashivaiah, Karnataka State Pollution Control Board	A one day symposium on
EC,CSE, IT, ISE, TC	22nd - 23rd Jan 2010	"Computing & Communication Technology" [CCT-2010]	Mr. L N V Swamynathan, Vice President, Unisys. Mr. B.V. Prasad Head, Software Quality	National

			Assurance Division and Manager, ISRO. Mr.Satish Kanagale S, Senior IT Specialist, IBM India Software Lab Mr.Raghunath, IBM. Mrs.Seema Patil, Head of Competenency Business Tech. Services, Wipro	
Industrial Engineering Management	12th – 13th May 2009	Rapid Prototyping & Manufacturing	Mr.Ashwin V. Deshpande-Design Tech Systems Ltd. Mr. Sethna, MD Western Industrial Appl. Mr.Prakasam Anand,EOS Gmbh India Andrew Yeoh Materialise, Malaysia Mr. Said Omar ProMetal Mr. Stefan Ritt MTT Tech., Germany Andrew Yeoh Materialise, Malaysia Dr.Devarajan TVS Motors Ltd Dr.G.Saravana Kumar IIT, Madras Dr.P.M.Pandey, IIT-Delhi Dr.Rajesh Ranganathan C IT, Coimbatore C K Srinivas,CMTI	National

3.1.9 Details on the College initiative in transferring/advocating the relative findings of research of the College and elsewhere to the students and the community (lab to land).

- Paper publications in reputed journals & peer reviewed journals like IEEE , Elsevier, ASM, Wiley,RSC, IEEEXplorer, Inderscience, Current Science, Springer, SAGE and various other international journals.
- Dissemination workshops are conducted after completion of sponsored research projects.
- Open Viva is conducted for PhD.
- Conferences/ seminars/ symposium are conducted regularly in various departments. This helps in formulating new research proposals.
- Research findings are shared with the user community. For example: Biotechnology department is actively involving in the production of the tissue cultured plants, which has been transferred to the farmers. The students are also involved in such projects. The college has established Entrepreneurship Development Cell and an E Cell as a student forum, through which the research findings can be transferred from lab to land. MoU has been signed

between KPMG and RVCE for **Implementation of Rain Water Harvesting in the RVCE Campus,** financed by KPMG, Consultants: Biome Rain Water Harvesting, supervised by the Dept.of Civil Engineering, RVCE, on 11th Nov 2009.

- Transfer of developed Technology to industry and end user is carried out. For example, "Optimization of feeder routes for Bangalore Metro", transferred to BMTC. Metal-FRP Gunbarrel technology transferred to Armaments factory, Kazipur, WB. Material for UUV, transferred to NPOL, Cochin.

- MoU between Karnataka State Sericulture Research & Development Institute (KSSRDI) and RVCE. Typical projects executed are Video surveillance, Moisture measurement of mulberry leaves and monitoring the indoor parameters of silkworm rearing center.

- Students (both UG and PG) are involved in R&D projects funded by various organizations, this leads to joint publications at National/ International level.

- Research bulletins are displayed in the departments to communicate research activities to the students.

3.1.10 Give details on the faculty actively involved in research (Guiding student research, leading research projects, engaged in individual or collaborative research activity etc.)

Department	Name of faculty	Activity:		
		Guiding PhD	PI	Co-PI
Biotechnology				
	Dr. Pushpa Agrawal	Yes	Yes	Yes
	Dr. Ashok Kumar H.G.		Yes	Yes
	Dr. Nagashree N Rao	Yes	Yes	Yes
	Dr. Ashwani Sharma			Yes
	Dr, A.H. Manjunatha Reddy	Yes	Yes	Yes
	Mr. Vijaya Kumar		Yes	Yes
	Dr. Lingayya Hiremath	Yes		Yes
	Dr. Neeta Shivakumar		Yes	Yes
	Mr. Trilok Chandran			Yes
	Dr. A.V. Narayan		Yes	
	Mr. Ajith Kumar Srivastava			Yes
	Dr. H. Raju		Yes	
Civil				
	Dr. B C Udayashankar	Yes		Yes
	Dr. K S Jagadish,	Yes	Yes	Yes
	Dr. B L Shivakumar	Yes	Yes	Yes
	Dr. M S Nagakumar	Yes		
	Dr. M V Renukadevi	Yes	Yes	Yes
	Dr. Radhakrishna	Yes		Yes
	Dr. Anantharama V	Yes	Yes	Yes
	Dr . R Ravindra	Yes		
	Prof. Madhavi K			Yes
	Prof. Manjunath S			Yes
Computer Science & Engg.				
	Dr. Shobha G	Yes	Yes	Yes

	Dr. Srinath N K	Yes	Yes	
	Dr. Rajashree Shettar	Yes	Yes	Yes
	Dr. Nagaraja G. S.	Yes	Yes	
	Ms. Anala M. R.		Yes	Yes
	Ms. Sharvani G S			Yes
	Ms. Soumya .A		Yes	
	Mr. Badri Nath k		Yes	
	Mr. Hemavathy R		Yes	Yes
	Ms. Azra Nasreen		Yes	
	Ms. Jyoti Shetty		Yes	Yes
	Mr. Manjunath A.E		Yes	
Chemical				
	Dr R Suresh	Yes		Yes
	Dr M. A. L. Antony Raj	Yes		
Electronics & Communication				
	Dr. M. Uttara Kumari	Yes	Yes	Yes
	Dr. B.S. Satyanarayana	Yes	Yes	Yes
	Dr. S. Jagannathan			Yes
	Dr. B. V. Uma	Yes	Yes	Yes
	Dr. S. Ravishankar	Yes	Yes	Yes
	Dr. B. S. Kariyappa	Yes		Yes
	Dr. K. S. Geetha	Yes		Yes
	Prof. Prakash Biswagar			Yes
	Dr. M. Bharathi		Yes	
	Dr.K.R.Usha Rani			Yes
	Prof. Sujatha D Badiger			Yes
	Prof. Rohini Hallikar			Yes
	Prof. Saraswathi			Yes
	Prof. M.Govinda Raju			Yes
	Prof. Mahesh A			Yes
	Prof. Shushrutha K.S			Yes
	Prof. Roopa J		Yes	
	Prof. Ravishankar Holla		Yes	Yes
	Prof. Arun kumar P Chavan			Yes
Electrical & Electronics				
	Dr. Jayapal	Yes		
	Dr. Rudranna Nandihalli	Yes		
	Dr. K. Uma Rao	Yes		
	Dr. Srivani S.G	Yes		
	Dr. Anitha G. S	Yes	Yes	
	Dr. Dinesh M. N	Yes		Yes
	Dr. Sreedevi	Yes		
	Chayapathy			Yes
	Adinath Jain			
	Suresh			
	Hemalatha J N			

	Prema V			
	Sharath B			
	K.M.Ajay			Yes
Industrial Engineering Management				
	Dr. N S Narahari	Yes	Yes	Yes
	Dr. K N Subramanya	Yes	Yes	Yes
	Dr. C K Nagendra Gupta			Yes
	Dr. Rajeswararao K V S	Yes		Yes
	Vijaykumar M N			Yes
	Ramaa A			Yes
	Shobha N S			Yes
	Vikram N Bahadurdesai			Yes
	Prashanth V			Yes
	Chitra B T		Yes	
	Shruthi M N			Yes
	Nandini B			Yes
Information Science				
	Dr. N K Cauvery	Yes	--	--
	Dr. Ramakanth Kumar P	Yes	Yes	--
	Dr. G N Srinivasan	Yes	Yes	--
	Dr. Shantharam Nayak	Yes	--	--
	Dr. Jitendranath Mungara	Yes	--	--
	Dr. B M Sagar	Yes	--	--
	Prof. Rajashekara Murthy	--	Yes	--
Instrumentation Technology				
	Dr. S.C. Prasanna Kumar	Yes	Yes	Yes
	Dr. K.V.Padmaja	Yes	Yes	Yes
	Venkatesh. S		Yes	Yes
	Dr. B.G.Sudharshan	Yes	Yes	Yes
	Dr. K.B.Ramesh	Yes	Yes	Yes
	Dr. Anand Jatti	Yes	Yes	
	N K Jayasimhan			Yes
	Deepashree Devaraj		Yes	
	Tabitha Janumala			Yes
	Kendaganna Swamy			Yes
Mechanical				
	Dr. Ravindra S.Kulkarni	Yes	--	Yes
	Dr.B.Anand	Yes	Yes	Yes
	Prof.M.S.Krupashankar		Yes	Yes
	Dr.H.N.Narasimha Murthy	Yes	Yes	Yes
	Dr. Shanmukha Nagaraj	Yes		
	Dr. M. Krishna	Yes	Yes	Yes
	Dr. H.D. Gopalakrishna	Yes	Yes	
	Dr. N.V.Nanjundaradhya	Yes		
	Dr. P. V. Srihari	Yes		
	Dr Ramesh S Sharma	Yes	Yes	Yes
	Dr. B.S.Suresh	Yes		
	Dr. P.R.Venkatesh	Yes	Yes	

	Sri M.R.Srinivas			Yes
	Dr. R.Sridhar	Yes	Yes	Yes
	Dr. J. R. Nataraj		Yes	
	Dr. S. Mahendra Kumar		Yes	Yes
	Dr. G.R Rajkumar		Yes	
	Dr.Kirthan L.J	Yes		
	Sri. Shivaraj BW			Yes
	Sri. Chandra Kumar R			Yes
	Sri. Bharatish A		Yes	Yes
	Sri. Jagannatha Guptha VL		Yes	
	Smt. Mamtha V			Yes
	Sri Gangadhar Angadi			Yes
	Sri G Moorthy			Yes
	Roopa T.S.			Yes
Telecommunication				
	Dr. H V Kumaraswamy	Yes		Yes
	Prof K N Raja Rao			Yes
	Prof R K Manjunath			Yes
	Dr. A G Ananth	Yes	Yes	Yes
	Dr. G Sadashivappa	Yes	Yes	
	Dr. K Sreelakshmi	Yes	Yes	Yes
	Nagamani K		Yes	
	Shanthi P		Yes	
Master of Computer Applications				
	Dr. Sumithra Devi K A	Yes	Yes	Yes
	Dr.Usha J	Yes		Yes
	Dr. Andhe Dharani	Yes	Yes	Yes
	Dr.Jasmine K.S	Yes		Yes
	Dr. Vijayalakshmi M N	Yes	Yes	
	Dr. Renuka Prasad B	Yes	Yes	
	Dr. S. Anupama Kumar		Yes	
	Mr. B.H. Chadrashekar			Yes
	Mrs. Sandhya S		Yes	
Chemistry	Prof. K.Natarajan	Yes	Yes	Yes
	Prof. S.satyanaraya	Yes	Yes	-
	Dr. Raviraj A. Kusanur	Yes	-	-
	Dr. Manjunatha.C	-	-	Yes
	Dr. Divakar.S.G	Yes	-	Yes
Physics	Dr. D N Avadhani	Yes		
	Prof. Sudha Kamath			Yes
	Prof. Shireesha		Yes	
Maths	Dr. N. Shivakumar	Yes	-	-
	Dr. S. Sridhar	Yes	Yes	-
	Dr. Hamsapriye	-	-	Yes
	Dr. G. Jayalatha	Yes	-	-
	Dr. Neeti Ghiya	Yes	-	-
	Dr. C. Nandeesh Kumar	-	-	Yes
	Dr. Ravi	-	Yes	-

The faculty and students are doing Research broadly under the following interdisciplinary research areas :

- Materials & Manufacturing engineering
- Special materials including polymers, composites, wide range of nano materials (metals, ceramics and semiconductors) and amorphous materials.
- Sensors, Networks and Communication (RF , THz and Underwater)
- Nano Science, Surface Engineering & MEMS
- Data Mining/ Data warehousing or Business Intelligence, Cloud Computing.
- Natural Language processing
- Environment And Sustainable Technologies with a focus on Smart buildings and Smart Cities.
- Bioinformatics, Plant, animal and microbial Biotechnology
- Clean & Renewable Energy, Energy Efficiency & Management
- Large Area and Plastic / Printable (Flexible) Microelectronics
- Advanced Instrumentation
- Industrial and Systems Engineering
- Applications of Remote Sensing and GIS
- Image Processing and Systems

3.2 Resource Mobilization for Research

3.2.1 What percentage of the total budget is earmarked for research? Give details of major heads of expenditure, financial allocation and actual utilization for last four years.

	2013-14		2012-13		2011-12		2010-11	
	A	U	A	U	A	U	A	U
Recurring	5316.6	4867.9	4846.6	4149.8	3674.3	3622.4	3058.7	2776.3
Under Graduate	195.4	97.92	159.80	112.17	141.50	64.42	176.22	91.46
Postgraduate	147.7	77.10	100.00	99.77	64.20	31.54	64.45	63.62
Research	182.9	106.92	81.75	87.91	200.00	63.24	150.00	46.82

Note: 1. All amounts Rs. in lacs

3.2.2 What are the financial provisions made in the College budget for supporting student research projects?

- There is a separate budget allocation for R&D in the institution for each department, this helps in establishing R&D facilities and purchase of consumables.
- A separate budget provision for interdisciplinary research centers is also earmarked.
- As a part of curriculum students are required to undertake mini and major projects in the college and financial support up to a maximum of Rs 3000 per batch is provisioned.
- Students are also supported through TEQIP grants for their travel to carry out their project work and internship in industries.
- Best innovative projects are nominated from every department and best three innovative projects are awarded every year under EDC.
- The institution financially supports and also facilitates seeking sponsorship by student for innovative interdisciplinary projects like "Ashwa", "Vyoma", "Jatayu","Studsat" and many more.

3.2.3 Is there a provision in the institution to provide seed money to faculty for research? If so, what percentage of the faculty has received seed money in the last four years?		

Yes, Faculty are given seed money for research activities.
- Through Centre of Excellence institution provides seed money to faculty for Research. Till now about 130 faculties have been supported to initiate various projects. (Pl see Annexure 3.b for details)
- Provision is there to reimburse the expenditure towards research work, Thesis submission, Research Publication.
- College provides seed money in deserving cases.
- 30% of faculty have utilized seed money provision to initiate projects.

3.2.4 Are there any special efforts made by the College to encourage faculty to file for patents? If so, provide details of patents filed and enumerate the sanctioned patents.

YES.
* The college is encouraging all the staff members for patenting of their innovative work. The concerned faculty is guided by the Principal, RVCE, and morally supported by the respective heads of the departments towards patenting the ideas or the developed gadgets or circuits or softwares or concepts.
* The institution is setting up an IP cell to look into the legal and search of various patentable works.
* RSST management will re-imburse part or whole of the patenting expenses depending on the merit of the case.

Feb 2013

Patent Application is filed (National Patent) at Chennai Office, (Appln No: 459/Che/2013) by BadariNath.K and Loganathan.K for the Invention -"Improvised Electronic Jacquard Control System based on Master Slave Architecture and Design Partitioning" on 02/02/2013

2012: Patent Application is filed (International Patent) at Chennai Office, by Mr. Ravi Talwar and Dr. Suma M S for the Invention -"Design and implementation of sleepy stack static random access memory".

2013: Plasma Densification of Nano Magnets : Indian (Applied), Biological Enriched Yogart :Indian (Applied)

3.2.5 Provide the following details of ongoing research projects:

Institutional Major Projects

	Year	Amount Rs. in Lacs	
TEQIP-II(1.2 – Enhancement of PG & Research)	2012	400.00	TEQIP Co-ordinator :Prof.K.N.Raja Rao, TCE
DST-FIST	2012	50.00	Development of laboratories for advanced research in Science & Technology Coordinator: Dr.N.K.Srinath, CSE
Center of Excellence (1.2.1)	2013	500.00	CoE Co-ordinator: Dr. Uttara Kumari, ECE

Biotechnology (Ongoing)

A. College funded			
	Year	**Amount Rs. in Lacs**	**Name of Project**
Minor projects	2014	0.055	Synthesis of green composites
	2014	2.00	Synthesis of anti-microbial and hydrophobic chitin doped zinc oxide nano particles
B. Other agencies - national and international (specify)			
Minorprojects	--	--	
Major projects	2010	10.13	Regeneration transformation and elicitation of capsicum species
	2010	28.00	Exploitation of commercial silk waste as potential nano biomaterials
	2010	11.22	Crop improvement of ginger (Zingerber officinale)
	2010	10.02	Haploid plant regeneration from anther and microspore cultures of cotton (Gossyupium hirsutum L)
	2011	8.66	Formulation of gold/silver nano conjugates/encapsulates with novel bioactive synthetic 1H-Pyrazol-2methoxyphenol derivatives as anti cancer therapeutics.
	2012	46.00	Production of biodiesel using oil yielding non edible seeds from Ramanagaram Dist.
	2014	10.08	Micropropagation studies and metabolite characterization in *Colacasiaesculenta* (L.) Schott
	2014	12.45	Studies on the recovery of bioactive compounds from tomato wastes using emerging technologies
	2014	34.55	Agrobacterium mediated genetic transformation and over expression of ATPAL2 in *Decalepishamiltonii*
Chemical Engg.			
A. College funded:			
B. Other agencies - national and international (specify)			
Minor projects	Nil	Nil	Nil
Major projects	2012	402.5	Development of Nanomaterial and Optically enabled front surface and back contact tailored enhanced efficiency amorphous silicon solar cells
Civil Engg.			
A. College funded			
	Nil	Nil	
B. Other agencies - national and international (specify)			

Minor projects	Nil	Nil	
Major projects	2011	17.42 Lakhs	Strength of Hollow Concrete Block Walls for High Rise Buildings
	2012	8 Lakhs	Behaviour of Brick Masonry Subjected to Lateral In-Plane Shear Forces
	2012	35 Lakhs	HUDCO Chair Program
	2010	11.56 Lakhs	Set up of Air Quality Monitoring Station – to monitor the air quality
	2013	19.57 Lakhs	A Study of Water Availability and Quality in Chikaballapur District Using Data Mining Techniques and Experimental Verification, To Evolve a Plan for Sustainable Quality Groundwater.
Computer Science & Engg			
A. College funded			
Minor projects	2014-15	2.00 Lakhs	Development of computer aided system for identification of materials usingXRD characterization. Dr. Rajkumar & Prof. Sharvani G S.
	2010-11	RSST	Design and Development of RV-AllInOne Multipurpose Interface card for PC and Microcontrollers
B. Other agencies - national and international (specify)			
Major projects	2014-16	4.00 Lakhs	Bio-Inspired Computing for the analysis of pectin in citrus fruit- Prof. Manjunath A E & Dr. Shobha G
	2014-16	14.61 Lakhs	Moving object detection under water video sequence - Prof Hemavathy & Dr. Shobha G
	2013-16	19.54 Lakhs	A Study of Water Availability and Quality in Chikkaballapur District Using Data Mining Techniques and Experimental Verification, To Evolve a Plan for Sustainable Quality Groundwater- Dr. Shobha G
	2012-15	12.90 Lakhs	Effective Multimedia Information Retrieval Using Optimal Indexing Technique - Dr. Nagaraja G S
	2008-13	10.50 Lakhs	Adaptive Texture representation Methods for automatic Target Detection using Neural Networks - Dr. Shobha G
	2014-16	4.00 Lakhs	Bio-Inspired Computing for the analysis of pectin in citrus fruit- Prof. Manjunath A E & Dr. Shobha G
C. Industry sponsored			
	2014-15	1.00 Lakhs	Threat Detection using Deep Packet Inspection for Wire Speed Network- Dr. Rajashree Shettar & Prof. Jyoti Shetty
	2014-15	6.00 Lakhs	Infrastructure as Service platform for

			Automated VM provisioning - Prof Jyoti Shetty, Prof Anala M R & Dr. Shobha G
	2013-14	4.00 Lakhs	Development of .NET based Framwork for Digitizer – with OCR, QR Code, Bardcode Capabilities – Prof. A Sowmya, Prof. Hemavathy & Dr. Shobha G
	2013-14	2.00 Lakhs	Development software library for XLSX engine - Prof Anala M R & Dr. Shobha G
	2013-14	2.00 Lakhs	Development software library for PPTX engine – Prof. Azra Nasreen & Dr. Shobha G
	2010-12	2.00 Lakhs	Graphics Application using C#, .net for Industrial requirement - Prof. Badrinath K
	2010-14	1.50 Lakhs	Development of Software for Electronic Jacquard for Indian Handlooms and Power looms – Prof Badrinath K
Electronics & Commn. Engg.			
A. College funded			
Major Projects	2014	0.6 Lakhs	Design and Development of sensor system for LPG detection using conductive polymers: (polypyrole)
	2014	0.15 Lakhs	Analysis and design of low cost multi resonant antenna for wireless communication using FR4/RT Duriod /TMM 10i
	2014	0.25 Lakhs	Amperometric based bio-sensor for the analysis bioactive compounds
	2014	0.5 Lakhs	Portable bio-informatics tools using Beagle Bone
	2014	0.75 Lakhs	Fabrication and characterization of Pentacene thin film pH sensor
	2014	1.25 Lakhs	Development and process parameters optimization of ZnO Thin film
	2014	0.15 Lakhs	Reduction of mutual coupling of closely spaced micro strip MIMO Antennas for WLAN Applications
	2014	0.15 Lakhs	Development of intelligent communication system by Visible light.
B. Other agencies - national and international (specify)			
Minor projects	Nil	Nil	
Major projects	2013	13.21	Design, development and implementation of an adaptable ground vehicle classification system for battlefield surveillance
	2013	52.4	Discrete Multitone cable communication modem for SNR data acquisition & Telemetry application
	2013	50.0	Development of shape lens based meta

			material insulated compact communications array antenna for defence application
	2012	58.0	Multi layered thin film sensor for gas turbine engine health monitoring
	2012	481.8	Development of multi layered coating for enhanced solar thermal absorption at high temperature
	2012	402.5	Development of nano material and optically enabled front surface and back contact tailored enhanced efficiency amorphous silicon solar cells
	2012	48.8	Performance simulations using discrete multitone algorithms for acoustic wireless underwater communications and for wired communication in underwater vehicles.
	2012	11.75	Development of an efficient underwater video compression for underwater acoustic channel
	2011	5.788	Growth and characterization of novel room temperature grown nano cluster carbon based thin film transistors
	2010	13.47	Development of carbon Nano tube based vacuum Nano electronic X-ray sources for making compact low power hand held X-ray
C. Industry sponsored : Nil			
Electrical & Electronics Engg.			
A. College funded			
Minor projects	2014	1.00	Energy harvesting for self powered piezoelectric sensor
	2014	0.5	Characterization of structured nano materials using tera hertz radiation
	2014	1.00	Fabrication and characterization of graphine based electrode materials for super capacitors
	2014	0.5	Development of diode and Amorphous Silicon TFT
B. Other agencies - national and international (specify)			
Minorprojects	Nil	Nil	
Major projects	2014	25.0	Design and Development of an array of low velocity vertical axis small wind turbine. (MNRE)
Alongwith Industry	Nil	Nil	
Industrial Engg. & Management.			
A. College funded			
projects	Nil	Nil	
B. Other agencies - national and international (specify)			

Minor projects	2010	2.55	Study of effectiveness of women welfare schemes implemented at IT/ ITes sector
Major projects	2013	11.26	Ergonomics intervention on labor productivity and health parameters of women in Garment industries and remedial measures
	2012	40.0	Establishment of Non Destructive Testing facility for PG students
C. Industry sponsored	Nil		
Information Science & Engg.			
A. College funded			
Minorprojects	Nil		
Major projects	2012	1.00	Effective Multimedia Information Retrieval Using Optima Indexing Technique
Along with Industry	Nil		
B. Other agencies - national and international (specify)			
Minorprojects	Nil		
Majorprojects	2013-16	11.258	Ergonomics Intervention on labour product
	2013-15	4.95	Stress Levels of Associated Diseases
	2013-14	8.05	Universal Process Control Trainer Setup
	2011-12	11.75	Development of an efficient underwater video compression algorithm for underwater acoustic channel
	2011-12	48.80	Performance simulation using discrete MultitoneAlgorithm for Acoustic wireless underwater communication and for wired communication inunderwater vehicle
	2010-11	13.47	Development of Carbon Nano tube Based Vacuum Nano electronic (Field Assisted Electron Emitters) X ray sources for making compact, low power, Hand held X-Ray Systems
C. Industry sponsored	Nil		
Instrumentation Engg.			
A. College funded			
Minorprojects	2014-15	0.25	Amperometric based bio sensor for the analysis of bio active compound
Majorprojects	Nil		
Along with Industry	Nil		
B. Other agencies - national and international (specify)			
MinorProjects	Nil	Nil	
Majorprojects	2013-16	11.258	Ergonomics Intervention on labour product
	2013-15	4.95	Stress Levels of Associated Diseases in

			Bangalore city police personnel.
	2013-14	8.05	Universal Process Control Trainer Setup
Mechanical Engg.			
A. College funded			
Minor projects	2014	0.50	Development of gas sensor for detection of carbon monoxide.
	2014	0.50	Electro spinning technique for multifunctional polymer nano fibers
Along with Industry	2013-14	7.0	Development of Sproket Test RIG Agro based Equipment
B. Other agencies - national and international (specify)			
Minorprojects	Nil		
Majorprojects	2010	4.99	IPR016 Laser Machining of Polymer Composites and Polymer Nano Composites
	2010	6.50	VGST001 Seed Money to Young Scientists for Research
	2010	5.00	VGST002 Parametric Study of laser drilling of ceramics
	2010	40.06	"Development of polymer nano composites, nano coatings and nano structured magnets
	2011	42	Development, characterization and testing of NOW CNT-Polymer composites for fused deposition process
	2012	9.9	Hygrothermal studies on FRP nano composites
	2012	58	Multilayered thin film sensor for gas turbine engine health monitoring
	2013	6.75	Structural analysis and experimental validation of underwater electronics enclosure for dunking system
	2014	500.00	Design and development of solar thermal coating for hencing efficiency
	2014	32 .00	Development of UUV for Naval applications
Telecommunication Engg.			
A. College funded			
Minor projects	2014	0.50	Design and Simulation of RF Power amplifier with thin film passive technology sanctioned under COE(Macroelectronics)
Along with Industry	Nil	Nil	
B. Other agencies – national and international (specify)			
Minor projects	2014	0.50	Design and Simulation of RF Power amplifier with thin film passive technology sanctioned under COE(Macroelectronics)

Major projects	2010	80.00	Design and Implementation of Campus Wide Network
	2010	25.00	The Establishment of Mini Boundary layer mast experiment for short term weather prediction (ISRO)
	2011	8.32	Growth and characterization of Novel Nano-Cluster carbon based thin film transistors at room temperature. (UGC)
	2011	11.50	Detection and Estimation of features from satellite imageries using texture based filtering and ANN technique (ISRO)
	2011	14.375	Evaluation and Identification of Wavelet based compression scheme for efficient compression of satellite rural & Urban imageries (ISRO)
	2011	9.00	"Short term weather predictions using artificial neural network(ANN) techniques and meteorological parameters derived from MBLM sensors measurements at RVCE,
	2011	15.34	"Design ,Development and implementation of an adaptable ground vehicle classification system for battlefield surveillance",
	2011	12.0	"Implementation of Multi Input and Multi Output (MIMO) transmission and OFDM Multiplexing System Algorithm on Wireless Networks for High Data rate Transmission Between building Complexes Distributed in Large Industrial Establishments"
		10.5	"Development of Security Systems for Satellite Data Transmission and Storage using Advanced Encryption Standards (AES) ans a Fault Tolerant Model with T-Box Approach". (ISRO)
Along with Industry	2013-14	7.0l	Development of Sproket Test RIG Agro based Equipment
MCA			
A. College funded			
B. Other agencies – national and international (specify)			
	2013-14	7.5	Setting up a Cloud Centre for Excellence under Modernization and Removal of Obsolesce(MODROBS) program (AICTE Sponsored)
	2014-15	0.20	Building an integrated framework for a higher educational programme using Learning analytics/ Educational data mining (CSI Sponsored)

	2014-15	0.20	Design and Development of a Secured Bluetooth framework for Data Transactions (CSI Sponsored)
	2014-15	0.50	Design and simulation of RF Power amplifier with Thin Film Passive Technology
	2014-15	0.80	Development of intelligent communication system by Visible light.

Chemistry			
A. College funded-NIL			
B. Other Agencies-National and International (specify)			
Minor Project	NIL		
Major Project	2014	30.00	VGST-DST/GRD-232 Development of Prepreg resin matrix for aircraft applications
	2012	35.95	(KSBDB/I&D/CR07/2011-12/122, Dated:10-02-2012) **Project:** Ramanagar district Biofuel information and Demonstration centre
C. Industry sponsored	NIL		

3.2.6 How many departments of the College have been recognized for their research activities by national / international agencies. (UGC-SAP, CAS, DST-FIST; DBT, ICSSR, ICHR, ICPR, etc.) and what is the quantum of assistance received? Mention any two significant outcomes or breakthrough due to such recognition.

- The institution has been granted 2(b), 12(f) status by the UGC.
- All the fifteen departments are recognized as research centers by the VTU, Karnataka.
- Every department faculties have applied for the research projects to various agencies, UGC, AICTE, DST-FIST, VGST-FIST, DBT, DRDO and other research laboratories.
- In the last four years about Rs.100 crores of projects have been sanctioned by various agencies. (Pl see Annexure-3.a for details)
- The Institution has been granted FIST funding of Rs. 1 Crore by DST out of which Rs. 50 Lakhs has been invested by college as per the DST norms.
- The institution has been granted TEQIP-II, sub component 1.2, for Postgraduate programs and research.
- The institution has been granted Center of Excellence in Large Area Flexible Electronics under TEQIP sub component 1.2.1.

3.2.7 List details of completed research projects undertaken by the College faculty in the last four years and mention the details of grants received for such projects (funded by Industry/ National/International agencies) from 2010-2014

Biotechnology (Completed Projects)			
Sl N o	**Project Title**	**Year of Commence ment**	**Funding Agency**	**Amount Sanctione d**

				(Rs. in lakhs)
1	Biological production of clean fuels from coal	2009	Central Mine Planning & Design Institute Limited, Coal ministry, Ranchi	45.36
2	Biological control of red rot disease of sugarcane	2009	Department of Biotechnology, Govt. of India Ministry of science & Technology, New Delhi	10.23
3	Regeneration transformation and elicitation of capsicum species	2010	Visvesvaraya Technological University, Belgaum	10.13
4	Exploitation of commercial silk waste as potential nano biomaterials	2010	Department of Biotechnology, Govt. of India Ministry of Science & Technology, New Delhi	28.00
5	Crop improvement of ginger (Zingerber officinale)	2010	Visvesvaraya Technological University, Belgaum	11.22
6	Haploid plant regeneration from anther and microspore cultures of cotton (Gossyupium hirsutum L)	2010	Visvesvaraya Technological University, Belgaum	10.02
7	Formulation of gold/silver nano conjugates/encapsulates with novel bioactive synthetic 1H-Pyrazol-2methoxy phenol derivatives as anti cancer therapeutics	2011	University Grants Commission	8.66
Chemical Engineering				
1	Catalytic Conversion of plastic waste to Hydrocarbon oil	2012	Karnataka Pollution Control Board	0.60
2	Feasibility Studies on the use of various biomasses in the existing 100 kW biomass plant at RVCE	2011	GE India Ltd	1.5

3	Heat and Mass Transfer studies on Electroless gold plating bath	2010	LRDE	5.4
4	Innovative approaches for improving the hot/wet performance of bismaleimide/carb on fiber composites	2010	DST, Kuvempu university	22.14
5	Design and synthesis of metal based sensitizers for nanocrystaline TiO_2 Solar Cells	2010	Naval Research Board, D R D O, New Delhi,	10.00
6	Permeability and filtration studies on ceramic filters	2010	B H EL, CTI, Bangalore	5.50
7	Fabrication and characterization of fiber metal laminates for gun barrel application using filament winding method (ongoing)	2010	Armament Research Board, D R D O, New Delhi,	10.00
8	Drag reduction studies	2009	Naval Reasearch Board	10.6
9	Accelerated testing for long-term durability of PU foam cored GFRP sandwich panels for naval structural applications,	2010	Naval Research Board	22.68
10	Transesterification of Pongamia Oil using solid based catalyst	2013	KSCST	0.125
Civil Engineering				
1	"Development of phenomenological models to proportion CLSM"	2008	DST	8.62
2	Rain water Harvesting project	2009	KPMG	16.00
3	Establishment of	2009	ISRO	26.00

	Centre of Remote Sensing and GIS Applications			
Computer Science& Engineering				
1	"Construction of 3D model of underwater object from multiview images", Naval research board.	2011	Naval Research Board	10.00
2	"Automatic Target Recognition of Synthetic aperture images using Support vector machines", AICTE, New Delhi.	2010	AICTE, New Delhi	10.00
3	Design and Development of RV-All-in-One Multipurpose Interface card for PC &Microcontrollers	2010	RSST	2.00
4	Improvement in Hardware & Software Design for computer controlled automatic card punching machines	2010	RSST	2.00
5	Software for Peer appraisal	2010	RSST	0.25
6	Barcode for answer scripts	2009	RSST	0.15
7	Software for student appraisal	2009	RSST	0.25
Electronics & Communication Engineering.				
1	Design of Predictive Controller for Ship navigation	2011	NRB	20.5
2	Development of algorithms for improved accuracy in DGPS measurements	2009	ARMREB	5.88

	using DSP tools			
3	Design and development of compact universal controller for Rudder actuation system of autonomous vehicle using DSP & FPGA tools	2008	NRB	35.00
4	Design and development and integration of co-processors with DSP TI6X family using FPGA for naval application	2008	NRB	36.30
Industrial Engineering &Management				
1	Entrepreneurship Development Cell	2007 – 2012 5 years	DST	33.00
2	Development, Charactarization & testing of MWCNT polymer for fused deposition process	2011 – 2013	Naval Research Board	41.97
Information Science & Engineering				
1	Effective Multimedia Information Retrieval Using Optimal Indexing Technique	2009	UGC, New Delhi	12.90
2	Automatic Target Recognition of Synthetic aperture images using Support vector machines		AICTE, New Delhi	12.90
3	Continuous and Discrete infrastructure Modelling	2012	General Motors (R&D)	10.00
4	Adaptive Texture Representation Methods for automatic target detection using	2010	Armament Research Board, New Delhi	10.00

	Neural Networks			
5	Analysis &Design of GPS based Target tracking and MIL-1553 data		Naval Research Board, New Delhi	7.784
6	Wind speed prediction using Neural Networks		Naval Research Board, New Delhi	4.30
7	Comparative computer based simulation studies on the evaluation of sensor fault detection and isolation in DC motor position servo system		ISRO,VSSC,Trivandrum	13.74
Instrumentation Technology				
1	"Implementation of Geo-acoustic Approach for Obtaining Seabed Properties in Shallow Water Region	2009	Naval Research Board(NRB), New Delhi	19.83
2	"Insilco Analysis of Rheumatic Arthritis Disease"		DRDO, Bangalore	4.85
Mechanical Engineering				
1	Experimental and Analytical Studies of Residual Stress Fields & Fatigue Crack Growth of Pre-stressed Fastener Holes	2 years 2009-10	IPR008	14.16
2	Development of a computer Code for 3D Submerged	2 years 2009-10	NRB004	17.16
3	Bodies using Panel Method	2 years 2010-11	NRB006	29.76
4	Development & of Nano-metallic	2 years 2010-11	DST013	12.08
5	Seawater durability, Drillability, laser drilling and buckling studies of	2011-12	NRB010	49.81

	the PMCs for UUV structural			
6	Characterization of Tribo-Corrosive properties of WC-NI Hard Coating Produced by Electro – Deposition	2011-12	NRB015	45.96
7	Preparation & Characterization of Fire Redardant Grade	2011-12	NRB016	40.28
8	Investigation of nanomagnets, nanoclay, nano hardfacing	2011	DST	60.00
9	Experimental and Analytical Studies of Residual Stress Fields & Fatigue Crack Growth of Pre-stressed Fastener Holes	2009-10	IPR008	14.16
10	Design and Development of dual gasifer	2010	Ministry of coal	50.00
Telecommunication Engineering				
1	Design & Development of Dielectric lens Active smart Active array Antenna for surface communication of underwater vehicle	2008 - 2009	NRB	40.00
2	Automatic weather station and weather prediction	2009-2010	ISRO	10.00
3	Study & Development of Image compression Algorithm for satellite Images	2009-2010	RESPOND/ ISRO	6.96
4	The establishment of mini boundary layer mast	2010	ISRO	25

	experiment for short term weather prediction			
Master of Computer Applications				
1	Studies on Design &Characterization of Radio Frequency Micro electrochemical system based devices for Naval Applications	2008-10	Naval Research Board (NRB) DRDO, Delhi	44.73
2	Development of Algorithms for Improved Accuracy in DGPS Measurements using Digital Signal Processing Tools	2009-11	Defence R&D Organization, Directorate of Armaments, Govt. of India	5.88
5	Design and Development of an Algorithm for data access and replication in mobile environment using data mining techniques	10 months March 2011 – Jan 2012	Computer Society of India	0.20
6	Power optimization of Ad hoc sensor networks	1.5 years June 2011 – April 2013	Naval Research Board (NRB) DRDO, Delhi	10.95
Chemistry				
1	New heterocyclic drugs for prevention /treatment of malaria and dengue	2012	Vision Group of Science and Technology (VGST) , TRIP, (Student Project) [VGST/TRIP/2012-13/242 Dated: 22-12-2012]	0.40
2	Synthesis and Characterization of Coumarin and Carbazole based small molecule organic light emitting diodes.	2013	Vision Group of Science and Technology (VGST) , TRIP, (Student Project) [VGST/P-5/TRIP/2013-14 Dated: 23-12-2013]	0.40
3.3 Research Facilities				
3.3.1 What efforts are made by the College to keep pace with the infrastructure				

requirements to facilitate Research? How and what strategies are evolved to meet the needs of researchers?

- Departments prepare the infrastructure requirements for Research activity from researchers at the beginning of every budget year.
- All departments have separate R&D budget from the last two years earlier a combined allocation for PG and R&D was provisioned in the department budgets.
- Departments are facilitated to procure equipment, instruments, software to carry out R&D at RVCE research centers.
- IEEE, ACM and other advanced journal accessibility is provided with access at departments.
- Interdisciplinary characterization facility has been set up.
  (Pl see Annexure 3.c for the list)
- Funds are sanctioned through the constituted research committee after analyzing the requirements.

Strategies:
- Training need is collected from every faculty member involved in research to facilitate them in enhancing their knowledge in their interested area of research.
- Research Centres have been setup, recognized by VTU.
- Interdisciplinary research facility is setup.
- Seed money is granted to researchers.
- Travelling and sundry expenditure is born for presentation of project proposals
- Guest lectures are arranged in various upcoming areas of research.
- Industry Institute Interaction has been strengthened.
- Experts from R&D organizations are invited to educate faculty on various avenues for research funding.

3.3.2 Does the College have an information resource centre to cater to the needs of researchers? If yes, provide details on the facility.

Yes, the college information resource center is fully supporting the needs of researchers through:
1. Digital Library facility can be accessed by faculty and students through IP address.
2. The institution has following facilities to help the faculty and students who are pursuing research and R&D projects:
   - Digital Library
   - Internet, Wi-Fi, Intranet facility for individual faculty
   - International & National Journals, like IEEE (Hard & soft copies)
   - Technical Magazines and newsletters
   - Reference books
   - National Network of Inter-library book transfer facility.

3.3.3 Does the College provide residential facilities (with computer and internet facilities) for research scholars and faculty?

Yes,
- ✓ On request the research scholars are given accommodation in the hostel with round the clock Wi-Fi connectivity.
- ✓ Internet and intranet facility (wired and wireless) is available throughout the

campus.
- ✓ Central Library reference and browsing is available till late night.

3.3.4 Does the College have a specialized research centre/ workstation to address challenges of research programmes? If yes, give details.

YES
- ∗ College has an R&D cell which acts as a nodal centre to keep track of researchers and research activity of the college.
- ∗ The College has interdisciplinary research laboratories which are equipped with Design, fabrication, testing and characterization facilities.
- ∗ Specialized research center in macroelectronics (CoE-CME) and center for manufacturing research and technology utilization (CMRTU) has been setup.
- ∗ Workshop facilities are provided for fabrication and prototyping.
- ∗ These facilities are also extended to researchers from other institutions and industries.
- ∗ High Performance Computing facility is being created to help high end research.
- ∗ Agilent (Keysight) advanced wireless lab has been setup.
- ∗ Tejas Network LTE lab has been setup.
- ∗ Bosch Rextroth facility for pneumatic, PLC-SCAOA exists
- ∗ Intel Atom processor application development.

(Pl see Annexure 3.d for major facilities)

3.3.5 Does the College have research facilities (centre, etc.) of regional, national and international recognition/repute? Give a brief description of how these facilities are made use of by researchers from other laboratories.

- The college has recognized centers of excellence both by government agencies and private companies.
- Some of the Centers are:
  - ✓ Center of Excellence in Macroelectronics
  - ✓ IBM Center of Excellence
  - ✓ Agilent-RVCE Center of Excellence
  - ✓ Lapp Cable Center of Excellence
  - ✓ Bosch Rexroth competency center
  - ✓ TE Connectivity Technology Incubation Center
- These centers are used by students researchers and companies for consultancy, characterization and research

3.4 Research Publications and Awards

3.4.1 Highlight the major research achievements of the College through the following:

- Major papers presented in regional, national and international conferences in the last four years.

Department	No. of Regional	No. of National	No. of International
Biotechnology		23	12
Chemical	-	01	17
Civil	-	22	38
Computer Science	-	44	54
Electronics	132	43	34

&Communication			
Electrical & Electronics	00	22	23
Industrial Engineering Management		40	81
Information Science	--	11	21
Instrumentation Technology	13	41	41
Mechanical	100	95	23
Telecommunication Engineering	--	53	45
Master of Computer Application	33	22	84
Chemistry	05	21	14
Mathematics	04	10	01
Physics	---	----	04

- **Publication per faculty in last four years**

Department	Name of faculty	No. of publication
	Dr. Ashok Kumar H.G.	5
	Dr. Pushpa Agrawal	82
	Dr. H.N. Ravishankar	8
	Dr. A.V. Narayan	5
	Dr, A.H. Manjunatha Reddy	22
	Dr. Neeta Shivakumar	10
	Dr. Nagashree N Rao	23
	Dr. Vidya Niranjan	35
	Dr. K.J. Harish	4
	Mr. Vijaya Kumar	2
	Dr. Lingayya Hiremath	9
	Mrs. M.Rajeswari	6
	Mr. Ajith Kumar Srivastava	5
	Mr. Shivandappa	4
	Dr. Ashwani Sharma	23
	Mr. Praveen Kumar Gupta	9
	Mr. Narendra Kumar	3
	Mrs. Anila Rani Pullagura	9
	Mr. Trilok Chandran	3
	Dr. H. Raju	6
	Dr. Sumathra M.	6
Chemical	Dr R Suresh	09
	Dr M A L Antony Raj	15
	Prof Vinod Kallur	01
	Dr Jagadish H Patil	25
	Prof P L Muralidhara	04
	Prof C Vidya	01
	Prof Shilpa Hiremath	02
	Prof Hemanth L R	02

	Dr Rajalakshmi M	01
	Prof Ujwal M Sheshanag	01
Civil Engineering	Dr. B C Udayashankar	05
	Dr. B L Shivakumar	08
	Dr. M S Nagakumar	03
	Dr. M V Renukadevi	18
	Dr. Radhakrishna	13
	Dr. Anantharama V	08
	Dr. Ravindra R	03
	Prof. Madhavi K	06
	Prof. Netravathi S	01
	Prof. Lokeshwari M	12
	Prof. Archana M R	26
	Prof. Manjunath S	13
	Prof. Raghavendra T	04
	Prof. Durga Prashanth L	01
	Prof. B G Anand Kumar	06
	Prof. Varuna M	04
	Prof. Sindhu D	02
Computer Science & Engineering	Dr. G. Shobha	22
	Dr.N.K.Srinath	15
	Dr. S R Swamy	17
	Dr. Rajashree Shettar	10
	Dr. G S Nagaraja	9
	Anala M R	5
	Vinayhegde	5
	G S Sharvani	11
	Shantarangaswamy	13
	Sowmya A	9
	Badarinath. K	1
	Hemavathy R	4
	S Sandhya	4
	Anupama	4
	Usha B A	3
	Azaranasreen	3
	D. Pratiba	5
	Suma B	2
	Manjunath A E	12
	Swarnalatha K S	2
	Anjan K	7
	Sharadadevi K S	1
	A Kowcika	2
	R.Roopalakshmi	3
	Minal	4
	Deepamala	1
	H K Krishanappa	6
	Vishalakshmi Prabhu	1

	Jyothi Shetty	2
	Poonam G	4
	Prafulla S B	1
	Pavithra H	1
	Chaitra N Urs	1
	Ganashree K C	1
	Smriti Srivastava	3
	Mamtha	1
Electronics and Communication Engineering	Dr. M. Uttara Kumari	28
	Dr.B.S.Satyanarayana	15
	Dr. S. Jagannathan	2
	Dr. B. V. Uma	8
	Dr. S. Ravishankar	19
	Dr. B. S. Kariyappa	8
	Dr. K. S. Geetha	14
	Sri. Prakash Biswagar	8
	Dr. H. V. Ravish Aradhya	22
	Dr. M. Bharathi	9
	Dr. M.S.Suma	3
	Smt.K.R.Usha Rani	13
	Smt. Veenadevi S.V	1
	Smt.Sujatha D Badiger	3
	Smt.Rohini Hallikar	10
	Smt.Chethana G	1
	Smt.Sujatha S.Hiremath	2
	Smt.K.Saraswathi	4
	Smt.Jayanthi P.N	2
	Smt.Geetha Rani P	2
	Smt.Vinila Nagaraj	1
	Sri.Kiran V	3
	Sri.P.Narashimaraja	4
	Smt.Namita Palecha	1
	Smt.Rajani Katiyar	1
	Sri.M.Govinda Raju	13
	Ms.K.A.Nethravathi	3
	Smt.Shilpa D.R	3
	Sri.Mahesh A	7
	Sri.Shushrutha K.S	1
	Sri.Ramavenkateswaran N	1
	Smt.Roopa J	12
	Sri.Abhay A Deshpande	1
	Smt.Sahana B	1
	Smt.Chinmaye R	2
	Smt.Sheela C.S	2
	Sri.Arun Kumar P.Chavan	6
Electrical&	Dr. R. Jayapal	11

Electronics		
	Dr. Rudranna nandihalli	08
	Dr. K. Uma Rao	66
	Mr. K.Vasudeva Banninthaya	04
	Mr. V.Chayapathy	09
	Dr. S.G.Srivani	24
	Dr. G.S.Anitha	18
	Dr.. M.N.Dinesh	05
	Dr. A.Sreedevi	13
	Mrs. C.Sunanda	3
	Mrs. J.N.Hemalatha	4
	Mr. C.Suresh	4
	Mrs. V.Prema	7
	Mr.Adinath Jain	2
	Mrs. Madhu.B.R	2
	Mr. Ajay K M	2
	Sharath B	5
	Dr. Anupama Prakash (Visiting Faculty)	9
	Mrs. Supanna S. K	2
	Mrs. Jyothi R.	2
	Mr. M.Anantha kumar	5
Industrial Engineering Management	Dr. K N Subramanya	30
	Dr. N S Narahari	16
	Dr. C K Nagendra Gupta	9
	Dr. Rajeswararao K V S	11
	Vijayakumar M N	9
	Ramaa A	8
	Vivekanand S Gogi	7
	Shobha N S	6
	Vikram N Bahadurdesai	6
	Sunil R Yalamale	9
	Prashanth V	9
	Ravishankar V	2
	M N Shruthi	5
	Chitra B T	4
	Keshavamurthy D B	4
	Mahantesh M Math	2
	Arjun Singar	2
	Nandini B	2
Information Science	Dr. N K Cauvery	11
	Dr. Ramakanth Kumar P	36
	Dr. G N Srinivasan	15
	Dr. Shantharam Nayak	13
	Dr. Sagar B M	18
	Sri. Rajashekar Murthy S	04
	Smt Mamatha G S	12

	Smt Geetha V	02
	Sri Raghavendra Prasad S G	04
	Ms Rashmi R	02
	Smt Kavitha S N	03
	Smt Smitha G R	04
	Smt Swetha S	02
	Sri Nagaraj G Cholli	06
	Sri Srinivas B K	03
	Smt Anisha B S	01
	Smt Priya D	02
Instrumentation Technology	Dr.S.C.Prasanna Kumar	18
	Dr.Padmaja K V	10
	Dr. Anand Jatti	10
	Dr.B G Sudarshan	4
	CH Renu Madhavi	10
	Dr.K B Ramesh	08
	M S Nagananda	06
	N K Jayasimhan	05
	Deepashree Devraj	11
	Vidya M J	09
	Harsha H	04
	Tabitha Janumala	01
	Rajasree P M	01
	Kendaganna Swamy	09
	Rajine Swetha R	05
	Veena Divya K	02
Mechanical Engineering	Dr. Ravindra S.Kulkarni	08
	Dr.B.Anand	02
	Prof.M.S.Krupashankar	10
	Dr.H.N.Narasimha Murthy	65
	Dr. Shanmukha Nagaraj	02
	Dr. M. Krishna	65
	Dr. H.D. Gopalakrishna	09
	Dr. N.V.Nanjundaradhya	06
	Dr. P. V. Srihari	04
	Dr Ramesh S Sharma	14
	Dr. P.R.Venkatesh	06
	Dr. K.S.Harishanand	04
	Sri. R.Sridhar	07
	Sri. J. R. Nataraj	06
	Dr. S. K. Harisha	06
	Sri. S. Mahendra Kumar	04
	Smt Ratna Pal	05
	Sri. G.R Rajkumar	05
	Sri. Kirthan L.J	03
	Sri. Shivaraj BW	02

	Sri. Chandra Kumar R	01
	Sri. Ramesh S	02
	Sri. Bharatish A	02
	Sri. Jagannatha Guptha V L	04
	Sri. Keshava Murthy Y C	02
Telecommunication Engineering	H V Kumaraswamy	05
	G Sadashivappa	04
	K N Raja Rao	02
	P Nagaraju	10
	K Sreelakshmi	12
	T C Thanuja	02
	Y N Mamatha	04
	K Nagamani	05
	R Bhagya	06
	M B Kamakshi	04
	B Roja Reddy	09
	T P Mithun	07
	Mohana	01
	P Shanthi	04
	G Ranjani	07
	B S Premananda	14
	B Pawankumar	02
	K Viswavardhan reddy	02
	N N Nagendra	01
	Shambulinga M	01
	M N Mahalakshmi	02
Master of Computer Application	Dr Sumithra Devi K.A.	100
	Dr. Usha J	26
	Dr. Andhe Dharani	51
	Dr. Jasmine K.S.	60
	Dr. Vijayalakshmi M N.	49
	Dr. Renuka Prasad B	05
	Mr. Chandrashekar B H	12
	Mr. Mohan Aradhya	05
	Mrs. Divya T L	05
	Mr. Saravanan C	04
	Mrs. Sandhya S	09
	Mr. Krishnan R	07
	Mrs. Anupama Kumar S	13
	Mrs. Sudha M	04
	Ms. Chandrani Chakravorthy	06
	Mr. Harish G M	02
	Mrs. Manju Geogy	04
	Mr. Sandeepa Patil	02
	Mrs. Savita S	01
	Mrs. Ashwini B M	01

	Mr. Jayasimha S R	01
Chemistry	Prof. K Natarajan	03
	Dr. Raviraj A Kusanur	08
	Mr. R. Mahesh	01
	Dr. Manjunatha C	07
	Dr. Divakar S.G	02
	Dr. Sham Aan M. P	03
	Dr. M. Sridharan	06
	Dr. Vishnu Murthy	10
Physics	Dr. D N Avadhani	03
	Dr. Tribikram Gupta	02
	Dr. M Santhiah	03
Mathematics	Dr. N. Shivakumar	04
	Dr. S. Sridhar	21
	Dr. Hasapriye	03
	Smt. K. Sridevi	01
	Dr. G. Jayalatha	04
	Dr. Neeti Ghiya	04
	Dr. C. Nandeesh Kumar	07
	Savithri Shashidar	01
	A. Sujatha	01
	T. Kavitha	02
	Dr. Anjalika Gupta	01
	Dr. K. M. Ravi	01

3.4.2 Does the College publish research journal(s)? If yes, indicate the composition of the editorial board, publication policies and whether it is listed in international database?

- The college is planning to institute a Research Journal with ISSN number. The Journal is to have a Editorial Board Headed by Dean, Research & development, Co-ordinator, CoE , two professors from reputed institutions and two industry experts.
- There is a TEQIP-II News letter which publishes the activities under TEQIP sub component 1.2 and 1.2.1 (CoE). This consists of Prof,K.N.Raja Rao,TEQIP co-ordinator as Chief Editor, Dr. Uttara Kumari, CoE Co-Ordinator, Dr.K.N.Subramanya, Dr N.S.Narahari, Dr. Ramakant Kumar and Dr.M.Krishna in the editorial Board.
- Compandium of Research Papers published by Faculty and Students has been started from 2013.

3.4.3 Give details of publications by the faculty: 2010-2014

Number of papers published in peer reviewed journals (national / international)

Department	National	International
Biotechnology	23	113
Chemical	-	101
Civil Engineering	06	52
Computer Science	--	170
Electronics & Communication	--	87
Electrical & Electronics	03	67
Industrial Engineering Management	9	39

Information Science	--	93
Instrumentation Technology	--	96
Mechanical	100	95
TelecommunicationEngineering	Nil	120
MCA	02	64
Chemistry	01	39
Mathematics	--	30
Physics	---	08

- Chapters in Books

Master of Computer Applicatio ns	Dr. K.A. Sumithra Devi	"Algorithms for VLSI Cad tools" published in the book "VLSI Design", ISBN 979-953-307-512-8, by Intech Open Publishers, University Campus, STeP Ri, Slavka, Krautzeka 83/A, 51000 Rijeka, Croatia, October 2011.
	Dr.Jasmine K. S	"Transition Parameters for Successful Reuse Business" for the book "Engineering the Computer Science and IT", ISBN 978-953-7619-32-9, by In-Tech, worlds first advanced technologies open access platform, Vienna, Austria, November 2009, pp.391-426.
Chemical	Dr. R. Suresh	Published Chapter V "Biomass downdraft Gasifier controller using Intelligent techniques" in a book Titled "**Gasification for Practical Applications"** Edited by Yongseung Yun, Published October 2012 : Intech Prepess ISBN 978-953-51-0818-4
Chemistry	Dr. Divakar S.G	**Chapter: "**Oxidation catalysis by nanoscale gold, silver and copper", **Name of the Book:** Advaned Nanomaterials**,** **Ed by:** Kurt Geckeler, Wiley VCH, 2008

- Editing Books

Department	Name of faculty	Details (National/International)
CSE	Dr.S.R.Swamy	Discrete Mathematics, TATA Mc-Graw-hill (International)
	Dr. Shobha G	Data Structures using Java, TATA Mc-Graw-hill, (International)
	Dr. Shobha G	Java & J2MEE, TATA Mc-Graw-hill.
	Dr. Shobha G	Fundamentals of C Programming, TATA Mc-Graw-hill, (International)
	Dr.S.R.Swamy	Discrete Mathematics, TATA Mc-Graw-hill, (International)
Electronics & Communicat ion	Dr. H. V. Ravish Aradhya	Reviewer: Gate-2014 material, Pearson Education (I) Pvt. Ltd., July-2014
	Dr. H. V. Ravish Aradhya	Reviewer: Switching theory and logic design ISBN: 978-12-590-0442-1, McGraw-Hill

		(India), July-2011.
	Dr. H. V. Ravish Aradhya	Reviewer: VLSI design, ISBN: NA, McGraw-Hill (India), June-2011
	Mr.Abhay A Deshpande	Reviewer: Principles of Communication Systems, 3e, TMH Publications
	Dr. H. V. Ravish Aradhya	Adaptation: Electronics Devices & circuits theory 10th Edition, ISBN: 978-81-317-2700-3, Pearson Education (India), 2009 (Adapted to Indian University requirements).
Industrial Engineering Management	Dr. K. N. Subramanya Dr. N S Narahari Dr. A. V. Suresh Sri. Ajit Battacharjya	Proceedings of "Operational Excellence for Global Competitiveness " Excel India Publishers, New Delhi, 978-93-81361-44-3, 2011
	Prof. N S Narahari, Dr.K V S Rajeswara Rao and Dr. C K Nagendra Guptha	"TQM in Education – The Theory and Practice", "Total Quality Management – Text Cases" authored by Dr. Uday Kumar Haldar by Dhanpat Rai & Co.
MCA	Dr.Sumithradevi K.A	"Future Computing", Narosa Publishing House Pvt. Ltd, New Delhi, ISBN 978-81-8487-271-2. (National)
	Dr.Usha J	"Future Computing", Narosa Publishing House Pvt. Ltd, New Delhi, ISBN 978-81-8487-271-2(National)
	Dr. Andhe Dharani	"Future Computing", Narosa Publishing House Pvt. Ltd, New Delhi, ISBN 978-81-8487-271-2(National)
	Dr.Jasmine K.S	"Future Computing", Narosa Publishing House Pvt. Ltd, New Delhi, ISBN 978-81-8487-271-2 (National)
	Dr.Vijayalakshmi M.N	"Future Computing", Narosa Publishing House Pvt. Ltd, New Delhi, ISBN 978-81-8487-271-2.
	Dr. B. Renuka Prasad	"Future Computing", Narosa Publishing House Pvt. Ltd, New Delhi, ISBN 978-81-8487-271-2 (National)
	Mr.B.H.Chandrashekar	"Future Computing", Narosa Publishing House Pvt. Ltd, New Delhi, ISBN 978-81-8487-271-2 (National)
• Books with ISBN numbers with details of publishers		
Computer Sscience & Engineering	Dr. N.K Srinath	8085 Microprocessor Programming and Interfacing, ISBN 978-81-203-2785-6, PHI Learning Private Limited (International)
	Dr. N.K Srinath	Fundamentals of Database Systems ISBN 978-81-317-9247-6, PHI Learning Private Limited (International)

	Dr. Rajashree Shettar	Sequential Pattern Mining from Web Log Data: Concepts, Techniques and Applications of Web Usage Mining , LAP LAMBERT Academic Publishing, ISBN 9783659135415, (International)
Electronics & Communication	Dr. H. V. Ravish Aradhya	Basic Electronics 1st Edition, McGraw-Hill (India) 2013, ISBN-13: 978-0-07-133310-8.
	Mr.Abhay A Deshpande	"Theory of Electro Magnetics", Pearson Publication,2011, ISBN: 977-12-576-0321-6
	Mr.Abhay A Deshpande	Signals & Systems Subbmitted to University press
Electrical & Electronics	Dr. K Uma Rao	Signals and systems. International PVT ltd ISBN: 9788189866891
		Basic Electrical Engineering ISBN: 9788131755952 ;Pearson - Sanguine publishers 2010 .
		Artificial Intelligence and Artificial Neural Networks ;ISBN: 9788131759653. Pearson - Sanguine publishers 2010
		Digital Signal Processors : Architecture , programming and Applications ISBN: 9788131766668 Pearson - Sanguine publishers- 2011
		The 8051 Microcontroller & MSP 430 – architecture, programming and applications ISBN: 9381269459 - Elsevier India , 2012
		Power System Operation and Control. ISBN: 9788126534418. Wiley India Pvt Ltd, 2012
Mechanical	Dr.Andhe Dharani, MN Vijay Laksmi, M.Krishna	Optimal Energy Utilization in Sensor Networks by Clustering", ISBN 978-3-659-24571-8, LAMBERT Academic Publishing Germany. (International), July 2012
Telecommunication	Sri. G. Sadashivappa	Electronic Circuits , Subhas Publications, **National**
	Sri. G. Sadashivappa	Power Electronics , Subhas Publications, **National**
	Prof. K N Raja Rao	Satellite Communication: Concepts and applications ,Prentice Hall India Learning Pvt. Ltd., Delhi.**International** ISBN No.978-81-203-4725-0
	Sri. H. V Kumaraswamy & Sri P. Nagaraju	Signals & Systems, Scitech, Publication Chennai.**National-** ISBN No.8188429260
Master of	Dr.Andhe Dharani,	"Optimal Energy Utilization in Sensor Networks by Clustering", ISBN 978-3-659-

Computer Applications	Dr. MN Vijayalaksmi, M.Krishna	24571-8, LAMBERT Academic Publishing Germany. (International), July 2012
	Dr.Jasmine K.S	"Implementation Parameters For Software Reuse", November 2012 - (International) ISBN 978-3-659-26691-1, Lambert Academic Publishing, imprint of AV Akademikerverlag GmbH & Co. KG HeinrichBöcking-Str. 6-8, 66121, Saarbrücken, Germany, www.lap-publishing.com

Number listed in International Database (For *e.g.* Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)

Department	Number of Papers	Details (National/International)
Chemical	30	International
Computer Science	235	International
Electronics & Communication	131	International
Electrical & Electronics	20/40	National/International
Industrial Engineering Management	52	
Information Science	93	International
Instrumentation Technology	96	International
Mechanical	90	International
TelecommunicationEngineering	08	International
MCA	50	International
Chemistry	1/39	National/International

Citation Index – range / average

Department	Range	Average
Biotechnology	1-220	57.22
Chemical	7-14	1.809
Computer Science	1-176	24.05
Electronics & Communication	1-341	68.22
Electrical & Electronics	6-115	32.4
Information Science	3-110	22.05
Instrumentation Technology	1-10	4.0
Mechanical	1-198	28.68
TelecommunicationEngineering	1-28	42.62
MCA	1-49	7.25
Chemistry	35-220	98.8

SNIP

Department	Range	Average
Biotechnology	1-21	5.7
Chemical	0.177-0.825	0.111
Computer Science	0.5-1.8	1.164
Electrical & Electronics	0.458-2.389	1.101
Mechanical	0.5-3.8	1.278
MCA	0.758-1.920	1.339

Chemistry	0.251-1.85	1.0505

SJR– range / average

Department	Range	Average
Biotechnology	1-19	5.12
Chemical	0.141-0.845	0.0845
Computer Science	0.1 – 1.009	0.632
Electrical & Electronics	0.415-1.396	0.742
Mechanical	079-5.83	2.53
MCA	0.250-0.774	0.512
Chemistry	0.169-2.622	1.395

Impact factor – range / average

Department	Range of IF	Average IF
Biotechnology	1-9	4.0
Computer Sc. & Engg.	0.8—6.15	3.5
Chemical	0.3 – 3.5	1.8
Civil Engineering	0.1-2	1
Electronics & Commns.	0.788-2.56	1.7
Electrical & Electronics	0.681-2.450	1.270
Industrial Engg. Mgmt.	0.645 – 2.56	1.45
Information Science Engg.	0.745 – 4.33	1.8
Instrumentation Tech.	0.2 – 6.82	1.8
Mechanical	079-5.83	2.53
Telecommunication	1-4.946	21.13
Chemistry	0.5-6.1	3.0
Mathematics	0.5 – 2.0	1.5
MCA	0.572 – 5.8376	3.186

- h-index

Department	H Index	Average H-index
Biotechnology	1-9	4.8
Computer Sc. & Engg.	1-6	2.214
Chemical	0-4	0.535
Electronics & Commns.	1-6	2.5
Electrical & Electronics	2-18	10
Industrial Engg. Mgmt.	4	2
Mechanical	4	2
Telecommunication	1-4	2.16
Chemistry	1-8	4
MCA	1-4	2

3.4.4 Indicate the average number of successful M.Phil. and Ph.D. scholars guided per faculty.

The following are the split up of each department regarding PhD Scholors
(Pl. see Annexure-3.e for details)

Department	Registered	Submitted	Awarded
Biotechnology	13	03	02
Chemical	08	-	01
Civil	27	01	03
Computer Science	34	06	05

Electrical& Electronics	13	Nil	Nil
Electronics & Communication	22	01	11
Industrial Engineering Mgmnt.	15	4	4
Information Science	21	01	05
Instrumentation Technology	08	01	05
Mechanical	24	02	16
Telecommunication	19	03	02
Chemistry	08	01	Nil
Maths	10	--	03
Physics	03	--	---
MCA	22	00	01

3.4.5 What is the stated policy of the College to check malpractices and misconduct in research?

- The college has a Research and Development committee to monitor the research activities in the college.
- A thorough scrutiny of any proposal or a publication will be done before sending to the funding agencies or journals respectively.
- Turnitin software is being used for research projects, M.Tech. Thesis and PhD Thesis

3.4.6 Does the College promote interdisciplinary research? If yes, how many inter departmental / inter disciplinary research projects have been undertaken and mention the number of departments involved in such an endeavour.

- The College promotes interdisciplinary research.
- Five interdisciplinary centers of excellence have been identified, as indicated in the beginning of this criteria.
- Number of interdisciplinary research have been under taken by the departments:
  Hybrid Energy Generation, Handheld X-ray, Bio sensors, Material formulation using Plasma CVD etc.
- Electronics and Communication Engineering department has 06 ongoing and 02 completed interdisciplinary sponsored projects. It also has 08 on going interdisciplinary projects funded by Centre of Excellence for Macroelectronics.

3.4.7 Mention the research awards instituted by the College.

The college and Cognizant technological solutions have jointly constituted two research awards every year for the best performance in the research for the faculties.

3.4.8 Provide details of

- **research awards received by the faculty**

Department	Name of faculty	Award received during 2010-11/ 2011-12/2012-13	Organization
Biotechnology	Dr. Pushpa Agrawal	Best Researcher award, 2011-12; GSEED award	JERAD
	Dr. H. Raju	Professor A. R. Rao Memorial Young Research Scientist Award, 2011-12	

	Dr. Lingayya Hiremath	Young Scientist award,	VGST, Karnataka
Chemical Engineering	Dr R Suresh	Member, BoE in chemical /polymer , 2010-11	VTU, Belgaum
		Council member, Student chapter affairs Committee, 2011	IIChE, Kolkata
		Consent Committee member, Karnataka Pollution control board, 2009	GoK
		Member, Doctoral Committee, Karunya University, Coimbatore, 2014	Karunya University, Tamil Nadu
		Chairman, BoE, Chemcial / Polymer, 2014-15	VTU, Belgaum
	Dr Jagadish H Patil	Honoured by RSST for obtaining Ph D, Jan 2014	RSST
	P L Muralidhara	Member, BoE, 2012-13	VTU, Belgaum
Civil Engineering	Smt.M.Lokeswari	Best Young Environmentalist award, 2012	Karnataka Government
	Smt.M.Lokeswari	ICON SWM- 2014 Excellence Award,	
Computer Science & Engineering	Dr. Shobha G	Best Paper Award 26-28, pp. 471-476, December 2013. **&Best Paper Award**	IEEE International Conference on Computational Intelligence and Computing Research(ICCIC), Madurai, India, International Conference on Advanced Computer Science and Information Technologie

			s (ICACSIT), December 2nd 2013, Pune, India.
Electronics & Commnication Engineering	Dr.S.Ravishankar	Best Researcher Award,	Cognizant Technologies
Telecommunication	Dr. K. Sreelakshmi	Awarded best Paper award	Conference on Networking , Embedded Wireless systems at BMSCE, Bangalore on Aug 2010.
	Sri Mohana	Awarded best paper award and young investigator Award.	International Conference on Software Technologies and Computer Engineering Vijayawada Andhra Pradesh (STACE-2012), 2nd July 2012,
	Nagamani.K	**BEST PAPER AWARD** in the track of Signal Processing for Telecommunication	BMS College of Engineering , Bangalore, June21-22, 2013
Mechanical	Dr M Krishna	Young scientist Award - 2012	Cognizant Technologies
	Dr H N Narasimaha Murthy	Best Researech Award-2010	
	Prof. Krupashankara	Beat Research Award – 2010	
	Dr M Krishana	Best Paper awards -2011	
MCA	Dr.K.S. Jasmine	Received the global award for BEST	Association of

		ACADEMIC RESEARCHER 2012	Scientists, Developers and faculties (ASDF), an International Professional body at Puduchery, Tamilnadu on 30th December 2012.
Chemistry	Prof. K. Natarajan	Centre of Innovative Science and Engineering Education (CISEE)	On 16-6-2014, by VGST
Mathematics	Dr. S. Sridhar	GEM of India Award,	

- **recognition received by the faculty from reputed professional bodies and agencies**

Department	Number of Recognition/Award	Awarded By	Professional body
Bio-Tech	Dr.A.H.Manjunatha Reddy	Chaired a Session	5th ICER, conference at Malaysia.
Computer Science	Dr. Nagaraj G S	Recognition for PhD degree , ISTE-RVCE Chapter, 2011	ISTE
Electronics & Commnication Engineering	Dr.S.Jagannathan	Best Teacher Award	Cognizant-RVCE, 2012
	Dr.Kariyappa BS	Recognition for PhD degree	ISTE-RVCE Chapter, 2012
	Dr.Geetha K.S	Recognition for PhD degree	ISTE-RVCE Chapter, 2012
	Prof.Y.GopalaRao	Best Faculty Award	Cognizant-RVCE, 2011
Electrical & Electronics	Dr.S.G.Srivani	Awarded "Fellow of Institute of Engineers (FIE)" in 2012 "Global Excellence Award" in July 2013 from Global Brotherhood "Best citizens of India	Institution of Engineers (India) Friendship Forum of India (FFI),New

		Award" in 2012 from Excellence in Education award for having completed Ph.D from NITK	Delhi International publishing house, New delhi Rashtreeya Sikshana Samithi Trust (RSST) on 26-01-2011
	Dr.Anitha G S	Felicitated	RSST on 28-01-2009 for paper presentation in national and inter – national level ISTE-RVCE chapter on Teacher's day 10-september-2010 for completing the doctoral study
	Dr.K.UmaRao	"Women achiever in Engineering", award presented on 150th Birthday of Sir M.Visvesvaraya.	IEEE,IEEE-PES
Industrial	Dr. K.N.Subramanya	Recognition	Vision Group of Science & Technology
Instrumentation	Dr. Prasana Kumar	Academic Excellence Award-2009&2008	RSST
	Dr. Padmaja K V	Adviser for interview board	UPSC New Delhi since 2011.
		Academic Excellence award for the year 2007-08 and 2008-09 by RSST	RSST

		Trust.	
Information science	Dr. Shantha Ram Nayak	Best Student Chapter Advisor	Computer Society of India Institution of Engineers
Mechanical	Dr Mahendra Kumar	Young Researcher	Cognizant Technology, VGST.2012
	Prof. Bharatheesh	Young Researcher	Cognizant Technology, VGST-2013
Telecommun cation	Dr. G Sadashivappa	Received Letter of appreciation	International conferences and International Journal on 26th January 2012.
	Dr. H V Kumaraswamy	Received Letter of appreciation	International conferences and International Journal on 26th January 2012.
	Dr. T.C.Thanuja	Honored for publishing paper	International journals on 26th January 2010, by RSST.
MCA	Dr.K.A Sumithradevi	Achieved the position of Evaluator	NBA, NewDelhi, 2013
		Program committee members of NECO -2014-	Third International Conference on Networks and Communicat ions, New Delhi 24th - 25th May 2014,AIRC C Publishing Corporation
		Nominated as a convener for conducting examination in JSS	VTU, Belgaum,20 13

		institute of technology, Mauritius	
		Nominated as the Member, BoS (Board of Studies) - MCA,	VTU for the period 2011-2013.
		"BEST TEACHER AWARD" on teachers day 10th September 2010 for her contribution towards Women Empowerment and Skills Training,	CTS and ISTE Chapter
Chemistry	Prof. K.Natarajan	Centre of Innovative Science and Engineering Education	VGST Gov. of Karnataka

3.4.9 State the incentives given to faculty for receiving state, national and international recognitions for research contributions.

- Faculties are felicitated by RSST on the 26th of January every year for acquiring higher qualification, presenting papers abroad, getting awards etc.
- Incentive scheme exists for researchers getting funded projects.
- Recognition by M/S Cognizant Technologies for best Researcher and Young Researcher.

3.5 Consultancy

3.5.1 What is the stated policy of the College for structured consultancy? List a few important consultancy services undertaken by the College.

- The institution encourages the faculty to takeup consultancy work.
- The institution has a structured sharing formula for conultancy:
  Institutions share: 15%
  Faculty & support staff share: 55%
  Administrative office share: 5 %
  Management share:25%
- A few important consultancy services undertaken by the college
- ✓ Design and fabrication of multipurpose controller board.
- ✓ Testing of Quality of Concrete blocks
- ✓ Design and fabrication of testing facility for Harvestor Sprocket.

3.5.2 Does the College have College-industry cell? If yes, what is its scope and range of activities?

- Yes the college have college-industry cell (Industry Institution Interaction Cell).
- It takes care of establishing linkages with industries and companies.
- Several MoUs have been signed for academic, internship and research collaborations.
- The college also has an entrepreneur Development cell which interacts with industries through NEN.

3.5.3 What is the mode of publicizing the expertise of the College for consultancy services? Mention the departments from whom consultancy was sought.

- Department expertise is available on the institutional website.

•	During presentations the institutional PPT reflects the various research areas, facilities available and expertise available.	

3.5.4 How does the College encourage the faculty to utilize the expertise for consultancy services?

- By providing facilities and infrastructure.
- Encouraging faculty to interact with industries and R&D organizations.
- Structured sharing of consultancy fees.

3.5.5 List the broad areas of consultancy services provided by the College and the revenue generated during the last four years.

Department	Broad Areas	Consultancy in Rs.Lacs
Bio-Tech	Environmental studies	10
Civil	Materials Testing	2.75
Computer Science	Image Processing, Web Technology, Microprocessor & Microcontroller, Automation of Examination System, Computer Networks	16.65
Electronics & Communication Engineering	Waste generation and disposal	1.5
Electrical & Electronics	Biomass Power generation	3.0
	Bagasse for biomass based power generation	1.5
	Renewable Energy	25.00
Industrial Engineering & Management	1. Joint survey project on Industrial Waste Management for Jigani & Bommasandra Industrial area, Bangalore, India by R V College of Engineering	1.25
	2. Fabrication and supply of Catapult gadget for conducting exercises on Design of Experiments	0.065
Information science	Business Analytics	0.30
Mechanical	1. Nano-polymer composites, NRML, Mumbai 2.Development of UUV, NPOL, Cochin 3. Development of Sonar Dunked body, Cochin 4. Gun barrel design and testing 5. Development Sprocket test rig	6.00 6.00 6.00 5.00 7.00
Telecommunication	System Design	7.0
MCA	Web Applications, Big Data, Free and Open Source Software Applications,	10.75

	Data Mining	
Chemistry	BIDC-RVCE project	1.34

<table>
<tr><td colspan="2">3.6   Extension Activities and Institutional Social Responsibility (ISR)</td></tr>
</table>

3.6.1 How does the College sensitize the faculty and students on Institutional Social Responsibilities? List the social outreach programmes which have created an impact on students' campus experience.

There are several clubs in the institution that takeup social outraeach programs in addition to NSS and NCC. These Clubs are Rotract Club, Raag, Environment club, Renewable energy club etc. Each f the club have faculty coordinators. These clubs visit orphanages during week end, cleaning water bodies, conducting classes and awareness etc. Each club independently formulates their plan of action. (Details will be provided during the visit)

3.6.2 How does the College promote College-neighborhood network and student engagement, contributing to holistic development of students and sustained community development?

NSS and NCC students take up various networking activities and bring orphanage children to campus to show case these pupils talents. They also interact with the neighbor-hood.

3.6.3 How does the College promote the participation of students and faculty in extension activities including participation in NSS, NCC, YRC and other National/ International agencies?

The motivating factor for NCC and NSS is to create a Human Resource of Organized, Trained and Motivated Youth, to Provide Leadership in all Walks of life and be Always Available for the Service of the Nation. It also provides a Suitable Environment to Motivate the Youth to Take Up a Career in the Armed Forces.

There are about 100+ cadets and more than 200 NSS volounteers among the students. They participate in Ekta Diwas, Swach Bharath Abhiyan and other such activities.

3.6.4 Give details on social surveys, research or extension work (if any) undertaken by the College to ensure social justice and empower the under-privileged and most vulnerable sections of society?

3.6.5 Give details of awards / recognition received by the College for extension activities / community development work.

Some of the awards received are:

- RVCE Won the Wipro "Earthian Award" for its Sustainability based initiatives in Jan 2014.
- Governor's award for maximum number of units of Blood donated by a single institution for 2011-12, 12-13 and 13-14.
- Best Institute for Industry academic interaction Aug 2014, SEED-India.
- MHDRanked among the top 6 Technical Institutions in India for Industry linkages by AICTE-CII- Price Water Cooper (PWC) Survey 2012

3.6.6 Reflecting on objectives and expected outcomes of the extension activities organized by the College, comment on how they complement students'

academic learning experience and specify the values and skills inculcated?
The Community service activities help the students to imbibe not only social and cultural values but also organizing skills.Their passion to serve the needy helps them realize that they need to serve the society and the nation to improve literacy, education and skills among fellow citizens. It serves to create a path for experiential learning and life long experience. If we at the institute can make them differentiate between have and have-nots they will become responsible citizens.
3.6.7 How does the College ensure the involvement of the community in its outreach activities and contribute to the community development? Detail the initiatives of the College which have encouraged community participation in its activities.
omen's Empowerment Skills Training (WEST) is another wing where faculty trainunderprivileged women to enhance their employability skills. The college infrastructure and knowledge base is used effectively for such programs.
3.6.8 Does the College have a mechanism to track the students' involvement in various social movements / activities which promote citizenship roles?
There are faculty coordinators and committees which track the students involvement. As stated above there are various clubs that take up social cause. (Details will be provided at the time of visit)
3.6.9 Give details on the constructive relationships (if any) with other institutions in the nearby locality in working on various outreach and extension activities.
There is no formal MoUs, however Rotary club and Lions club foster such relationship with our institution to take up various activities like Blood Donation and other community service activities.
3.6.10 Give details of awards received by the institution for extension activities and/contributions to the social/community development during the last four years.
• RVCE has been year on year receiving Governor's award for maximum number of units of Blood donated by a single institution. During 2011-12, 12-13 and 13-14 also due to the efforts of students and faculty the college has received this award.
3.7 Collaboration
3.7.1 How has the College's collaboration with other agencies impacted the visibility, identity and diversity of activities on the campus? To what extent has the College benefitted academically and financially because of collaborations?
The college has collaborated with industries, research organizations, institutes of higher learning and other engineering colleges. Industry Professionals and Faculty from these collaborators have helped in enhancing the quality of inputs, suggesting courses of relevance, identifying thrust areas, setting up of laboratories, research fundings etc.
3.7.2 Mention specific examples of, how these linkages promote
∗ There are members on the Academic Council, Board of Studies and Board of Examiners from both Industries and Academic institutions including IISC,

IITs, NITs and other colleges.

* Industries have come forward to frame the syllabus and train the faculty for various Electives.
* Research facilities and Laboratories have been set up

* Both UG and PG students are offered internship (Paid or otherwise) by the industries and research laboratories.
* Of late the some of the recruiters take students for internship and depending on their performance convert these internships into job offers.

Faculty development programs are conducted by inviting experts from the industries, research organisations and faculty from institutes like IISc,, IITs etc.

* Formal faculty exchange programs have yet to take of in real sense but atleast 10% of faculty of RVCE go to other institutes and industries to give lectures.

* Research, Publication

MoU with other Universities for recognition as Research Centers
Joint Research activities
Joint Publications

* Consultancy services are being offered to various industries. As the college has excellent measuring and characterizationfacility.The institute also provides testing and extension services to the industry and research organizations.

*Student placement

There is a strong Placement department supported by a team:

Sl. No.	Name (Duties assigned during 2013-15)	Dept.	Sl. No.	Name (Duties assigned during 2013-15)	Dept.
1	Prof. D. Ranganath	PL&T*	9	Sri. S. Kendaganna Swamy	IT
2	Sri. G. R. Rajkumar	ME	10	Sri. Varuna M.	CV
3	Sri. C Suresh	EEE	11	Sri. Arjun V. Singar	IEM
4	Sri. K.S. Shushrutha	ECE	12	Sri. M.S. Amarnath	ARCH
5	Sri. T.P. Mithun	TCE	13	Sri. Mohan Aradhya	MCA
6	Sri. Adarsha Hiriyannaiah	ME	14	Dr. Ashwani Sharma	BT
7	Sri. G.C. Nagaraj	ISE	15	Smt. Pavithra	CSE

About 130 companies from core sector, IT sector, Service sector and other business segments visit for recruitment year on year. The placement record is excellent and the average salary offered is showing upward trend.
In the latest process maximum salary offered is Rs. 65lacs.
(Details will be shown at the time of visit)

* Any other, please specify

The faculty and students have been a part of many other activities like:

Part of State Police wireless networking, Evaluation of sign Boards for traffic police, Noise and environment monitoring, skill training to industry personal, teaching for school children under youth seva, scholarships for financially needy

students and many more.
3.7.3 Does the College have MoUs nationally / internationally and with institutions of national importance/other universities/ industries/corporate houses etc.? If yes, explain how the MoUs have contributed in enhancing the quality and output of teaching-learning, research and development activities of the College?
Yes, Some MoUs have been signed by the institutions for joint projects, student projects, Faculty training and publications. Faculty have visited various universities and gained experience and knowledge during interactions. (Details will be provided at the time of visit). ISSNIP, Dept of Electrical & Electronics Engg. Melbourne
3.7.4 Have the College industry interactions resulted in the establishment / creation of highly specialized laboratories / facilities?
Yes, The institution has good relations with many core and IT companies. MoUs have been signed for various activities like setting up of labs, offering electives, internships, projects and Expert lectures from the industry people and to the industry personal. Thirty five laboratories have been setup and fifty industry relevant electives are being offered.

	CRITERION IV: INFRASTRUCTURE AND LEARNING RESOURCES
4.1	**Physical Facilities**
4.1.1	**How does the College plan and ensure adequate availability of physical infrastructure and ensure its optimal utilization?**
	The College follows the following planning methodology: • College has an infrastructure committee which looks into the development of campus infrastructure. • Requirements of additional space, maintenance and alterations are sought from the departments every year. • The departments have an academic advisory committee and budget committee who brain storm in regard to increase of intake and new programs. Accordingly proposals are sent to the central office about infrastructure, laboratory and staff requirement. • The infrastructure committee scrutinizes the proposals and consolidates college's annual requirement. • This is reflected in the annual Budget and placed before the Finance Committee. • The inputs from the Finance committee are discussed at the RSST *works committee* which consolidates the requirements of all institution and proposes annual budget. Utilization • There is an effort to go beyond AICTE prescribed norms. • Utilization of infrastructure is optimal as several electives are offered. • Between smaller departments if required lab resources are shared.
4.1.2	**Does the College have a policy for creation and enhancement of infrastructure in order to promote a good teaching-learning environment? If yes, mention a few recent initiatives.**
	Yes, As explained in 4.1.1, proper system and processes have been setup for infrastructure development. Recently the Department of EEE and E&C E had sent a proposal (Pl see Annexure 4.a) for increase in infrastructure due to increase in intake and to satisfy AICTE norms as well as to provide better teaching and learning ambiance. The proposal was scrutinized and the work is in progress. Civil Engineering department was also renovated during 2010-13 to accommodate 120 UG students and 2 PG programs. UTILIZATION: The infrastructure is optimally utilized by sharing the classrooms and laboratories. Since in some of the programs in UG the intake is 120/180 and in other 60, sharing of resources is done. The laboratories are conducted for smaller batch of students. As several electives are offered optimal sharing of classrooms and multimedia resources plays an important role.
4.1.3	**Does the College provide all departments with facilities like office room, common room, separate rest rooms for women students and staff?**
	Yes, Every department have not only sufficient instructional area but also amenities (for Boys, Girls, Male and Female), faculty rooms and administrative area. Every

	department has library which helps students to spend their free time for reference and preparation for their classes.
4.1.4	**How does the College ensure that the infrastructure facilities meet the requirements of students/staff with disabilities?**
	All amenities have western type toilets, which helps easy use by persons of disability or recovering from accidents. Ramps and Lifts have been provided in every block.
4.1.5	**How does the College cater to the residential requirements of students? Mention Capacity of the hostels and occupancy (to be given separately for men and women).**

For students coming from other states and out of Bangalore, college provides hostel facilities. There are four hostels for boys and three hostels for girl students. The details are given below:

Name of the Hostel	Used by	No. of Rooms	Total occupancy
BOYS			
Sir. M.Visveswaraya	Final Year and PG	254	254
Chamundi	Pre-Final Year	126	255
Diamond Jubilee (DJ)	Second year	83	249
Cauvery	First Year	102	306
Cauvery Annexe	First year & MCA	32	92
GIRLS			
SushilammaG.K.Srinivasaiah memorial RVC Girls Hostel	B.E. Students	61	132
RVCE- Hiranaya Girls Hostel	First Year B.E.	33	92
OnkarSadan	B.E. Students	42	86

∗Recreational facilities in hostel/s like gymnasium, yoga center, etc.
- Cauvery, Diamond Jubilee and Sir. M.V. Block have recreation rooms and T.V. facilities.
- There is a Gymnasium and indoor sports facility which is open between 6AM to 8AM and 6PM to 9PM for hostel students.
- Hostalites also utilize the outdoor sports facilities
- In all girls hostel common room with TV facility is provided.
- The girls also utilize the sports and gym facility of the college beyond working hours as the hostels are nearby.

∗Broadband connectivity / wi-fi facility in hostel/s.

- All hostels are Wi-Fi enabled and connected to college server and Firewall.

4.1.6	**How does the College cope with the health related support services for its students, faculty and non-teaching staff on the campus and beyond?**

The college has a well-equipped Health Center of about 786Sqm., six bedded Hospital with Minor OT islocated within the campus. It has two full time medical officers and subsidiary staff. The health centre will be open from 09.00 AM to 7.00 PM for the benefit of staff as well as students on all working days.

Every boarder at the time of admission into the hostel has to compulsorily undergo complete health check-up and declare any history of previous illness, diseases and allergies if any

Two Doctors Available On Campus

- Dr. B.G. Sudarshan MBBS, PhD who has vast working experience. He has worked as resident medical officer in Bangalore Hospital, resident doctor in Manipal hospital, medical officer ministry of labor govt. of India. He is the medical officer of RVCE health centre till date.
- Dr. RASHMI G, MBBS, has worked as Casualty medical officer for in Sapthagiri hospital, Bangalore. Skills and technical expertise in BASIC LIFE SUPPORT ADVANCED CARDIAC LIFE SUPPORT. Looks after the health of the female students and staff in RVCE Health center.

Nursing staff in Health Centre:

Mr. Naveen R: B.Sc, Nursing, to assist the doctor in day to day activities of health centre.

For the Benefit of the Staff and Students Health centre conducts the following camps

- Hepatitis – B vaccination camp
- Typhoid vaccination camp
- Voluntary blood donation camp
- Regular health check up for staff as well as students
- Chickenpox vaccination camp
- Oral hygiene checkup camp

Facilities Available at RVCE Health Centre

- Glucometer estimation of blood sugar levels
- Pulse oxymeter estimation of oxygen saturation in hypoxic states
- Emergency drugs like, InjAvil, InjDeriphyllin, Inj Adrenalin, InjDexona, Inj Lasix, Inj
  Aminophylline, InjMidozolam, are available in health centre for emergency use.
- Oxygen cylinder
- ➢ One big oxygen cylinder with 10 ltrs. capacity for use in health centre
- ➢ One portable oxygen cylinder with 5 ltrs capacity for ambulance use.
- Suction apparatus
- Nebulizer
- Wheel chair and stretcher to shift patients

	• Pharmacy outlet inside the campus
	• The entire hostel students have health records which will be updated from time to time RVCE has on campus hostel with 1000 boarders. The boarders are covered by health insurance; all the expenses of admissions in major hospitals will be paid through insurance.
	Ambulance: One fully equipped ambulance is available in RVCE Health Centre 24 hours, for shifting patients from hostels to health centre and from health centre to various referral units as the situation demands.
	Facilities in ambulances are:
	• Oxygen Cylinder
	• BP Apparatus
	• Pulse Oxy Meter
	• First-aid Box
	Response-time in calling ambulance services from outside is maximum three minutes under emergency situations.
	In addition, all hostel students and employees are covered under health insurance. Non-Teaching staff come also under the ESIC.
4.1.7	**What special facilities are made available on the campus to promote interest in sports and cultural events?**
	• The department of Physical Education & sports consists of one PED and two Assistant PEDs (one lady PED to facilitate girl sports persons). Part time coaches are appointed on annual basis depending on the requirement and need to motivate and improve the skills of players.
	• The management of the Institution is constantly lending their support and giving incentives to the achievers in sports in different arena of sports.
	• The active support of the management, faculty and the Department of sports has been responsible for instituting a good sports culture in the college and producing international class sports persons.
	• Over the years the college has developed achievers in the team games of Cricket, Table Tennis, Foot Ball, Basket Ball, Volley Ball, Tennis, Hockey, Chess, Shuttle Badminton, Hand Ball, Kho-Kho and Throw Ball.
	Infrastructure Facilities:
	1. Cricket Field: Cricket is one of the popular games among the students prefer to play. The campus has a cricket field of 6400 m^2.
	2. Volley Ball: It is located next to the Tennis Courts in front of New Sports Complex.
	3. Table Tennis: It has an area of 144 m^2 in ground and is located on the First Floor of the Old Sports Complex. CHETAN BABOOR from RVCE, who played for the college and university. He also represented India in Barcelona Olympics-1992 played for the college.

4. **Basket Ball**

    The college can boast of very spacious Indoor Basket Ball Stadium. Many Varsity, Inter Collegiate tournaments are conducted here. The stadium is having movable posts. The court has a dimension of 450 m^2 and can accommodate 350 people.

5. Chess and Carom

Indoor games like Chess and Carom are accommodated in an area of 25 m^2.

6. Athletics and Foot Ball:

A new field areaof 6300 m^2 is built *to accommodate following sports.*

- Foot Ball
- Athletics & other events.

7. Gymnasium

- It is the main attraction for students. **Gymnasium is located in the rear Indoor Sports Complex.**
- It has all modern 12 station equipments.

8. **Shuttle Badminton Court:**

    Housed in Old Sports Complex, is the busiest centre of the complex. Both the Staff members & the student flex their muscles here. The wooden court has an area of 300m^2 and is very well utilized by the students.

09. Chess and Carrom:

Indoor games like Chess &Carrom are accommodated in an area of 25m^2. Students have won many prizes in various tournaments conducted at University level.

10. Synthetic tennis courts:

R.V.C.E has added another feather to its cap, with 2 Synthetic Tennis Courts of International Standards in its campus.

Motivation:

- The infrastructure has motivated individuals and teams to excel in college and University level sports events. Sports persons are given TA, DA and uniforms when they represent the institution. They also get scholarships from RSST and VTU.
- Every year, college organizes many Invitational tournaments and intra university tournaments in its college campus. Sri Chamaraju Memorial Inter Collegiate Cricket Tournament; highly prestigious and most awaited cricket tournament for all the V.T.U. affiliated colleges. TERMINAL VELOCITY-Inter Collegiate Shuttle Badminton (M & W) Tournament, MOMENTUM-Inter Collegiate Foot Ball Tournament, ELEVATION – Inter Collegiate Basket Ball (M & W) Tournament, SPIKERS-Inter Collegiate Volley Ball (Women)
- Sports persons representing the institution, university and nation are given attendance benefit.
- RVCE is ranked No.1 among 200+ affiliated colleges for the past many years.

	For this achievement, VTU grants Rs. 1.00 Lakh towards sports facility		
4.2	**Library as a Learning Resource**		
4.2.1	**Does the library have an Advisory Committee? Specify the composition of such a committee. What significant initiatives have been implemented by the committee to render the library, student/user friendly?**		
	Yes, The institution does have a library advisory committee. The library advisory committee consists of Librarian as the convenor and Five senior faculty as members from various departments. Composition: 1. Dr. B.S. Satyanarayana, Principal 2. Prof. K.N.RajaRao, TEQIP Coordinator 3. Dr. S. Satyanarayana, Prof. in Chemistry 4. Dr. UttaraKumari, Prof. & Head E&C Engg. 5. Dr. M.Krishna 6. Dr. T.R.Sridevi, Librarian 7. Mr. M.V.Vijay Kumar, Librarian In addition, there is a library committee, consisting of HoDs and Deans The library committee look after the following: • Library Budget • Purchase of Books • Digital Library facilities and e-Journal subscription • Library related Softwares		
4.2.2	**Provide details of the following:**		
	Total area of the library (in Sq. Mts.)	2365 Sqm	
	Total seating capacity	350	
	Working hours (on working days, on holidays, before examination days, during examination days, during vacation)	Academic Working day	9.00 AM to 9.00 PM
		Holidays	10.00 AM to 1.30 PM
		Academic Weekend	9.00 AM to 9.00 PM
		Vacation	9.00 AM to 9.00 PM
		Before Examination Days, During Examination Days,	9.00 AM to 9.00 PM
	Layout of the library (individual reading carrels, lounge area for browsing and relaxed reading, IT zone for accessing e-resources)	Pl. See Annexure 4.b	
	Access to the premises through prominent display of clearly laid out	• Display boards indicating various sections are provided at vantage points.	

	floor plan; adequate signage; fire alarm; access to differently abled users and mode of access to collection)	- Fire safety and automatic fire alarms are also provided which sends SMS alert in case of any fire accident. - OPAC & Web OPAC is used to access. - Bar coding has been used. - Library repositories, e-Journals and e-Books can be accessed on internet/intranet.		
4.2.3	**Give details on the library holdings**			
	a) Print (Books, back volumes and thesis)	Volumes: 114214 Back Volumes:2910 Thesis: 2010		
	b) Non Print (Microfiche, AV)	Audio Cassettes – 13, CD/ DVD's – 2192		
	c) Electronic (e-books,e-Journals)	E-Books-30114 E- Journals – 6197		
	d) Special collection (eg. Text book, Reference books, standards, patents)	Text Books – 93565 Reference Books – 27279 Standards – 1700 Patents - NA Member of consortia of VTU (IET, Springer link, Taylor & Francis, ProQuest, KNimbus), UGC consortia (IEL, ASCE, Elsevier Science Direct, Ebesco (Art &Architecture)).		
4.2.4	**What tools does the library deploy to provide access to the collection?**			
	o OPAC Search availability is available			
	o Electronic Resource Management package for e-journals: Mandatory Subscription of VTU E-Resource Consortium			
	o Federated searching tools to search articles in multiple databases: Yes, Knimbus			
	Library Website: Linked through RVCE website (www.rvce.edu.in/library.php)			
	o In-house/remote access to e-publications: Dspace, Calibre E –books Management			
4.2.5	**To what extent is the ICT deployed in the library?**			
	o Library automation: – library activities are automated for ease of readers, all books are bar-coded and catalogued in integrated software – smart campus.			
	o Total number of computers for public access- there are around 70 computer system for the use of readers, for browsing and retrieving the required articles.			
	o Total numbers of printers for public access – 01 no. is provided for readers for printing any downloaded articles or manuscripts.			
	o Internet band width speed	~~2 mbps~~	~~10 mbps~~	85 Mbps
	- o Institutional Repository – Installed open source Dspace for uploading of publications by faculties and previous year question papers for students. - o Content management system for e-learning is provided through the Knimbus platform for accessing various publishers at one place. - o Participation in Resource sharing networks/consortia (like Inflibnet)- Resource sharing is done through VTU consortium for e- resources and Delnet for inter			

	library loan.
	o Turnitin anti-plagiarism tool for use by students and faculty.
4.2.6	**Provide details (per month) with regard to**
	o Average number of walk-ins : 1000 – 1200 readers o Average number of books issued/returned : 600-800 library documents. o Ratio of library books to students enrolled : 26:1 (UG students are issued – Two books, PG students are issued– Four Books, Additional two books for Category Students) o Average number of books added during last three years: 9000 books o Average number of login to OPAC: 2000 – 2500 logins o Average number of login to e-resources : 800 -900 logins o Average number of e-resources downloaded/printed: 100-150 o Number of information literacy trainings organized: User Orientation Programme Conducted Twice Yearly and a manual is prepared.
4.2.7	**Give details of the specialized services provided by the library**
	Following specialized services are provided by the Central Library: Manuscripts- on request by faculties the required manuscripts are acquired through DELNET services. Reference – includes the collection of encyclopedia, handbooks, e-books, dictionaries, proceedings. Reprography- these service provides the readers to Xerox the journal articles, or a topic from the reference books. ILL (Inter Library Loan Service) – the non availability of books / articles in the library is borrowed through DELNET. Information Deployment and Notification – new arrivals of books and journals are notified through circulars to the reader's information.
	OPAC – this provides the readers to check the availability and status of books in the library. Internet Access- is used for accessing online e-resources Downloads – facility is provided to download journal articles. Printouts – requested articles printout are facilitated for the readers. Reading list/ Bibliography compilation – this service is provided through the OPAC system. In-house/remote access to e-resources – is provided for accessing online journals and e- books User Orientation – is provided for the new students twice a year about the facilities and services provided by the library Assistance in searching Databases – this is provided through Knimbus.
4.2.8	**Provide details on the annual library budget and the amount spent for purchasing new books and journals.**

	2013-14		2012-2013		2011-2012		2010-2011	
	Budget	Utilized	Budget	Utilized	Budget	Utilized	Budget	Utilized

Books	40.00	18.45	33.00	28.00	28.00	17.55	25.00	18.41
Journals	05.00	05.09	05.00	04.23	04.00	03.50	04.50	03.50
e-books	05.00	02.40	04.00	02.70	06.00	03.70	06.50	03.70
e-Journals	30.00	29.41	28.00	22.56	30.00	18.09	29.09	15.89
Total (Rs. in Lakhs)	80.00	56.16	70.00	57.49	68.00	42.84	65.00	41.50

	In addition during 2012-13 and 2013-14 Books, Software, e-Journals worth Rs.10.96 Lakhs under TEQIP-II Subcomponent 1.2 & 1.2.1.
4.2.9	**Does the library get the feedback from its users? If yes, how is it analyzed and used for improving the library services.**
	Feedback form is designed for the users of the library as a questionnaire, the data is analyzed based on group of users in form of percentage and further recommendations are given for strengthening and improving the library services. (for details pls sees Annexure-4.e)
4.2.10	**List the infrastructural development of the library over the last four years.**
	- The area of Library was increased from 1792 Sqm to 2365 Sqm in 2012 - New clients were procured for Digital Library in 2013. - New softwaresKnimbus and Turnitin Procured in 2014. 2010- There were 24 smoke detectors and 14 fire extinguishers installed in various sections in the library. 2012 – LCD display was installed for displaying the notices of the college in library. 2013 – Expansion of digital library in first floor and technical section were carried out. Constantly there is an increase in library budget for procuring of library books, additional e resources and multimedia resources. 2013- Installation of Dspace for institutional repositories. Enhancement of thin client system in digital library.

Year	Number of New Titles added	Number of new editions added	Number of new volumes added
2010-11	1260	375	4440
2011-12	1190	340	3947
2012-13	1110	305	3382
2013-14	1008	292	3211

4.2.11	**Did the library organize workshop/s for students, teachers, non-teaching staff of the College to facilitate better Library usage?**
	Delnet workshop: DELNET: Resource, services and facilities was held on 1st Feb 2012, to facilitate the users with regard to how to use the facility of accessing the non availability of books in the library through DELNET services.

	- User Manual has been prepared by the library and circulated to all the departments. - During First year orientation program and induction program for faculty , various facilities, timings and infrastructure provided by the library are disseminated.
4.3	**IT Infrastructure**
4.3.1	**Does the College have a comprehensive IT policy addressing standards on IT Service Management, Information Security, Network Security, Risk Management and Software Asset Management?**

The college has a Comprehensive IT Policy which is governed by the IT Planning and Monitoring committee. This committee comprises Head of the Institution, Key executives, Network Administrator, System Analysts and programmers. The structure of the Committee is as under:

	Name		Name
1.	Prof. B.S.Satyanarayana	8.	Prof.S.Sridhar
2.	Prof.K.N.RajaRao	9.	Prof.Renuka Prasad
3.	Prof.K.N.Subramanya	10.	Mr.Y.N.Nagesh
4.	Prof.AshokBhatacharya	11.	Mr.Ravi Kumar C Koppal
5.	Prof.N.K.Srinath	12.	Mr.R.B.RaviVarma
6.	Prof.S. Chandrashekhar	13.	Mr.I.M.Umesh
7.	Prof.P.Ramakanth Kumar		

The committee plans all the IT requirements of the institution

Service Management:
The service Management and delivery is carried out by the AMC Service providers in coordination with the Network Administrator , Department IT Co-ordinator and the technical staff

Information Security:
Network administrator has full rights to access and modify the configuration of the network infrastructure.
Head of the Institution and the key executives have access to all the Institutional information.
Various cadres have access to the information pertaining to the domain. Students have restricted access to the Institutional information.

Network Security:
RVCE has a secured network setup with the following features
- User based policy for students, staff and guests
- Restricted access to various applications and servers based on their roles
- End point security for prevention against virus, worms, malware and other attacks
- Gateway firewall (Fortigate) for internet security comprising of content filtering of websites, Intrusion and Prevention system, Antivirus and

	Antispam, application filter, Bandwidth management. • Wireless security based on the roles defined **Risk Management :** Back up policy has been defined for various servers and applications. Also, we have a redundancy for critical applications and devices **Software Asset Management:** Most of the applications run are Network license based, where we can keep a track of the licenses being used in the campus. **Web site Management** The website has been hosted in the server managed by the external agency. The college has an authority to update, modify and publish the contents. The contents will be published after approval from RVCE website coordinator.
4.3.2	**Give details of the College's computing facilities (hardware and software).**
	Number of systems with configuration : There are in all 2050+ terminals spread over various departments, library, administrative office and hostels. The campus is fully networked with fiber backbone and VLANs. More than 150 Access points with central controller. The network is protected by Fortinet Firewall from external attacks. Please see Annexure 4.c
	Computer-student ratio: 1:3.5
	Dedicated computing facility: The Institution has a dedicated central computing facility at the college level and also well-equipped computer labs in the Departments
	LAN facility: • Backbone: Fiber single and Multimode • Backbone Speed: Gigabit • Network connectivity Redundancy: Fiber + RF Connectivity between line of sight blocks • Core Switch: Three L3 Chassis based with module redundancy • Edge Switch: 80+ Layer 2 Switches which include both Gigabit managed/ unmanaged Switches • Topology : Star – Star (additional Ring proposed) • Virtual LAN based on Department
	Wifi facility: • Over 150 Aruba Access points,802.11 n controller based with dynamic VLAN assignment. • Provided to all the staff, students and Guests • Secured Wireless based on WPA-Enterprise Authentication

	Operating systems and Applications
	   a. Operating System :
	      Desktop: Windows (XP, 7, 8, 8.1), Linux flavours
	      Servers: Windows (2003,2008),Linux flavours
	   b. Application / System Softwares: 301
	      (Pl See Annexure 4.c)

	Number of nodes/ computers with internet facility: All the systems connected to the Network are internet enabled 2124 nodes

	Any other : We have setup a virtualized environment for servers where, several virtual machines are running on a single physical host.
4.3.3	**What are the institutional plans and strategies for deploying and upgrading the IT infrastructure and associated facilities?**
	Data Centre Establishment • Identify a location for DATACENTER of room size 25' x 30' • To provide necessary infrastructure for setting up a DATACENTER • (Server Racks, networking, power, furniture, Cooling etc,.) • Move all the physical servers to the DATACENTER (Except those which are being used for experiments in CSE/ ISE/ MCA) • Enhance the RAM Capacity of the identified servers to it's maximum • Identify all the servers in the campus which can be virtualized • Install virtualization software in as many servers as possible and move all the existing applications to the DATACENTER • Using open source operating System/ tools wherever feasible • Redundancy for critical devices **Storage Requirement for Data Center** • It is essential to provide SAN Storage at a central location for all the central servers (24TB expandable to 64TB) • Backup and recovery software needs to be installed • Existing NAS can be used as a secondary backup, (Tape drive is recommended) • Separate Low end storage NAS for surveillance System **Other Requirement** • Storage at a third party Cloud (internet) for safe backup of critical data like smart campus, asset management , may be required. • Have one subnet of public ip, owned by the college this will facilitate ip based softwares to have same ip address • To maintain one SMS Server for sending bulk SMS • Syslog Server for maintaining logs of all devices and servers in the campus • Active Directory Management Tools, Network Monitoring and Management Tools
4.3.4	**Give details on access to online teaching and learning resources and other knowledge, and information provided to the staff and students for quality teaching, learning and research.**
	• NPTEL videos shared over the college Network accessed by all students, staffs and research scholars • QEEE which is a Ministry of HRD sponsored programme, is scheduled in the regular timetable where lectures, virtual labs & tutorials are streamed live from IIT, Madras.

	• EDUSAT which is a VTU initiative, where live classes is delivered to the students. • Moodle, Nimit&Classmite are also used for various semesters.
4.3.5	**Give details on the ICT enabled classrooms/learning spaces available within the College and how they are utilized for enhancing the quality of teaching and learning.**
	• Class rooms & Seminar Halls are equipped with networking, viewing and interacting facilities to take advantage of QEEE programmes. • The courses offered by IITs and relevant to the UG & PG curriculum are a part of weekly time table.
4.3.6	**How are the faculty facilitated to prepare computer aided teaching-learning materials? What are the facilities available in the College or affiliating University for such initiatives?**
	• 80% of the classrooms, seminar halls and laboratories are equipped with multimedia projectors. • The faculties make use of Open office, Libre and Microsoft office to prepare teaching materials. • Adobe software is also available for the faculty to prepare teaching material. • Faculty also incorporate videos in their training materials. • Google Apps is also being used to prepare and distribute the teaching materials • The college also has a Digital Media center where lectures can be recorded and put on the intranet.
4.3.7	**How are the computers and their accessories maintained? (AMC, etc.)**
	AMC of the IT Infrastructure 1. **Hardware** • Preventive maintenance, repair, service & replacement will be carried out by the **AMC service provider** in case of the non-warranty items. • Preventive maintenance, repair, service & replacement will be carried out by the **supplier** in case of the warranty items. • Routine maintenance will be carried out by the technical staff in the laboratories. • Network Administrator along with the Annual maintenance contractor looks after the internet and intranet infrastructure. 2. **Services including manpower** Configuration, Management, up gradation, preventive Maintenance and troubleshooting of servers, network , wifi , storage will be carried out by the AMC Service provider in association with the Network Administrator and the technical staff of the college campus

4.3.8	**Does the College avail of the National Knowledge Network connectivity directly or through the affiliating University? If so, what are the services availed of?**			
	Yes, the college has availed of 10 Mbps under NME-ICT project.			
4.3.9	**Provide details on the provision made in the annual budget for update, deployment and maintenance of the computers in the College?**			

Sl. No	Description	Estimated Cost Rs in Lakhs	Reason / Justification
1	Cloud computing Implementation /Desktop Virtualization including server, storage etc,.	65.00	To cater to computing facility for entire college
2	Software like Network Management tools, SMS solution	15.00	To manage the IT infrastructure for entire college
3	Renewal of Vmware and additional licenses for Desktop virtualization	5.00	For server virtualization & cloud computing
4	Setup a Centralized DATACENTER	10.00	For entire college and implement cloud computing
5	AMC of Campus IT Infrastructure	35.00	For Maintenance of IT infrastructure in the college campus including servers, desktops, peripherals and network
	Total	130.00	

4.4	**Maintenance of Campus Facilities**
4.4.1	**Does the College have an Estate Office / designated officer for overseeing maintenance of buildings, class-rooms and undertaken to improve the physical ambience.**
	- The college is spread over 50 acres with greenery and sprawling lawns. It has a built up area of 62,069 m^2 and therefore to maintain such an estate the college has an maintenance department headed by Dean (infrastructure). - There is a Infrastructure committee which looks after the various requirements of the campus and takes necessary action. (Pl see all Committees list in Annexure 4.d) - It also has two civil Engineers , one electrical Engineer, two Supervisors, Sr. Electrician (In charge generator), Asst. Instructor/ Asst. Electrician, Electrician, Plumber, Carpenter and Helpers. - Gardening is outsourced to a professional agency with One supervisor and 12 gardeners who maintain the Green cover. - Class rooms and other built up area are day to day maintained for their cleanliness by two agencies supervised by both the department designated supervisor and agency designated supervisors.

	• The maintenance section has to additional perform following responsibilities : ♦ Prepare estimates for all engineering requirements and submit to the Principal. Receiving competitive bids/quotations, process for negotiation, approvals and release of orders / contracts ♦ Monitoring progress, quality, consistency, time and budget ♦ Analyzing progressive bills, quality, quantity and rates ♦ Maintaining documents including log book for transparency, uniformity, completeness and consistency. ♦ Processing payments to contractor, co-ordinate with accounts, audit and clarify. ♦ Maintain copies of electrical &Civil layouts and contracts.
4.4.2	**Does the College appoint staff for maintenance and repair? If not, how are the infrastructure facilities, services and equipment maintained? Give details.**
	As indicated in 4.4.1 two Supervisors, Sr. Electrician (In charge generator), Asst. Instructor/ Asst. Electrician, Electrician, Plumber, Carpenter and Helpers have been appointed for day to day maintenance and repair. In case the maintenance work involves large labour force contractors are appointed. AMC is also given for IT infrastructure, Air Conditioners and UPS.
	Any additional information regarding Infrastructure and Learning Resources, which the institution would like to include.

	From Safety point of view various quarterly checks are carried out under the supervision of authorized agencies for example:
	    i. Diesel Generator sets undergo :
	 A-Check
	     (i) Daily, (ii) Weekly and (iii) Monthly
	     Daily checks carried out for lubricating, cooling, fuel, exhaust, engine related unusual vibration etc including water level for cooling.
	     Weekly check includes hydraulic governor oil level, engine oil level in addition to the above checks.
	     Monthly check includes electrical battery charging system, generator, switchgear, and exhaust in addition to the above
	 B-Check
	     6 months / 250 Hours of operation
	     B-Checks carried out once in 6 months period for lubricating, cooling, air intake, fuel, exhaust, electrical bas, electrolyte specific gravity, engine related, main generator, switchgear and operational tests and rectification of problems in the set.
	    ii. Transformer and outdoor structure
	     • Physical inspection on daily basis
	     • Silica gel replacement, transformer oil tests for dielectric strength etc will be carried out once in a year. Transformer oil should with stand 30 kV.

	• Grounding with suitable earthing connection will be checked. Neutral ground value etc should be within 1-2 ohms. • Switchgears of transformers, feeders etc., are inspected daily for their healthiness. The institution has on campus Banking, post office, pharmacy and stationary store for the benefit of students and employees.

CRITERION V: STUDENT SUPPORT AND PROGRESSION
5.1 Student Mentoring and Support
5.1.1 Does the College have an independent system for student support and mentoring? If yes, what are its structural and functional characteristics?

Yes. There is a proper system provisioned , to continuously monitor and assess the progress of a student and his/her performance. The support mechanism consists of:

i. **Academic monitoring committee**: Head of the department is the chairperson and senior faculty as steering committee members. It continuously monitors the academic related matters and guides the students to their counselors in case of any personal problems causing discrepancy in their academics.

ii. **Counseling / Mentoring:** There will be one counselor/ mentor (teaching faculty) assigned for a batch of 20 to 25 students. Students will be counseled at regular intervals regarding their personal and academic matters. The students are free to contact the counselor during the time the counselors have announced in their chambers or any time with mutual consent to discuss both academic and personal problems.

iii. **Parent's Teachers meet:** Every semester the Departments are expected to have a parent teacher-HoD interaction, mandatorily. However the parents are free to visit and discuss their wards problem at any time with the HoD and mentor.

Functions of Counselors:
- Counselors are responsible for
  - Registration of the students at the start of every semester.
  - Counseling them for choice of electives and credits.
  - The counselors continuously monitor the progress of all thestudents regarding their attendance, punctuality, home assignment, sessional assignmentandinternal assessments.
  - The performance of mentees in academic, extra-curricular, sports and other activities are keenly observed by counselors.
  - Maintenance of student's academic file which includes student's report card, medical certificate if any, certificate of extra-curricular actives need to be maintained.
  - Advice and personal support if required is given to the mentees. College has appointed a Qualified clinical psychologist, as a Faculty in the institution for providing psycho-socio counseling services and guidance to students based on their needs. The faculty is currently on the rolls in the placement office.

5.1.2 What provisions exist for academic mentoring apart from classroom work?

Apart from classroom interactions, there are ample opportunities for the students to develop and grow in their academic and other related fields.
- The departments organize national and international seminars, conferences, paper presentations, project exhibitions where the students get opportunities to interact with experts in their respective fields in the subject.
- The Alumni Association and placement cell has been meeting from time

	to time to provide a platform to the students to come in contact with their seniors who are working in different spheres. These interactions help the students prepare themselves as per demand in the job market.
	• The departments arrange special lectures by industry experts, professors from reputed institutions, alumni and professional trainers to motivate the students in learning and enhancing their skills in new areas of interest.
	• The departments also arrange and organize special lectures/workshops in association with the Placement &Training Cell, which help the students to develop better presentation skills, mannerism and personal growth.
	• Opportunity and facilities are created for students to take up long term innovative projects. These are funded by RSST and many industries.
5.1.3	**Does the College provide personal enhancement and development schemes for students? If yes, describe techniques employed e.g., career counseling, soft skill development, etc.**
	YES
	• The Department of Placement & Training is recognized for its ability to plan and implement value added programs such as the PDP programs, Technology Training Programs and Bridge Courses in the areas of interest and requirements for the industry. This adds to the credentials of the students and builds the quality of the engineering professionals from the college.
	• Soft Skills Training programs are conducted from first to the fifth semesters, for holistic improvement of students and prepare them to the industry requirements. This includes English language with language laboratory, Communicating skills, interpersonal behavior, personality development etc. The Department has empanelled various training agencies to cater to these needs of both UG & PG students.

A. **Structure of the Soft Skills Development Program**:

The Training Programme which is being offered at the institutional level and being facilitated by the Department of Training & Placement is aimed at sharpening the students soft skills. Career orientation is provided by training the students on the skills needed to cope up with career in the corporate world. In addition orientation programs are also conducted involving group discussions, aptitude tests, Technical problem solving skills. The training programmes are spread over the 2nd & 3rd year of the Bachelor's Degree programme. These training programs are provided by our partners rich in experience & sound on the knowledge & skills of the pedagogical aspects of personality orientation & development. The Spreading of the training period over a two year time frame facilitates monitoring the progress of the students in the personality development, with ample time for reflection on his strengths & weaknesses and leaves sufficient room for self-introspection& interaction with peers in his class. The 72 Hours of Training is offered in a Modular structure with 18 Hours of training in each module over 4 Modules.

The Training partners are required to look at the training from an integrated perspective and design their training modules and choose the trainers to suit the specific skills imparted in each of the module. The profile of the trainers is an important element in ensuring the Quality of the Training and in achieving the Deliverables. RVCE believes that the Training agencies will apply thought and

due diligence in choosing trainers of high caliber & profile to match the expectations of the students and suit the culture of our institution. Handling Issues such as dignity and cultural sensitivity are important for obtaining a good feedback from the institution.

PRE ASSESSMENT:

PURPOSE: To get familiar with trainee group and understand the challenges that the agency could face a pre-training assessment is conducted.

METHODOLOGY AND REQUIREMENT:

- Interaction with the group in a 100 minutes slot and gain some points helpful in designing the structure of the training programs and devise suitable pedagogical interventions for the trainers.
- Building up rapport with the group of trainers and appreciate the level of knowledge and skills in the target skill areas.
- Appraise the trainers on the modules and build an interest , awareness and keenness for participation in the training sessions with an open mind and a quest for learning.
- Sample the variability in the class with regard to the confidence level, personality orientation and communication ability.
- Interact with HOD, Faculty Co-ordinator to put forth the technical requirements.
- Transact with the department of Placement & Training on the terms of reference for the training contract.
- Feedback on the acceptability of the trainer profiles for the trainee groups.

REPORTS:

- Experience sharing on the group discussion and the levels in the group.
- Proposed structure of training and suggestions for suitable training interventions.
- Scheme of Modules implementation and steps for effectiveness in trainings.

POST ASSESSMENT:

PURPOSE: To judge the outcome of the program by comparing the performance and skills learnt pre and post training assessment. Suggest further follow up action to each student.

METHODOLOGY AND REQUIREMENT:

- To assess the level of knowledge and skills in the target skill areas gained by the students,
- To measure the level of confidence, communication skills, attitude developed by the students during the training Program,
- To find out the effectiveness of the training modules adapted by the students,
- Feedback on the pedagogy and methodology of training for specific modules included in the brief.

REPORTS:

- Experience sharing on the group discussion and the levels in the group.
- Proposed structure of training and suggestions for suitable training

interventions.

- Scheme of Modules implemented and steps taken for effectiveness in trainings.

(Pl see Annexure-5.a for Training Modules and Agencies)

POST GRADUATE

The post graduate students spend 2 Years in the institution. The First three semesters are on Campus & the final semester is devoted mainly to carry out industry based internships or research based projects based on the student's preference and availability of such opportunities. The POTP (Personality Orientation Training Programme) for the PG Students is offered in the first year of their two year degree program. The PG students are being trained in the institution for a technical career in their chosen areas of specialization The Focus of the training programme is therefore on the aspects of imbibing Technical Communications and Technical Writing Skills.

B. **OUTCOME OF THE TRAINING PROGRAMME**:

The training program is an experiential learning programme which comprises of Various activities designed to sensitize students towards key focus areas such as

- Goal Setting
- Resume Building
- Resume Writing
- Impression Management
- Critical Thinking
- Planning and Execution
- Stickiness and Idea Generation
- Team Building
- Team Management
- Decision Making
- Ethics and Morality

Career Counseling and Career Orientation Program: The Department of placement and training is a nodal agency for providing inputs on career opportunities for higher studies. Every department has seminar halls where personality development programmes are conducted. Many international universities visit the campus and placement and training department facilitates in conducting orientation and counseling on higher education opportunities. The institution has MoU's with several universities abroad for preferential admission. About 15% of the students opt to go for higher studies in IITs, IIMs, International universities and other institutes of higher learning. Recently the institution has entered into an agreement with an agency offering their services to counsel students on choosing their programs of study and universities for their higher studies.

Effective Career Guidance for Higher Studies:

- Display the brochures regarding opportunities for higher studies.
- Relation with Foreign educational consultants.
- Providing information on career opportunities abroad
- Arranging interactions with foreign university officials & Professors: (3 years)
- Organize Career Guidance Seminars

- Opportunities in Defense
- Higher Education Opportunities in Management and Technical Streams both in India & abroad

5.1.4	**Does the College publish its updated prospectus and handbook annually? If yes, what are the activities / information included / provided to students through these documents? Is there a provision for online access?**	

Yes.

- An updated revised 'Rule & Regulation Handbook' is published annually and is provided to the students every year. It covers the detailed aspects like profile of the institution, Admission Process, Academic Planning, Evaluation system, Professional societies, Value added services, Calendar of events, Extracurricular activities and disciplinary measures.
- There is a provision for online access of these details on the website: www.rvce.edu.in.
- Syllabus book lists the courses one has to register and complete to satisfy the academic requirements of the program. This book is issued to the students every year.

5.1.5 Specify the type and number of scholarships / freeships given to students (UG/PG/M.Phil/Ph.D./Diploma/others in tabular form) by the College Management during the last four years. Indicate whether the financial aid was available on time.

Sl No	Type of Scholarship:UG	Agency/ Organization	2013-14	2012-13	2011-12	2010-11
			Amount Rs. in lacs			
1	SC/ST	SC/ST	107.43	23.18	92.62	103.97
2		SC/ST (freeship)	61.22	20.73	38.32	40.85
3	Low income	KEA 2010 Subsidy	23.30	20.82	17.22	29.00
4		MHRD (PU Board)	25.00	50.39	102.78	120.33
5	OBC	Jharkhand State Tribal Co-op Dev. Corp	0.20	0.20	12.15	14.81
6		BCM (OBC)	16.21	27.20	10.25	16.35
7		Bihar/ Samastipur OBC	1.70	2.51	--	1.31
8	Minority	Karnataka Minorities Dev. Corp., Loan	17.75	12.10	9.10	3.35
9		Alhaj Attar/ Al Ameen Welfare Trust	0.35	0.10	--	--
10	Corporate	Intel Foundation	1.71	1.50	1.31	--
11		M/s Meritor CVS India Ltd.(ME)	0.80	0.80	0.80	0.80
12		Cognizant Foundation	4.20	4.20	3.90	--

13		Sitaram Jindal	0.26	0.40	0.60	0.82
14		NTT Data Inc America	0.93	--	--	--
15	Corpora te	Indian Oil Corp.	--	--	--	0.12
16		KPMG	6.00	6.00	6.00	4.00
17		GE Foundation	5.58	5.01	3.95	3.24
18		Dept of Sainik Welfare For Ex Service Children	0.075	0.94	0.90	0.41
19		BBMP / Town/City Municipal	0.27	1.33	1.83	0.05
20		M/s Raghuvendra Singh	3.25	2.50	2.00	--
21		DTE Assam Guwahati(Merit)	0.03	0.60	0.60	0.03
22		N H F D C Faridabad	1.57	0.86	--	--
23		DTE Karnataka (Merit)	1.95	1.95	--	--
24	Others	Merit-Cum-Means (DBT)	1.90	25.05	0.60	10.93
25		Alumni Assoc. RVCE/ Guru Charitable	2.50	0.30	--	0.30
26		Karnataka Employees Welfare Assoc.	0.20	0.06	--	--
27		Nalanda /SamastipurJillaKalyan	2.25	--	0.08	--
28		Karnataka Employees Welfare Assoc.	10.74	--	--	--
29		NTSC/ NCERT		0.18	0.66	0.90
30		KMDC		--	--	6.76
31		Ministry of Labour Welfare		--	--	0.025
32		Sports Scholarship VTU		--	--	0.05
33		Women & Children Dev.		0.07	0.025	0.025
35		DTE Arunachal		--	--	0.17
36		GSB League		0.14	0.12	--
37		UGC		--	1.50	--
Total			**297.62**	**209.08**	**306.86**	**359.05**
1	GATE (Post graduate)		75.68	159.36	228.48	103.70

2	TEQIP (Post graduate)	11.84	33.60	6.72	--
3	Corporate (Post graduate)	0.40	--	--	--
	Total	**87.92**	**192.96**	**235.20**	**103.70**

- *Payment from Feb 2014 is pending as III installment not yet released by NPIU

5.1.6 **What percentage of students receives financial assistance from state government, central government and other national agencies? (e.g., Kishore VaigyanikProtsahanYojana (KVPY), SN Bose Fellow, etc.)**

Year	Program	Type of scholarship	Percentage of students getting
2013-14	**Bachelor of Engg.**	SC/ST	9.60%
		OBC	1.62%
		Lower income group	8.15%
		Minority	1.11%
		Corporate	0.44%
		Others:	2.80%
2012-13		SC/ST	2.77%
		OBC	4.51%
		Lower income group	5.08%
		Minority	0.75%
		Corporate	0.71%
		Others:	0.84%
2011-12		SC/ST	7.88%
		OBC	1.46%
		Lower income group	0.75%
		Minority	0.55%
		Corporate	0.75%
		Others:	1.24%
2010-11		SC/ST	9.42%
		OBC	2.77%
		Lower income group	2.57%
		Minority	0.55%
		Corporate	0.68%
		Others:	1.68%

5.1.7 **Does the College have an International Student Cell to cater to the needs of foreign students? If so, what measures have been taken to attract foreign students?**

NA

5.1.8 What types of support services are available for

* Overseas students - Not Applicable
* Physically challenged / differently abled students.
   - The institution has provided ramps and lifts for physical access.
   - Fee concession is extended in deserving cases.
* SC/ST, OBC and economically weaker sections.
   - Fee concession for Economically weaker sections
   - Fee concession and Scholarships for SC / ST / OBC students
   - GATE scholarships to PG students as per AICTE norms to 3SC/ST students in each program.
   - PG Assistantship under TEQIP, scholarship amount equal to GATE

Scholarship amount.

- Totally on an average 98% of the eligible students avail these scholarships.

* students to participate in various competitions/conferences in India and abroad

- The institution encourages students to take up innovative designs and products. Some of the ongoing activities are Formula-I car (Ashwa), Unmanned mini aircraft (Vyoma),All terrain vehicle (Baja), Nano satellite (Studsat) and many more.
- The student groups are encouraged to participate in competitions both in India and other countries. The students have many accolades in national and international competitions. (Please see Annexure 5.c)
- The college provides registration fees and travelling expenses for the students. Benefit of attendance is provided for students to participate in events. Re-tests are scheduled for such students if they are not able to appear for the tests while participating in events.

* Health centre, health insurance etc.

- The institution has a well-established health care center in the college premises with a male and a female doctor.
- Insurance is provided for all students under student group insurance. Insurance provision is for OP treatment. In case of unfortunate death of supporting parent the company will bear the cost of education. In the case of demise of student the parent will get the insurance amount to a total of Rs.200,000.00
- Hostel students can avail the facility beyond working hours.

* skill development (spoken English, computer literacy, etc.,)

- Language classes, Personality Development Programs and soft skill courses are regularly conducted.
- Proficiency courses in special areas are conducted during vacation for interested students.

* Performance enhancement for slow learners / students who are at risk of failure and dropouts.

- Remedial classes, special classes are scheduled apart from their regular time table.
- Fast track semester is meant to enable slow learners to complete academic requirements by allowing registrations in a few courses at a time (upto a maximum of 20 credits)
- Double the duration is provided to the students to finish their program (8 years for UG and 4 years for PG).

* Exposure of students to other institutions of higher learning/ corporates/business houses, etc.

- There is a policy that every semester, students should be taken to industrial/ site visit, conduct technical lectures by inviting experts from industry and other institutions of higher learning (Pl see Annexure 2.h). The students are encouraged to takeup internships, carry out extensive field surveys and projects related to the subjects and get better exposure to the present situations on field.
- Some of the students are selected by IITs and IISc to work in their

- laboratory during summer vacation.
- A separate Entrepreneur development cell has been setup to encourage the students/Alumni to get into entrepreneur ventures.
- * Publication of student magazines.
- An annual college magazine called "SPANDANA" is being published.
- Various clubs bring out their News letter periodically.
- Each department also has a News letter and students are in the editorial boards.

5.1.9 Does the College provide guidance / coaching classes for Civil Services, Defense Services, NET/SLET and any other competitive examinations? If yes, what is the outcome?

- The college facilitates guidance / coaching by professional agencies for classes in Civil Services, Defense Services, and any other competitive examinations. The college encourages and motivates students for various competitive examination and the students do self-study or take private coaching outside the Institute and get selected in SSC, CDS, UPSC. Many of the alumni of the campus have fared well in these competitive examinations.
- Information to students is disseminated through circulars, group mails and Notice Boards.

5.1.10 Mention the policies of the College for enhancing student participation in sports and extracurricular activities through strategies such as

Additional academic support, flexibility in examinations

- Policies and strategies have been framed in such a way to promote participation of students in extracurricular and co-curricular activities and to motivate maximum number of students to participate.
- Sports persons who have represented state / nation at junior level are given seats of preference under management quota in addition to KEA allotment.
- HSS credits are mandatory for students for participation in various events.
- Attendance benefit to sports persons as and when they represent the institution, University and National duty in sports as well as Cultural events.
- Makeup exams are allowed for sports persons representing University and/or Nation.
- Additional academic support, flexibility in examinations is provided.

Special dietary requirements, sports uniform and materials

- Special dietary requirements, sports uniform and materials are provided, during practice and matches.
- Colors, track suites and Uniforms are provided to all sports teams representing the institution.
- Sports materials and kits are provided where ever necessary.
  Any other
- During matches TA and DA are given as per the norms fixed by Sports Committee of the institution.
- The departments have a supportive environment ,to encourage students to participate in activities of their interest. The cultural and sports

committees give opportunities to students to display their talents.

- The department also promotes the participation of the students in intra and intercollegiate competitions.
- All the departments have associations that conduct various programs; this helps students to gain confidence in communication, organizing capability, budgeting, leadership, fund management, and team building.

5.1.11 Does the College have an institutionalized mechanism for placement of its students? What services are provided to help students identify job opportunities, prepare themselves for interview, and develop entrepreneurship skills?

Yes, there is structured mechanism for career guidance and placement by the Department of Training and Placement. The department offers guidance to the students in formal and informal ways. The department coordinates to organize lectures on career opportunities.

- It invites companies for campus recruitment
- Besides campus interview, T&P conducts aptitude tests, Personality development and inter personal communication workshops and entrepreneurship development programs with external experts.
- Facilitates in plant training to the industries during vacation.
- The institution has a strong entrepreneurship cell started as a project under National Entrepreneurship Development Program of DST in 2007. It has grown from strength to strength. The off shoot of this project is an independent Entrepreneurship cell managed by students with a faculty coordinator.
- The institution is a member of NEN and is partnered with ASCENT.
- The EDC cell conducts seminars, workshops, TED talks, internship camps and many such activities.
- Some Sample programs conducted are:

a. A talk on "Graduate Studies in the US: A Faculty Perspective" by Dr. JayantRajgopal, Graduate Programme Director and Dr. BopayaBidanda, Prof. and Chair, University of Pittsburg.

b. Technical talk on "Entrepreneurship Development" by Mr. Badarinath L, Director of Ethnus, organized by Dept. of Industrial Engineering and Management Sponsored by Entrepreneurship Development Cell, RVCE.

5.1.12 Give the number of students selected during campus interviews by different employers (list the employers and the number of companies who visited the campus annually for the last four years).

Programs	Total no. of offers through the placement cell			
	2013	2012	2011	2010
Computer Science	164	188	166	174
Electronics & Communication	133	188	167	167
Mechanical Engineering	90	116	122	94
Electrical & Electronics Engg	64	64	73	52
Telecommunication Engg.	66	85	84	66
Instrumentation Technology	52	56	69	48
Industrial Engg. & Management	38	41	41	35

Civil Engineering	24	24	38	29
Chemical Engg.	26	33	33	26
Information Science &Engg.	85	80	82	83
Master of Comp. Applications	44	44	52	52
Biotech	32	36	50	42
M Tech	64	139	103	46
Total	**884**	**1094**	**1051**	**914**

5.1.13 Does the College have a registered Alumni association? If yes, what are its activities and contributions to the development of the College?

Yes, the college has a registered alumni association. It also has its own web site www.rvcealumni.org
*   Alumni Association conducts alumni meet every year on October 2nd at both departmental and college level.
*   Institute has an alumni data base and a separate website. We invite them to regular functions.
*   Institute invites alumni to give the guest lecturers & interact with students to enhance the knowledge & skills of the students.
*   Alumni association provides financial aids to the students.
*   Alumni help is setting up industry based laboratories on campus through their contacts and organizations.
*   The Alumni help in training and placement activities.
*   Alumni are nominated to the Board of Studies in every department.

5.1.14 Does the College have a student grievance redressal cell? Give details of the nature of grievances reported and how they were redressed.

RVCE has a grievance redressal committee. Dean student's affairs is actively involved in grievance redressals and students will be directly in contact with their counselors towards reporting their grievance.

A student had reported misbehavior by the guide and the matter was dealt with, enquiry conducted and appropriate action against the guide was taken.

Students with psychological issues are dealt through a clinical psychologist who is on the permanent roll of the institution. She records such cases and brings to the notice of authorities.

Regular academic counseling to drop and withdraw courses, help channelize academic activities and personal problems have been dealt by counselors in a number of incidences. Such grievances were addressed with sensitivity in many cases.

5.1.15 Does the College have a cell and mechanism to resolve issues of sexual harassment?

The anti-sexual harassment Committee members look after the issues related to sexual harassment. There are also committees for anti-ragging, dress code, etc. To resolve the issues / complaints related to students and staff members, the Principal puts up a notice of meeting to committee members who discuss and if required summon concerned persons to get facts.

Redressal issues may be related to:
- Academic issues
- Disciplinary issues
- Behavioral issues with the staff and students
- Service rules related issues
- Any other issues which will not fall in the ambit of the above.
- The committee prepares the enquiry report and submits the same to the Principal for necessary decision.
- To conduct the enquiry thoroughly and facts are found with the persons who are directly or indirectly involved in the respective incidence.
- To maintain appropriate documents and evidences in the written form and submit to the Principal after the enquiry is over.

Regarding the punishment the RSST being the employer will be the final authority and takes decision in consultation with the Principal. The following lists the nominees of Grievance and Redressal Cell committee.

Sl.No.	Name	Department
1	Prof. B.S. Satyanarayana, Principal	Off.
2	Prof. K.N. Raja Rao, Advisor	TCE
3	Prof. K.N. Subramanya, Vice Principal	IEM.
4	Dr. B. Anand	ME
5	Dr. S. Jagannathan	ECE
6	Dr. M.V. Renuka Devi	CV
7	Dr. BinduAshwini	PL&T
8	Smt.B.T.Chitra	IEM
9	Mr. S.K. Venkatesh	Off

Student Issues:
- Based on the complaint received from HOD'S, Faculty members, Fellow students, the Principal, puts up a memo to the concerned.
- The issues that can be discussed by redressal committee may be related to academics, disciplinary issues, behavioral issues like ragging, involving in unethical activities, anti-social activities.
- All the students who are related to the incident directly or indirectly are called for the enquiry/discussion.
- Written evidences/ statements are obtained from them about the facts of the events.
- The committee has to prepare an enquiry report about the facts and submit to

the Principal
- Principal is the final authority to decide on the punishment. Some of the punishments may be like suspending from the classes, removing from the hostel, suspending from the college, informing parents, handing over to the police custody etc., depending upon the severity of the offence.
- The recommendations of the Principal are communicated to the concerned HOD's, Faculty, Parents, Wardens and others who are concerned with the incidence. The documents related to the incidents are maintained under the custody of the Principal.

5.1.16 Is there an anti-ragging committee? How many instances (if any) have been reported during the last four years and what action has been taken on these?

Yes. Institute has an anti-ragging committee which takes preventive actions to avoid ragging. The Committee gives wide publicity to related acts, statutes and punishments. **(Duties assigned during 2013-15)**

Sl. No.	Name	Dept.
1	Prof. B.S. Satyanarayana, Principal – Chairman	Off.
2	Prof. K.N. Raja Rao, Advisor	Telecommunication
3	Prof. K.N. Subramanya, Vice Principal	Off.
4	Dr. P. Ramakanth Kumar, Dean (Academics)	Information Science
5	Dr. Lourdu Antony Raj, Dean (Student Affairs)*	Chemical
6	Heads of Departments	All Depts.
7	Warden / Deputy Warden	Hostels
8	VidyaRao (BT)&Vinay–V Sem. (ME)	Students
9	Inspector / Sub-Inspector of Police – Kengeri	Off.

5.1.17 How does the College elicit the cooperation from all stakeholders to ensure overall development of the students considering the curricular and co - curricular activities, research, community orientation, etc. ?

- The main stake holders of the under graduate and postgraduate program are employers, professional bodies, parents and society at large.
- Feedbacks from the employers help in reviewing the curriculum, inviting the industry professional to give additional inputs in subject domain to fill the curriculum gap, conduct training programs, motivating talks on subjects of research and so on. Some sample programs conducted are:
  a. Technical talk on "Energy Conservation by M/s. Petroleum Conservation Research Association (PCRA)" by Mr. B.V.S Prasad at dept. of IEM, RVCE on 02/02/2010
  b. One day seminar on "Application of QA in Industries" by

VenkatRamkrishnaAkkina, HP on 20th February 2010.
  c. Guest lecture on "Supply Chain Management – A Case Study" delivered by Mr. Arun Bhattacharyya, Research Scholar, IIMB, Bangalore for VII semester students on 8/12/2011
  d. Lecture series in "Industrial and System Engineering", organized by department Industrial Engineering and Management Sponsored by Entrepreneurship Development Cell, RVCE and IDEA on 02nd May 2012.
  e. "Game Theory and its applications" by Prof. Y Narahari, Chairman, Department of Computer Science and Automation, IISc, Bangalore
  f. "Sustainability Strategies adopted at Toyota Kirloskar Motor" by Mr. Joseph Saldanha, GM –Plant Administration Division, Toyota Kirloskar Motor Pvt. Ltd, Bangalore
  g. "Role of Innovation for Enhancing Competitiveness" by Prof. B S Satyanarayana, Principal, RVCE, Bangalore
  h. A technical talk delivered on "Materials Management Techniques" by Indian Institute of Material Management Mr. HarshaKestor, Deputy Director E-Learning, Mr. Subramani, Vice Chairman, IIMM, Mr. Venkatesh, Branch Manager and RashmiGautham, Program Manager, E Learning on 21st September 2012
  i. A technical talk delivered on "Lean Six Sigma for Students" by E Johanan Daniel, Director, Juran Academy Pvt Ltd India and Srilanka on 26th September 2012
  j. A technical talk delivered on "Portfolio Building for Industrial Engineering students" by Dr. UdayVemkatadri, Head, department of Industrial Engineering, Dalhousie University, Canada 2nd November 2012
  k. Orientation on Lean Six Sigma Black Belt Program by Qual Mind Global during 7th and 8th February 2013.
  l. Orientation Program on Career in Finance by Brickworks Finance Academy on 18th February 2013
  m. Talk by Prof. SharuRanganekar on "Managing the Results" organized by Dept. of IEM and IDEA on 1st March 2013.
  n. A Technical talk on "Precepts to Practice in Manufacturing Sector" by Dr. S. Devarajan, Vice President (Production Engineering), TVS Motor Company, Hosur and Mr. Manish Soni, HR Dept., Titan Aerospace, Bangalore organized by Dept. of IEM and Mechanical on 21st November 2013.

- Parent teacher meeting and alumni meeting are conducted periodically and inputs are taken for improvement of curriculum and other activities.
- Alumni guide and mentor the student teams in long term innovative projects like "Ashwa" , "Baja", "Garuda" etc.
- Parents help in establishing networking with research organizations leading to research proposals and tie-ups.

5.1.18 What special schemes/mechanisms are in place to motivate students for participation in extracurricular activities such as sports, cultural events, etc.?

- In case of candidates with extra ordinary talent in sports and cultural activities, the management provides admission through its priority quota.
- Sports persons are given fee concession.

- Annually the achiever in sports and cultural events are honored by the RSST, during the Republic day get together.
- Outgoing batch sports persons and students who have represented institution in cultural activities are felicitated.

5.1.19 How does the College ensure participation of women in 'intra' and 'inter' institutional sports competitions and cultural activities? Provides details of sports and cultural activities in which such efforts were made?

There is good participation of women in sports and cultural activities. Every year, during the vacation period in the months of July & August, sports competitions and cultural activities are conducted in the college. A women PED is appointed to look after the needs of girls and women.

5.2 Student Progression

5.2.1 Provide details of programme-wise success rate of the College for the last four years. How does the College compare itself with the performance of other autonomous Colleges / universities (if available)

As per the guide lines of the compliance agencies including the University the minimum period of awarding graduation degree is four years (three years for lateral entry) and maximum period eight years (Six years for lateral entry).

The following table shows the success rate of such students who have obtained the degree in minimum period i.e. four years.

Passing out year	2013-14		2012-13		2011-12		2010-11	
UNDER GRADUATE PROGRAMS								
	A	C	A	C	A	C	A	C
Biotechnology (Regular)	50	43	47	41	48	40	58	53
Lateral Entry	02	00	06	04	03	03	0	0
Chemical (Regular)	40	39	39	35	37	33	35	32
Lateral Entry	09	07	04	04	05	04	04	03
Computer Sc. (Regular)	122	101	128	112	124	113	124	119
Lateral Entry	24	23	12	12	18	17	12	12
Civil (Regular)	45	31	42	34	43	32	37	33
Lateral Entry	08	07	04	04	06	05	04	04
Electronics&Commns.(Regular)	116	97	119	108	121	117	119	114
Lateral Entry	24	19	12	11	18	18	12	12
Electrical & Electronics (Regular)	62	51	62	58	58	51	59	06
Lateral Entry	12	11	06	05	09	08	06	05
Industrial Engineering Management (Regular)	56	46	46	40	52	39	50	40
Lateral Entry	10	06	04	02	07	07	05	04
Information Sc.&Engg (Regular)	62	54	59	55	61	56	61	56

Lateral Entry	12	10	06	06	09	09	06	06
Instrumentation Technology (Regular)	59	48	55	48	49	42	54	51
Lateral Entry	12	11	06	03	09	05	06	05
Mechanical (Regular)	124	115	128	110	136	116	124	113
Lateral Entry	24	19	12	11	16	13	12	12
Telecommunication (Regular)	60	57	59	51	60	57	60	51
Lateral Entry	12	11	6	6	9	7	6	5
POST GRADUATE PROGRAMS								
Biotechnology	17	16	--	--	--	--	--	--
Bioinformatics	--	--	--					
Chemical			--	--				
Computer Science	19	17	18	17	18	17	18	15
Computer Networks	18	16	18	17	18	17	18	18
Structures	18	15	18	16	18	13	18	12
Highway	18	14	18	10	18	17	--	
VLSI& Embedded systems	19	19	18	17	18	17	18	18
Communication systems	18	12	18	18	18	18	18	17
Power Electronics	18	16	18	15	18	11	18	10
Engineering Management	18	15	--					
Software Engineering	18	18	18	17	18	18	18	17
Information Technology	18	14	18	17	18	16	18	17
Biomedical Signal Processing & Instrumentation	18	18	18	09	18	18	18	05
Product Design & Manufacturing	35	32	31	29	18	13	18	16
Computer Integrated Manufacturing	17	12	15	13	18	12	18	05
Machine Design	19	12	18	13	18	14	18	10
Tool Engineering	17	13	15	11	18	15	03	02
Digital Communication	36	35	36	33	19	18	18	18
RF & Microwave	--	--	--	--	--	--	--	--
Master of Computer Applications	120	Results awaited	120	118	60	53	60	56
A: Admitted C:Completed								

5.2.2 Providing the percentage of students progressing to higher education or employment (for the last four batches) highlight the observed

trends.								
Student progression	**2013-14**		**2012-13**		**2011-12**		**2010-11**	
UG to PG	3%		6.5%		6.5%		5%	
PG to M.Phil.	NA		NA		NA		NA	
PG to Ph.D.	1%		2%		1.5%		1%	
Employed i. Campus selection	80.2%		85%		84%		85.6%	
ii.Other than campus recruitment	5%		8%		6%		2%	

In many instances the students who are placed through campus also prefer to apply for PG and go for PG studies

5.2.3 What is the Programme-wise completion rate/dropout rate within the time span as stipulated by the College/University? Office

- As per the guide lines of the compliance agencies including the University the minimum period of awarding graduation degree is four years (three years for lateral entry) and maximum period eight years (Six years for lateral entry).
- The following table shows the success rate of such students who have obtained the degree in minimum period i.e. four years.
- In the case of M.Tech. programs the minimum completion period is two years and maximum four years.

Drop out year	**2013-14**		**2012-13**		**2011-12**		**2010-11**	
UNDER GRADUATE PROGRAMS								
	A	D	A	D	A	D	A	D
Biotechnology (Regular)	50	03	47	08	48	--	58	00
Lateral Entry	02	--	06	--	03	--	0	--
Chemical (Regular)	40	03	39	02	37	--	35	--
Lateral Entry	09	--	04	--	05	--	04	--
Computer Science (Regular)	122	00	128	02	124	--	124	--
Lateral Entry	24	--	12	--	18	--	12	--
Civil (Regular)	45	01	42	02	43	--	37	--
Lateral Entry	08	--	04	--	06	--	04	--
Electronics &Commns. (Regular)	116	03	119	02	121	01	119	01
Lateral Entry	24	--	12	--	18	--	12	--
Electrical & Electronics (Regular)	62	--	62	--	58	01	59	01
Lateral Entry	12	--	06	--	09	--	06	--
Industrial Engineering Management (Regular)	56	04	46	01	52	--	50	--
Lateral Entry	10	--	04	--	07	--	05	--
Information Science &Engineering (Regular)	62	01	59	01	61	01	61	01
Lateral Entry	12	--	06	--	09	--	06	--

Instrumentation Technology (Regular)	59	00	55	01	49	02	54	--
Lateral Entry	12	--	06	03	09	05	06	05
Mechanical (Regular)	124	01	128	04	136	116	124	113
Lateral Entry	24	--	12	--	16	13	12	12
Telecommunication (Regular)	60	0	60	0	60	0	60	1
Lateral Entry	12	0	12	0	12	0	12	0
POST GRADUATE PROGRAMS								
Chemical	--	--	--	01	--	--	--	--
Structures	--	--	--	01	--	--	--	--
Communication systems	--	--	--	--	--	01	--	--
Power Electronics	--	--	--	--	--	01	--	01
Engineering Management	--	--	--	02	--	--	--	--
Biomedical Signal Processing & Instrumentation	--	--	--	04	--	01	--	--
Digital Communication	36	01	36	03	19	01	18	0

5.2.4 What is the number and percentage of students who appeared/qualified in examinations like UGC-CSIR-NET, UGC-NET, SLET, ATE / CAT / GRE / TOFEL / GMAT / Central / State services, Defense, Civil Services, etc.

CAT: About 30% of the students appear for CAT examination every year and 5% qualify. Many alumni fare better than the regular students in CAT examination.

GRE/TOFEL: About 25% of the students appear for these examination and 22% qualify, however a maximum of 1% opt to go abroad for higher studies. Most of the students go for higher studies after working for one or two years.

Civil Services: About 0.5% of students appear for Civil Services either during their final year or one to two years after completion of degree. This year five alumni got selected for IAS/IFS and IRS.

Defence Services: About 0.5% of students appear for IAF, INS and Army examinations and about 2% out of that clear the SSB.

The institution has been striving hard to keep the exact statistics and once the alumni move out keeping in touch is a challenge. However efforts are on to use online cloud based software to keep track of the alumni.

5.2.5 Provide details regarding the number of Ph.D/D.Sc./D.Litt. theses submitted, accepted, resubmitted and rejected in the last four years. Office

PhD Thesis	2013-14	2012-13	2011-12	2011-12
Submitted	13	27	12	06
Accepted	09	15	11	07
Resubmitted	01	00	00	00
Rejected	00	00	00	00

5.3 Student Participation and Activities

5.3.1	List the range of sports and games, cultural and extracurricular activities available to students. Provide details of participation and program calendar.

Extra-corricular and co-curricular activities are the hall mark of the institution, the institution believes that for the holistic development of the students these are most essential. VariousCo-curricular and extra-curricular activities, include NCC/NSS, cultural activities, sports and games.

Cultural Activities Team (CAT) RVCE

Cultural activities are an integral part of students' college curriculum. Students participate in cultural activities for a wide variety of reasons: for enjoyment and entertainment, for personal growth and development, as a means of expression, to learn new skills, to meet new people and to pass on cultural tradition. R V College of Engineering has a rich heritage of nurturing, nourishing and showcasing talents in the cultural, literary and fine arts.

Objectives of CAT

- The main objective of the CAT is to bring out the multi faceted potentials of students.
- To provide a platform for budding artists and musicians
- To be a catalyst for overall personality development of students in grooming them for their future career and life.
- To imbibe in the students team spirit and harmony.
- Bring out the students hidden leadership and organizational qualities.

Motivation to Students

- RVCE motivates students by giving full support (financially and academically) for participation in national and international events.
- It supports to organize / conduct several events every year in the college campus.
- It gives infrastructural support by way of providing instruments and other needs.
- 8th Mile is now an annual Techno Cultural Event of 3 days
- Kannada Sangha also conducts annually cultural events to mark Rajyotsava Celebrations.

Different Faces of CAT

ALAAP and GHUNGROO – Music and Dance clubs of RVCE

This is the oldest club in RVCE CAT founded 2 decades back in the early 1990s. The main objective of this club is to motivate youngsters to nurture the musical and dance talents. RVCE Music Club showed its mile stone by giving two noted singers and one musician namely Nandita and Lakshmi Manmohan now they are the playback singers and Nikhil Joshi of guitar fame.

ANVESHAN – Fine arts club of RVCE.

This club works as a forum for students to show their talents through brush, paint and pencils, clay, rangoli etc., the main objective of this club is to nurture the students' talents to improve their painting, caricature, cartooning and clay

modeling skills. This club conducts two or three workshops in a year in association with external agency.

CARV – Circle of Acting in RV

This club was established in 1995. The main aim of this club is to train students into young actors and directors. CARV has been performing at various national and regional level competitions and has won several laurels to the RVCE.

DebSoc – Debating Society of RVCE

Debating society was founded in 2003. Within a short span of year, this club showed remarkable achievement in national and international debate competition. Our College is the first college to participate in all Asian debate championships held at Kaulalampur, Malaysia and got "best team award" among All Asians. Best Adjudicator and speaker was awarded in 12th All Asians. Etc.,

QUIZCORP – Quiz group of RVCE

Quiz corp. was started in 1995. The main objective of this club is to motivate students to participate in every quiz open to college students. It conducts quizzes for one and all. This is one of the very few clubs that conducts quizzes from school level to the corporate level. It participates in all spheres of literary activities. This club is conducting "Under the peepal tree" every year in the month of March and it is an annual activity of the club.

8th Mile A Techno - Cultural Extravaganza

The techno-cultural extravaganza 8th MILE occupies a very significant and exciting spot in the calendar of RVites. Students from colleges, far and near, all over the nation, came in large numbers to witness this grand spectacle organized by *RashtreeyaVidyalaya College of Engineering.*

The students, indulged in a healthy discussion on meaningful education combined with innovative and entrepreneurial spirit of the youth could lead us towards sustainable & inclusive growth/world. The festival spanning over three days, is a houseful affair for all the cynosure as well as other events, with the evening performances being the apple of the eye, for every person present, and nobody wanting to give them a miss.

5.3.2 **Provide details of the previous four years regarding the achievements of students in co-curricular, extracurricular activities and cultural activities at different levels: University / State / Zonal / National / International, etc.**

The institution encourages and financially supports the students to participate in various extracurricular and co-curricular activities, a representative list is provided below: (Details are given in Annexure 5.b separately)

Name of the student	Event	Awards Won
Nikhil U Baheti Nikhil Ravishankar Amruta Nithin	TI Analog Design Contest 2014	Won all India Ist place and received $600
Anil Amaresh	TI Analog Design Contest 2014	Runners up in Phase-1

Nagaraja.R	TI Analog Design Contest 2011- IISC, CEDT	Finalist, Saved 50$ for BEL, got selected as research assistant
Rahul Reddy	NUJS Debate Competation, West Bengal 2011 IIITB international Debate at IIT ,Kharagpur 2011 Asian British Parliamentory debate 2011	Asian Champions 1st place 1st place
Meghana.S	Script Writing- Srushti 2011	1st place
TarunAgarwal SujanRao SandeepPai H	Aerobotics, Shastra 2011, IIT Madras	1st place
Prabhudev P Nikhil M Jali	Project Exhibition at Reva institute of technology Bangalore, 13th – 15th May	2nd prize for "Engine management system for a FSAE
SidharthShandilya	NFS event at Saarang 2011,	1st place
Udayan U, Shiva Prasad M S, PriyadarshiHarsha, Vikas R Wadhvani, Vinay	Australian UAV outback challenge Hyundai , KIADB,2009	5th place for UAV JATAYU
Udayan U	TECHFEST, IIT Bombay, "Micromouse", Jan 2009,	1st place for Autonomous maze solving robot with artificial intelligence
Adarsh V B, Rishi B Raghav	All India Cypress PSOC innovation design challenge 2009	Honarary Cash Award of Rs25,000/
Shridhar M Biradar	SAE Aerodesign East 2009, Atlanta , Ga(USA),	20th out of 65 teams for projectVyoma
Abhishek B, AchuthaRao M V, Abhishek G Poojary	TI Analog Design Contest 2012	Second Place (Rs1,50,000)
Prateek B S Team VYOMA	Lockheed Martin SAE Aerodesign challenge 2012, Georgia (USA)	**7th Place World Wide**
Prathap T R	Infineon Quiz 2012	**3rd Prize**
Adarsh V B, Rishi B Raghav	All India Cypress PSOC innovation design challenge 2011	Honarary Cash Award of Rs25,000/
Nagaraja.R	TI Analog Design Contest 2010- IISC, CEDT	Finalist, Saved 50,000$ for BEL, got selected as research assistant

VaibhavPoddar AvaneeshShetty	Cricket REVELS cup, National level sports festival 2012	1st **Position**
Namratha H Mahesh	13th Cross Country races – Women 2012	**Winner**
Pranav M Pai	Lord of the words at Winning edge academy &XLRI alumni association, Bangalore	1st **Prize**
Organization of paper contests, design contests etc. and their achievements		
Amit Kumar VI Sem	Web Design Competition for RVCE students	Second Prize
Amit Kumar VII Sem	State-level Business Plan competition	Second Prize
Rohit K V IV Sem	ABB JurgerDormann Foundation for Engineering Event	Awarded scholarship from the same foundation
Rishi John Joseph VII Sem	Essay Competition Delhi Convention	First Prize
Divya G S VII Sem	State Level Project Exhibition and Competition for Engineering Students Srishti 2009	First Place

5.3.3 How often does the College collect feedback from students for improving the support services? How is the feedback used?

The college collects feedback from the students of all the Departments every semester. The same will be analyzed. Also, feedback from the students is obtained to provide valuable inputs for improving the support services like central library, hostels, sports activities, health centre, transportation, and books.

5.3.4 Does the College have a mechanism to seek and use data and feedback from its graduates and employers, to improve the growth and development of the College?

The institution conducts exit survey and employers feedback when they are on campus, these are placed before various committees and corrective measures taken. The feedback taken during the farewell to final year students are also useful for development of department and institution.

5.3.5 How does the College involve and encourage students to publish materials like catalogues, wall magazines, College magazine, and other material? List the major publications/ materials brought out by the students during the previous academic session.

Students are in the editorial board of college magazine "Spandana" released every year. They also contribute articles in English and kannada.
Students are also on the editorial board of department news letter and write articles.
The ED Cell brings out the quarterly magazine   which is fully managed by students
There are Notice Boards for student activities and students put the details of activities and banners

5.3.6 Does the College have a Student Council or any similar body? Give details on its constitution, major activities and funding.

Students are part of various committees: Dress code, Anti ragging, etc. Four student nominees are members of the Governing Board and appraise the board about student welfare measures. Four Students captains are in the sports committee.
5.3.7 Give details of various academic and administrative bodies that have student representatives on them. Provide details of their activities.
At college level : departmental representatives are part of groups such as Placement, Entrepreneurship Cell, Cultural Activities Team, ASHWA, VYOMA, etc.
Any additional information regarding Student Support and Progression, which the institution would like to include.
Over the years there have been over **2000 toppers** (rank holders and medalists) in University examinations .Over **150 sportspersons** have represented University, State, National in various al level of events. Many students have won prizes in Cultural Activities at University, State, National and International level events starting from dramatics to Quizzing. **Some of the prominent student projects include the STUDSAT (India's first pico satellite), Ashwa (race car development), unmanned aviation vehicles Vyoma& Quad copter), Hybrid and super mileage cars.**

	Criterion VI: Governance, Leadership and Management
	6.1 Institutional Vision and Leadership
6.1.1	**State the vision and mission of the College.**
	The Vision & Mission of R.V.CollegeofEngineering are defined as: **VISION** Leadership in Technical Education, interdisciplinary research & innovation, with a focus on sustainable and inclusive Technologies **MISSION** - To Deliver Quality Technical Education, with an equal emphasis on experiential learning with the state of the art infrastructure. - To create an open, conducive and interdisciplinary environment for faculty and students to learn and carryout research, consequently excel in their areas of interest. - To continuously foster Industry-Institution collaboration for teaching and research, leading to innovation and entrepreneurship. - To focus on development of Technologies that are sustainable and inclusive, addressing social issues. - To nurture disciplined, ethical, socially concerned and employable engineers
6.1.2	**Does the mission statement define the College's distinctive characteristics in terms of addressing the needs of the society, the students it seeks to serve, College's traditions and value orientations, vision for the future, etc.?**
	- R.V. College of Engineering is managed by RashtreeyaSikshanaSamithi Trust (RSST), a Philanthropic trust founded by a freedom fighter and a school teacher Sri. M.C.ShivanandaSarma. - The motivation for starting this trust was to impart education to all strata of society without any discrimination. - RashtreeyaVidyalaya college of Engineering (RVCE) was started in the year 1963 and is following the same motto, with every staff and student being motivated to participate in needs of the society. - The management is considerate in providing freeship and free concession to deserving students. - The Alumni and faculty are contributing by way of scholarships to support the economically weaker and merited students. - R.V.College's vision and mission right from its inception have key words like *societal commitment, quality technical education, inclusiveness, team spirit, sustainability and innovation.* - The vision clearly shows the commitment towards nation building and environment concerns. - The mission also drives faculty and students towards innovation and core values.
6.1.3	**How is the leadership involved in ensuring the organization's management system development, implementation and continuous improvement interaction with stakeholders reinforcing culture of excellence identifying needs and championing organizational development (OD)?**

STRATEGIC PLANNING:

- The Vision, Mission, Strategic plan & audit report, pertaining to the institution and TEQIP are discussed and approved in Governing Body.
- The Member secretary of the GB is the Principal and GB consists of Chairman who is President of RSST, an industrialist and Rotarian; There are senior professors nominated by VTU, GoK, AICTE, UGC and RVCE, apart from management representatives. This blend of academicians, policy makers, industrialists and philanthropists help in balanced policy making, utilization of funds and student as well as staff welfare measures.
- The member secretary presents the progress of the institution in various activities and future development plans of the institution.
- The long term plans have been laid down in the strategic plan document in consultation with Department committees, joint workshops of senior professors for strategy formulation.
- The Institutional Monitoring Planning and Policy Implementation Committee (IMPPIACT) consisting of HoDs and Deans are responsible for continuous improvement through identifying needs, bringing in discipline, defining research activities, future plans etc.
- Various Deans, namely Academic, Infrastructure, student affairs, R&D and PG Studies are responsible for implementation of improvements and outcomes in their respective areas of responsibility.
- Feedback systems are in place to know about the gap that exists in the current academic and other practices, to identify opportunities for continual improvements in the institutional processes and practices.

6.1.4	**Were any of the senior leadership positions of the College vacant for more than a year? If so, indicate the reasons.**
	None of the Leadership positions were kept vacant any time.
6.1.5	**Does the College ensure that all positions in its various statutory bodies are filled and conduct of meetings at the stipulated intervals?**
	All the posts of the Governing Body, Finance Committee, Academic Council and Board of studies is filled from time to time. However there is delay in nominations from UGC, GoK, AICTE and VTU. • Normally Governing Body meetings are held twice a year or some times more depending on the necessity. Certain approvals are also taken by rotation of the subject agenda. • Academic Council meetings are held minimum four times in a year. • Finance Committee meetings are held half yearly. (Pl see Annexure 6.a for Sample of minutes of the meetings)
6.1.6	**Does the College promote a culture of participative management? If yes, indicate the levels of participative management.**
	• The institution believes in the participation of faculty, Principal and Management in planning as well as execution. • Management representatives are members of Governing body, Finance committee, Board of Appointments, Technical Purchase committee, Hostel committee and Infrastructure committee.

- Different members of the GB are entrusted different responsibilities:

  Chairman: He is the chief co-ordinating officer of all the activities and is required to monitor progress in each area the institution is supposed to excel. He has to closely interact with the Head of the institution and liaison with various agencies and universities in the interest of the institution.

  The Hon.Treasurer of RSST, who is also the Chairman of Technical Purchase committee and member of institutional finance committee is supposed to guide the institution towards sustainability. He liaisons between RSST and RVCE and advices the institution on IRG, budgeting and keep control on financial spending.

  The Hon. Secretary of RSST, who is a member of the GB has been vested with the responsibility to interact with the Principal in all day to day activities concerned with administration and approvals. He is authorized on behalf of the RSST to take vital decisions in the interest of the institution. He interacts with GB members to assess the quality of institutional processes and systems.

  The Hon.Joint Secretary takes care of the infrastructure requirement and development of the institution. He also guides sports and extracurricular activities.

  The Industry expert is an industrialist and business man who has the responsibility of giving valuable inputs regarding III, MoUs and placements.

  Senior Professors of the institution, who are on campus and aware of the day to day happeningshave the responsibility of work alongside the Head of the institution in identifying various needs, issues, plans, academic and financial requirement and place before the GB. They are also required to interact with faculty, staff and students and bring to the notice of the Principal any improvements required in the process.

  GoK Nominee has the responsibility as GB member to take the compliance and approval issues to the state departments and help intuition move in the right direction as per Govt. norms.

  Senior Professor nominated by the affiliating university guides the institution towards excellence in academics and research. He also interacts with the students, faculty and staff to put forth the SWOT of the institution. He has to liaison between University and the institution and brings to the notice of GB the steps to be taken to bring quality into academics and research.

  The UGC nominee, has the responsibility of bringing to the notice of the GB future strategies, funding opportunities and other compliancerequirements.

- There are three committees setup to take care of Financial Budgeting, spending and purchases. These committees are:
  1. Finance Committee
  2. Technical Purchase Committee
  3. Accounts Committee
- The Finance Committee is responsible of looking into the sustainability aspects and approves institutional and department budgets depending on the availability of funds, internal IRG and anticipated external funding. The Finance committee is composed of:
  a. Principal as the Chairman

	b. Three members from the Management (Hon. Treasurer, Hon. Secretary and Hon. Joint Secretary) c. An auditor d. Two senior Professors e. The Member Secretary who has knowledge of accounts • Technical Purchase Committee (TPC) goes into the processes followed in getting quotes, Justification of purchase of items exceeding Rs.2.00 lac. Technical Purchase Committee consists of: a. Hon. Treasurer as the Chairman b. Three members from the management (Hon. Secretary and Hon. Joint Secretary, Registrar RSST) c. Two Senior Professors from Finance Committee d. All the Head of the Departments e. Principal is the member secretary • Accounts committee handholds the departments to finalise purchase files before forwarding to TPC. It also looks in to common purchases, Justification, alternative solutions etc. Accounts Committee consists of: a. Principal b. Two Senior Professors c. Accounts superintendent as the member secretary d. Concerned HoDs are invited members of this committee. Accountability and financial sustainability is planned as per the inputs of the Departmental budgeting committee and the above three committees. • The policy of the institution is to make student representatives also a part of day to day management process and therefore, students are nominated on the Governing Body, Culture & Sports committee, Anti Ragging committee, Dress Code committee, Anti-Sexual Harassment committee, Mess Committee, etc. • Technical staffs are also a part of Infrastructure Development Committee, Campus Networking committee, canteen Committee etc. • In academic, placement, entrepreneurship and student activities parents, Alumni, industry personal and recruiters are also involved. (Please see Annexure 6.b for the list of Committees)
6.1.7	**Give details of the academic and administrative leadership provided by the University to the College?**
	• The college is affiliated to the Visvesvaraya Technological University, Belgaum, Karnataka. • University nominates its representatives to various statutory committees like Governing Body, Academic Council, Board of appointments and Board of Studies, who provide administrative, academic and curriculum development inputs. The members nominated are: **Governing Body:** Prof. C.E.G. Justo, Former VC Bangalore Univ. & Prof. in Civil **Academic Council:** Dr. K.J.Vinoy, IISc, Dr.S.Gopalakrishna, IISc. **Board of Appointments**: The University appoints one of the Principal's of the

	• affiliated institution as VTU nominee, during final interviews. • The University sends guide lines of autonomy to oversee that the academic quality in all autonomous institutions is maintained. • Local inspection committee also visits every three years.
6.1.8	**How does the College groom the leadership at various levels?**
	• The college believes in decentralization at top level. • There is a Vice-Principal who shares the administrative burden of the Principal. • The Advisor, helps in stream lining the processes and give important inputs to leadership in academic, infrastructure, training, budgeting and compliance issues. He is also the TEQIP Coordinator and drives the TEQIP activities. • The Heads of the Departments are solely in-charge of the academic activities, budgeting, infrastructure, Department administration,researchand student issues. To provide equal opportunity and flat hierarchy, the post of HoD is on rotational basis for two years among the professors. • The Head of the department is assisted in various activities by committees such as Academic Advisory Committee, Budget Committee, Laboratories in-charges and Question paper scrutiny committee. • Every department also has a Dean of PG studies who is responsible for academic activities of PG students and is also supposed to mentor them. • This decentralization has helped in making the leadership realize the various intricacies of leadership and management. • Regular leadership trainings are conducted in which various systems, processes, strategies and behavior issues are discussed.
6.1.9	**Has the College evolved any strategy for knowledge management? If yes, give details.**
	Yes, the college has clear strategy for Knowledge management, dissemination and sharing among faculty and students. The strategy can be sub divided into three categories: 1. Knowledge sharing through dissemination workshops. 2. Knowledge sharing through centers of excellence. 3. Knowledge sharing by inviting external experts through various conferences, seminars and symposiums. • It has been seen that the college has faculty who have special liking and skills in different areas, like: Materials, System Design, Data Mining, Cloud computing, Networking, VLSI design, Wireless and wire line networks, Alternate building Materials, waste management, Nano technology, Renewable energy and so on. • In order to bring them together and build interdisciplinary research teams Centers of excellences have been proposed in: 1. Centre for Macroelectronics Large Area & Flexible Microelectronics 2. Center for Multifunctional Materials, 3. Center for Clean and Hybrid Power, 4. Center for Green Infrastructure and Management, 5. Centre for Intelligent Transport Systems.

	- These centers are expected to disseminate knowledge and use for inclusive technologies. - In addition as and when any funded projects are completed the outcomes are discussed in open forum to disseminate the learning's. - For the benefit of students conferences, seminars and symposium are organized under the Departmental clubs. - TEQIP is one of the projects under which this activity has been planned and executed by every department. - Lesson plan, Course materials and Model question papers are shared with the students by the teachers. - In some Departments moodle platform is used as a medium of sharing the knowledge and also as an assessment bench or platform. - Technology is leveraged and students can interact with faculty through e-mail groups and web platforms. - Wi-Fi access in Campus for accessing the Knowledge repositories such as e- books, journals and other knowledge assets of the Library & Information Centre. - Webinar is another mode of Knowledge exchange with experts from IITs, other institutes of higher learning, professionals and industries.
6.1.10	**How are the following values reflected in various functions of the College? Contributing to national development, Fostering global competencies among students, Inculcating a value system among students, Promoting use of technology, Quest for excellence, Give details of the UGC autonomous review committee's recommendations and its compliance.**

Contributing to national development:

1. After going through the Nations thrust areas and road map the college has planned to work in interdisciplinary areas with sustainability as the key requirement. This has resulted in bringing all the faculty expertise together and formation of five major areas, namely Large area Flexible Electronics, Multifunctional Materials, Clean and Hybrid Power, Green Building & Infrastructure Management, Intelligent Transport Systems.
    The centres are in line with the National and Global needs and vision.

-   It is the endeavour of the institution to provide engineers in the advanced areas like Biomedical signal processing and instrumentation, Bioinformatics, RF & Terahertz engineering and More than Moor systems, Smart materials, under water communication, Waste recycling and reuse etc.
-   The initiatives taken in research & postgraduate education led RVCE to be selected for TEQIP phase II, for both subcomponent 1.2 and 1.2,1, with a high ranking.
-   Ministry of Human Resources Development, GoI chose RVCE for showcasing India's new Accreditation process during the review by International Observers.

Fostering global competencies among students:

-   RVCE has changed from a pure UG teaching institution to a institution which motivates students and faculty towards lifelong learning.
-   The college has adapted to Outcome Based Education (OBE) principle keeping in step with the Global changes in Higher Education.
-   The college is moving to Conceive Design Innovate and operate (CDIO) principle , by encouraging the students to take up extra mural projects like Ashwa, Vyoma, Studsat etc. and sponsor them to participate in Global competition.
-   Students are recognized having achieved excellence in such competitions.
-   The self-learning introduced in the year 2012 , have brought in new analyzing capabilities in students and brings out individual brilliance as well as team effort, which is very much required in becoming successful in global scenario.
-   The students are encouraged to organize and conduct various events improving their communication, leadership qualities, organizing capability and independent thinking.

Inculcating a value system among students

-   Students are encouraged to participate in Retract club, NCC & NSS
-   Groups of students visit orphanage and help needy through paper collection, clothing collection drives, celebrating festivals in old age homes and orphanage.
-   Students are required to follow Dress code and wear Identity cards on campus.
-   Credits for HSS is a motivating factor for students and then it becomes a habit.

Promoting use of technology
- The campus is Wi-Fi enabled with 802.11n supported Access points.
- Students can access earlier question papers over intranet
- The students can register for Classmite and Nimmit cloud based learning systems.
- E-learning material like NPTEL and edusat lectures are available on server.

Quest for excellence
- The institution believes in team work and inclusiveness. Therefore several institutional committees have been setup to plan ways and means of achieving excellence in various activities.
- Systems have been setup for various processes related to administrative, academic, financial, purchase, research etc.
- The faculty are encouraged to register for PhD, take up funded projects, publish papers, attend conference/workshops and seminars both with in India and abroad.
- Students are encouraged to participate in and organize various techno-cultural and sports events.
- Interdisciplinary student groups have been formed for various innovative and technical projects like 'Ashwa', 'Vyoma', 'Studsat' etc. These groups are mentored by a faculty coordinator and external experts.
- The Cultural activity team (CAT) has various wings which work for excellence in debating (Debsoc), Quiz (Quizcorp), dramatics (CARV), Music & Dance (Ghungroo), Photography, environment club and so on.
- The NCC squad has been adjudged as one of the best under Goa-Karnataka center.

6.1.11	Give details of the UGC autonomous review committee's recommendations and its compliance. The UGC Committee visited the campus on 1st and 2nd October 2008, the following observations were made

Recommendation	Compliance
Suggested to bring transparency as an integral component of the autonomous system, the college should officially introduce the practice of providing photocopies of the answer scripts to the required students as a part of the examination system	Photocopies are provided to students applying for the same.

	6.2 Strategy Development and Deployment
6.2.1	**Does the College have a Perspective Plan for development? If so, give the aspects considered in development of policy and strategy.** **Teaching and learning, Research and development, Community engagement Human resource planning and development , Industry interaction Internationalisation**
	There is a strategic plan for the progress of the institution in different fronts. It is

	subdivided into:
	1. Infrastructure
	2. Academic activities
	3. Budget and Finance
	4. Research Competence
	5. Human Resource
	6. Environment & Community engagement
	7. Other activities
	The planning starts at department/ division level and the same is consolidated.
	(Pl see Annexure 6.c Pert chart)
6.2.2	**Enunciate the internal organizational structure of the College for decision making processes and their effectiveness.**
	The Governing Body is the supreme body that guides and approves all the institutional strategic vision, mission and plan – identifying a clear development path for the institution, through its long-term business plans and annual budgets.
	It ensures the establishment and monitoring of proper, effective and efficient systems of control and accountability to ensure financial sustainability
	The Governing Body monitors institutional performance and quality
	assurance arrangements, through Principal and senior professors who are required to answer any quarries regarding progress, quality, new proposals and other issues that the GB members raise. This helps in quality assurance.
	Academic council is the next statutory body which is responsible for all academic activities like framing academic rules and regulations, Curriculum approval, guiding research activities, result analysis and academic Quality assurance.
	Governing Body and Academic Council members participate in various activities and programs of the institution from time to time including conferences and workshops.
	The organizational structure of the institution is shown in the chart below:

Governing body and Academic Council

Principal
Dr. B S Satyanarayana

Registrar (Adm)
Sri.Krishna Reddy

Vice Principal
Dr. K.N. Subramanya

Advisor
Prof. K N Raja Rao

Hostel, Library, Maintenance, Sports, Health Center

Office Manager

Section Superintendents

Office Staff

Heads of Academic Departments (15 Nos.)

Faculty

Technical Staff

Controller of Exams
Prof. K.Vasudeva Banninthaya

Deans
1. Academics:
   Dr. P. Ramakanth Kumar
2. Student Affairs:
   Dr.M.A.Lourdu Antony Raj
3. R & D:
   Dr. M Krishna
4. Infrastructure
   Dr.B L Shivakumar
5. Training&Placement
   Prof. Ranaganath
6. PG-Non Circuit Branch
   Dr.H N Narashima Murthy
7. PG— Circuit Branch
   Dr. N.K.Srinath

6.2.3	**Specify how many planned proposals were initiated/implemented, during the last four years. Give details.**

The Major proposal initiated as approved by the GB were implemented as per the chart shown below:

S.No.	Proposals	Years of implementation			
		2010-11	2011-12	2012-13	2013-14
Starting of New Programs (M.Tech)					
	Biotechnology	▓			
	Bioinformatics		▓		
	Chemical		▓		
	Engineering Management	▓			
	RF & Microwave				▓
Increase in intake					

		Digital Communication (M.Tech)	███			
		Product Design & Manufacturing (M.Tech)	███			
		VLSI & Embedded systems (M.Tech)		███		
		Electronics & Communication			███	
		Computer Science & Engineering				███
Establishment of Industry based laboratories &MoU						
		Lap Cables center of excellence	███			
		Texas instruments teaching lab	███			
		Cisco Teaching Lab			███	
		Agilent-RVCE advanced wireless lab				███
		RVCE-Tejas Network advanced lab				███
Curriculum Development						
		OBE based Curriculum delivery and assessment	███	███	███	
		Introduction of self-study components			███	
		Interdisciplinary projects			███	███
	TEQIP-II Project					
		Sub Component 1.2		███		
		Sub component 1.2.1 (Centers of Excellences)			███	
	Infrastructure					
		Increase in area of Library		███		
		Increase in the area of Electrical & Electronics			███	███
		Increase in the area of Electronics & Communication			███	███
		Renovation of Basket				███

Ball court & to convert the same into Multipurpose Hall					
Building new support staff residential accommodation					
Additional Hostel facility					
Enhancement and Up gradation of IT infrastructure					
Wi- Fi Campus					
Virtualization & Data Center					
High Performance Computing					
Sustainability Projects					
Rain Water Harvesting					
Sewage treatment plant					
Planting of trees					
Solar energy harvesting					

Future Plans: 2015-2020

- Sustainability in water, energy and reuse of waste.
- More MoUs with industries and institutes of higher learning
- Private Cloud for e-learning , student life cycle management
- Innovation and Incubation center
- University status
- Continuing education programs and PG programs with industry partnership.
- Strenghthening CoEs and research.
- Financial sustainability through faculty consultancy, projects and support from alumni.
- Setting up of Staff welfare fund and Pension fund.

6.2.4 | **Does the College have a formally stated quality policy? How is it designed, driven, deployed and reviewed?**

"Committed to achieve excellence in education, research and innovation throughBenchmarking against global Best Practices"
- The Quality policy is the outcome of strategic planning workshop conducted for HoDs, Deans and Senior Professors and approved by the Governing Body.
- Quality policy is designed based on the Expectations of the key stakeholders of the institution namely the Faculty & Students.
- The Quality policy is driven through academic, administrative and research policies as well as processes in the institution.

	- The Quality policy is disseminated through displays at vantage points in the departments and administrative office. - The Quality policy is reviewed once in five years.
6.2.5	**How does the College ensure that grievances / complaints are promptly attended to and resolved effectively? Is there a mechanism to analyse the nature of grievances for promoting better stakeholder-relationship?**
	- There is a grievance committee in the institution, which looks into the grievances of both students and staff. (Pl see list of members in Annexure 6.b) - Suggestion boxes are also kept in Departments and in front of the Dean (Student affairs) chambers. - The Grievances received are analyzed and if required an enquiry is conducted. A report is prepared submitted to the Principal. Appropriate action is taken as per the consensus of the committee. - In many cases parents are called and counseling done or the decision of the committee is intimated. - The grievance matters are stratified depending on the nature of complaint and the concerned institutional members are invited to the grievance committee meeting and involving the stakeholders affected in the grievance matter and redressal measures are given.
6.2.6	**Does the College have a mechanism for analyzing student feedback on institutional performance? If yes, what was the institutional response?**
	- During the GB meeting the student representatives bring out their perspective and give suggestions for improvement of institutional performance. - The student feedback is taken once in each semester. The feedback is analyzed and faculty is counseled by the HoD and Senior Professors. - During the annual increment and conformation interviews the faculties are required to give an account of the improvement to the interview committee chaired by the Principal.
6.2.7	**In what way the affiliating University helped the College to identify the developmental needs of the College?**
	- VTU has nominated senior professors to the Governing Board of the institution who give constructive suggestions in regard to various developmental proposals. - VTU has awarded Rs.1.00 lac to RVCE for sports development as a recognition for accumulating maximum points in sports from 2012-2014. - VTU granted M.Tech. in RF & Microwave Engineering (a new program under VTU, the curriculum framed by RVCE) to Department of Telecommunication, RVCE.
6.2.8	**Does the affiliating university have a functional College Development Council (CDC) or Board of College and University Development (BCUD)? If yes, In what way College is benefitted.**
	- There is no specific CDC set up by the university; however experts are nominated to monitor the autonomous performance of the institution. Prof. C.E.O.Justo, Former Professor and I/C Vice Chancellor Bangalore University closely interacts with the institution, staff, faculty and students

	- The institution conducts strategic development and leadership programs. - The institution has Institutional Management of Policy, Planning, implementation & Assessment Committee for Transformation (IMPPIACT), consisting of Deans, HoDs, Vice Principal, Advisor and Principal. - The institution has various other committees to plan and implement the road map like Infrastructure committee, Enhancement of R&D and Institutional Consultancy, Academic Progress Monitoring Committee, OBE Auditing Committee, Compliance & Documentation Committee, It Planning & Monitoring Group.
6.2.9	**How does the College get feedback from non-teaching, teaching, parents and alumni on its functioning and how it is utilized?**
	- There are specific formats for each of the feedbacks: **Non –teaching:** Feedback is taken during interaction sessions during annual performance evaluation. Feedback is also taken at the end of training programs. Of late formats have been prepared for annual feedback. **Teaching:** During end of every semester and beginning of semester faculty council meeting is held and many useful feedbacks and suggestions are received. Exit feedback is also taken from faculty members who are leaving the job. **Parents:** Every department arranges parent faculty interaction meeting during semester and obtains feedback. - During the annual Alumni meet feedback is taken from Alumni. Alumni are also invited for BoS meeting to get inputs regarding curriculum .
6.2.10	**Does the College encourage autonomy to its academic departments and how does it ensure accountability?**
	- Each department has its own BoS and has autonomy to form its own curriculum. The BoS also is responsible for analyzing outcome of the program and courses. - Introduction of Self learning component requires that the faculty needs to hand hold the students in completing their tasks effectively. They are accountable to the committee that assesses the self learning assignment. - The faculty can suggest new electives every academic year to the AAC who in turn can recommend to BoS for introduction or otherwise.
6.2.11	**Does the College conduct performance auditing of its various departments?**
	- The IQAC is responsible to audit the conduction of classes, maintenance of attendance register, portions covered from time to time, quality of evaluation for both Theory and Practical's, general document updating as well as disciplinary issues. - There is a system of annual assessment of performance of faculty, result analysis, feedback and counseling. - A department dash board has been prepared for various activities by TEQIP Secretariat. - As per NBA / Blooms Taxonomy mapping of outcomes of Cos with Pos, PEOs and also rubrics for Projects is carried out.
	6.3 Faculty Empowerment Strategies

6.3.1	**What efforts are made by the College to enhance the professional development of teaching and non teaching staff?**
	- From time to time TNA is carried out external agencies as well as internal process in respect to the staff development programs. - From the TNA, consolidated training requirements are arrived at and training time table is prepared. - Also it is seen that workshops are conducted through experts from institutions of repute and industries. Care is also taken to conduct as many workshops as possible in contemporary topics. - Pedagogy trainings are also carried out from time to time for probationary faculties. - For the non-teaching both technical and soft skill as well as skill development programs are conducted. - Non-Teaching and Faculty are sponsored for QIP and additional certification programs.
6.3.2	**What is the outcome of the review of the Performance Appraisal Reports? List the major decisions.**
	There are two types of Appraisal Carried out for faculty and Non-Teaching: a. Appraisal by: Students, Peers, HoDs and Principal b. Self-appraisal: Leads to defining one's own SWOC. These appraisals have led to: - Identifying Strengths and weaknesses of the individual, they also are supporting documents for increments, confirmation, continuation and warnings. - These help in identifying areas in which an individual has to be sent for training and handholding. - Decisions are taken for Pedagogy training, Workshops and deputation to additional training. (Pl see Annexure 6.d for Appraisal Forms)
6.3.3	**What are the welfare schemes available for teaching and non-teaching staff? What percentage of staff have availed the benefit of such schemes in the last four years?**
	Several steps have been taken as welfare schemes as listed below:

Welfare Measures	% utilizing
1. Subsidized transport facility	75%
2. Provident fund as per Government norms	100%
3. Group insurance Scheme	100%
4. Gratuity as per central government norms	100%
5. Mediclaim contribution by management	100%
6. Fee concession for wards of employees of all educational institutions governed by RSST	On an average 2.5%
7. Uniform for class III and Class IV cadres.	100%
8. Financial support to faculty for attending conferences/ seminars/ workshops in India and abroad.	On an average 15%

	9. Study leave for completing PhD.	On an average 2%
	10. Support for non-teaching to pursue skill development.	On an average 2%
	11. Seats in the institutions run by RSST including RVCE	On an average 2.5%
6.3.4	**What are the measures taken by the College for attracting and retaining eminent faculty?**	
	• Post of Vice-Principal, HoDs and Deans by rotation helps in providing opportunity for all seniors to participate in Department and Institutional Development. • Preference for internal candidates in appointment to higher cadre. • Additional posts like Deans and Associate Deans Created. • Due weightage to talented external candidates with industrial and academic experience for higher positions. • Provision for Higher education and support for continuing education. • Work load reduction for in house candidates doing PhD and research. • Consultancy facilities and incentives	
6.3.5	**Has the College conducted a gender audit during the last four years? If yes, mention a few salient findings.**	

In this Golden Jubilee year of the institutions theme was *Sustainability and Respect for Gender*.
- The institution has about 30% female employees in various cadres both teaching and non-teaching.
- The institution also has about 33% of girl students.
- 4 out of 15 HoDs are women & 5 out of 12 Deans are women.
- Keeping this in mind several initiatives have been taken up through RVCE and TEQIP.

Few of the initiatives are highlighted below :
1. Assistance ship to girls and initiated corporate scholarship from GE & CISCO.
2. Pedagogy , Leadership & Strategic training for female faculty
3. Support for attending/ presenting papers/ Chairing sessions at international & National conferences.
4. Fee for paper publications in peer reviewed journals
5. Seed money for research projects

Complete analysis conducted and the table below gives the details from 2012-2014:

	Program	Total Sponsored	Female
Students	M.Tech. Assistant ship (Other Than GATE)	57	31
Faculty	Leadership program & Strategic Planning	60	15
	Pedagogy training	89	32
	Support staff training	41	03
	Workshops in Subject domain	124	54

		Conferences in India	43	21
		Conferences abroad	11	09
		Symposium	04	01
		Seed money for research projects	50	20
		PhD assistance	55	31
		Nomination on various institutional committees	459	124

6.3.6	**Does the College conduct any gender sensitization programs for its staff?**
	- The institution has a Anti sexual harassment cell and it looks into sensitizing. - Sensitizing is also done by senior female faculty to girl students on dress code. - In an effort to sensitize all male collegues about gender respect a rotational policy for senior positions was introduced. Thus ensuring equal responsibility and effective respect for female colleagues. For example currently there are
6.3.7	**What is the impact of the University's UGC-Academic Staff College Programmes in enhancing competencies of the College faculty?**
	- None of the faculty have attended UGC-Academic staff college program. However the programs conducted as per 6.3.6 has enabled to group the faculty in the three major centers of excellence. - The faculties have got exposure to new paradigms in various fields of their interest. - Interdisciplinary research areas identified. - Pedagogical training has improved teaching skills
6.4	**Financial Management and Resource Mobilization**
6.4.1	**What is the institutional mechanism to monitor effective and efficient use of financial resources?**
	Balancing the efficient financing resources is a challenge as the financial year and academic year do not coincide. In spite of the challenges the institution tries to efficiently use the resources through Finance committee, a Technical purchase committee and purchase committees in every department. These committees look into various aspects like: 1. Annual Budget and Financial Planning. 2. Scrutinizing the necessities of each department and balance income & expenditure. 3. Plan purchases. 4. Keep track and re-appropriate if needed in last quarter.
6.4.2	**Does the College have a mechanism for internal and external audit? Give details.**
	Regular monthly audit is conducted by a team of chartered accountants designated as internal auditors. At the end of the financial year and quarterly if required an external auditor checks the books of account.

	(Pl see Annexure 6.e for details)
6.4.3	**Provide audited income and expenditure statement of academic and administrative activities of the previous four years.**

The extract of income and expenditure is given in the table below:

Head of account	2013-14		2012-13		2011-12		2010-11	
	Income	Expenditure	Income	Expenditure	Income	Expenditure	Income	Expenditure
Academic activities	5060.46	818.24	4274.78	732.76	3676.16	713.09	3417.88	660.87
Administrative activities		4860.30		3696.29		3252.82		3020.48

Note:
1. All figures in lacs.
2. Academic activities includes equipment for lab, recurring, AMC, Seminars, Workshops, conferences,
3. Administrative activities includes Salaries, recurring, Outsourcing, Electricity

(The details are provided in Annexure-6.e)

6.4.4	**Have the accounts been audited regularly? What are the major audit objections and how are they complied with?**
	The accounts are audited by both internal and external auditors. There are no major audit objections.
6.4.5	**Narrate the efforts taken by the College for resource mobilization.**

- The primary source of income is the student fees.
- The RSST is a charitable trust running 23 institutions right from kindergarten to Professional colleges. Philanthropists contribute to the RSST and in turn in times of need the trust supports the institutions.
- Many funded projects are taken up by faculty and the institutional overheads are utilized for day to day research activities carried out in various labs.
- IRG is also generated through funded projects, workshops and consultancy.

6.4.6	**Is there any provision for the College to maintain the 'corpus fund'? If yes, give details.**
	The institution has a corpus fund which is maintained by the trust and in need amount are transferred to RVCE account.
	6.5 Internal Quality Assurance System
6.5.1	**Does the College conduct an academic audit of its departments? If yes, give details.**

The institution engages in activities that advance both accountability and improvement. The Academic Audit is an approach that can accomplish both accountability and improvement.

- The Academic Audit has been adopted by institution from 2009. The institution is using the Audit in its Academic programs to provide significant

	improvement and accountability that its stakeholders require. The goal of Academic Audit is **Continuous Quality Improvement**. To accomplish that, faculty, administrators, and staff engage in on-going self-assessment, group assessment, and peer review to achieve Education Quality Process Maturity. • The academic audit committee consists of principal, Advisor, Vice-Principal, Dean (Academic), Dean (Student Affairs) and nine Senior professors. The committee visits departments periodically and interacts with the HoD and faculty to assess the progress and bring out improvements. • Academic Audit is conducted through the results by the Grading Advisory Committee, before announcing the results. • These are discussed in AC, GB and IMPPIACT meetings.	

6.5.2	**Based on the recommendations of academic audit what specific measures have been taken by the College to improve teaching, learning and evaluation?**
	• Standard of question papers are also scrutinized by BoE and the corresponding departments are advised to take corrective action. • Tutorial and remedial classes in specified courses have been arranged, wherein numerical problems and student doubts are resolved • To improve the quality of question papers, the questions are set based on Bloom's taxonomy. • Faculty training programs are arranged in pedagogy, Advanced Pedagogy and emerging technologies • The attainment of course outcomes is measured at the end of each semester and analyzed.
6.5.3	**Is there a central body within the College to continuously review the teaching learning process? Give details of its structure, methodologies of operations and outcome?**

Academic Progress Monitoring Committee is the central body headed by the Principal, Dean (Academic) and Senior faculty members.

Structure:

Sl. No	Name (Duties assigned during 2013-15)	Dept	Sl. No	Name (Duties assigned during 2013-15)	Dept
1	Prof. B.S. Satyanarayana, Principal	Off.	8	Dr. K.S. Jagadeesh	CV
2	Prof. K.N. Raja Rao, Advisor	TCE.	9	Dr. M. Krishna	ME
3	Dr. K.N. Subramanya, Vice Principal	IEM	10	Dr. K.A. Sumithra Devi	MCA
4	Dr. P. Ramakanth Kumar, Dean (Acad.)	ISE	11	Dr. G. Shobha	CSE
5	Dr. M.A. Lourdu Antony Raj, Dean (Student Affairs)	CH	12	Prof. M.S. Krupashankara	ME
6	Dr. M. UttaraKumari	ECE	13	Prof. S. Chandrashekar	CSE
7	Prof. Y. GopalRao	ECE			

	Methodologies: • The committee continuously reviews and monitors the teaching-learning processes. • It monitors the number of classes held, course delivery, course coverage, conduct of various continuous internal evaluation components, quality of question papers, evaluation methodologies, students' performance, feedback from the students etc. • The committee also looks into the conduct of tutorials and additional classes for academically weaker section of students. • The outcome has shown a steady and rapid improvement in program outcomes. (Pl see Annexure 6.f for typical reports)
6.5.4	**How has IQAC contributed to institutionalizing quality assurance strategies and processes?**
	• The institution has defined a minimum set of components for continuous internal Evaluation (CIE). The CIE consists of Test, Quiz and Assignment/Self-Study. • Each and every faculty has to follow the minimum set of components. The institution gives an academic calendar with scheduling for minimum set of components for the semester. • Each faculty gives 3 sets of questions, which will be scrutinized by the Department Academic Advisory Committee to assess the quality of question papers. If it is found that questions are not up to the mark questions can be changed. HoD will select one question paper to ensure transparency. • There is academic audit of every department once in a semester to ensure that the quality is maintained. • Even for SEE, TWO question papers are set by the internal examiner, 3 more question papers are set by external examiners, which will be scrutinized by BOE consisting of internal and external experts. The answer books are coded. External examiners also participate in the evaluation of SEE answer books and practical examinations. These processes assure quality and transparency at the institutional level.
6.5.5	**Does the IQAC have external members on its committees? If so, mention any significant contribution made by such members.**
	• Currently Dr. K.Ramachandra, Former. Director GTRE, Dr.S.Sridhar, Former - Vice Chancellor of BITS Dubai Campus, Dr.Ashok Bhattacharya, Former-Director, IBM &Dr.Badarinarayan, Former Scientist, ISRO are the expert members with their vast experience in the field of higher education, industry and Technical Education help in monitoring quality / Assurance in all the academic activities. • Dr.A.K.Nema, Prof. IIT, Delhi is the performance auditor for TEQIP and he visits every semester to audit the performance of the departments in various academic, training and R&D activities and submits audit feedback. • It is proposed to form different committees for each of the specializations by co-opting external experts from IISc / NITs / IITs in the advisory committees to monitor the quality and take steps for continuous improvements in the

	learning outcome & employability of the students passing out of the institution.
6.5.6	**Has the IQAC conducted any study on the incremental academic growth of students from disadvantaged sections of society?**
	In the last two years the institution has been carrying out analysis of SC/ST/OBC academic performance to study the academic improvement. Placement statistics are also analysed in these catagories.
6.5.7	**What policies are in place for the periodic review of administrative and academic departments, subject areas, research centres, etc.?**
	The following committees have been constituted for the periodic review of administrative and academic departments, subject areas and research. - Governing board, - Academic council, - Examination committee, - Grading advisory committee, - Institutional Policy Committee - Institutional quality assurance cell - Academic progress monitoring committee, - OBE & quality auditing committee, - Enhancement of R&D and institutional consultancy, - Industry–institute–interaction cell (IIIc) / EDC
	Any additional information regarding Governance, Leadership and Management, which the institution would like to include. The SWOC analysis carried out from external agency and internal brain storming has brought out following results: **Strengths** - The college has been accorded autonomous status and is enjoying academic autonomy. - Committed management and good work environment. - Financial transactions and budget processes are transparent. - Industries have set up laboratories. - Industry based courses, proficiency courses, certificate courses are offered to the students of our college and others. - Students take up industry based projects, majority of which are implemented. - First preferred college in the state of Karnataka through entrance examinations. Therefore, higher merit students are admitted. - Qualified and committed faculty with a positive attitude. - Active participation of faculty in journal publications, presenting papers in National and international conferences - Faculty student ratio is better than 1:14. - Faculties are actively involved in research and funded projects. - Excellent performance of students in university examinations. - Good progress in undergraduate program in accreditation by National Board of Accreditation.

- Syllabus revision is done frequently and industry based electives are offered based on the need, since the institution is autonomous.
- The institution has 16 research centers and the faculties are undertaking research in the need based and contemporary areas.
- Excellent placement and supportive alumni base.
- Vast physical and intellectual infrastructure, therefore, ample scope for academic and research growth and expansion.
- State of the art laboratory facilities.
- Good ITC usage in various processes.
- Students are involved in innovation and creative projects and have own in international competitions.
- Good facilities for sports, games and extra-curricular activities.
- MOUs with other institutions and Industry
- Incentives for faculty and students for undertaking research, funded projects and beyond the syllabus activities.
- EDP cell is actively functioning to promote entrepreneurship skills to the students.

Weaknesses

- Faculty requires guidance on research methodology and funded projects
- Few industry sabbaticals and overseas training
- Less Skill of non-teaching staff in the newer areas and technologies
- Lack of campus housing facilities for teaching and non-teaching staff.
- Fewer community development projects.
- Fewer industrial tours to students.
- Funded projects across the departments are not uniform.
- More of IT related jobs through campus selection.
- Fewer students opt for civil service examinations.

Opportunities

- Growth in Research and Development activities.
- Further scope of undertaking joint projects with industries and research institutions in the cutting edge technologies such as Remote sensing, alternate building technology, Communication Networking, Signal processing, VLSI Embedded Systems, alternate & renewable energy systems and power electronics, high voltage and insulation, Biomedical Instrumentation, Control Systems, Nanotechnology, genetic engineering and Bio informatics, Supply Chain Management and e- enterprise systems, Quality and reliability of engineering systems, Composite and Nano materials,
- Offering demand based Continuing Education Program in all the departments.
- Potential for revenue generation by offering need-based consultancy to various industries i.e., through Off-campus research programs and need-based community services in the area of engineering and technology.
- Enhancing the MoUs with premier research institutes and industries at

National and international level for twinning programmes, research and partnership.

- Introduction of new post graduate and research programmes in the cutting edge technologies and augmenting existing PG programmes.
- Enhancing the research in all the departments for sustainable and inclusive growth.
- Records of the students in national and international level examinations like GATE, GRE, TOEFL etc. need to be improved.
- Establishing Centers of Excellence in tune with the National and international priority areas.
- Building Testing facility, certification and corporate training for industry professionals based on the need of the industry.
- Providing financial support to the needy and Non GATE post graduate candidates through IRG.
- Improvement in use of digital media Centre, intranet, campus automation package, digital library and subscription to online Journals.
- Enhancement of Post Graduate students placements
- Branding the institution at the international level.

Challenges:
- Attraction of talented faculty by industry.
- Lack of keeping in pace with the technology development and translating into reality.
- Keeping talent pool in the institution, since many colleges are mushrooming
- Financial position of the institution since recurring expenditure is growing exponentially, whereas income is linear in nature.
- Sustainability of Quality to counter upcoming institution.

CRITERIA VII: INNOVATION AND BEST PRACTICES	
7.1	**Environment Consciousness**
7.1.1	**Does the College conduct a Green Audit of its campus**
	• In recent past students are assigned to carry out energy audit of campus. • With the assistance of KPMG rain water harvesting and auditing has been taken up. • There is a sustained effort to carry out a study of sewage generated and treated. • Tree auditing is being carried out from 2010. Every year the institution plants trees on earth day and environment day. Pls See Annexure 7.a for Audit report
7.1.2	**What are the initiatives taken by the College to make the campus eco-friendly?**
	As a part of the Golden Jubilee the institution has added to its vision three important goals: 1. Zero Energy- Dependence 2. Zero Water - Discharge 3. Zero Waste - Disposal The policy adopted is: refuse, reuse, recycle and remanage the above and make campus sustainable and environment friendly. Three Centers of Excellence, on Solar Energy Technology improvement and on Hybrid energy and management are dedicated to sustainability and environmental issues.
	*Energy conservation :
	• Electrical energy is conserved by using solar energy for water heating in all Hostels. • Steam cooking is used in all Kitchens, thus reducing consumption of cooking gas and electrical power. • 100 KW generation using Bio energy. • 14 KW Solar panel has been installed on an experimental basis and in the long run the campus will be fully sustainable. A 550 KW solar harvesting multipurpose station is being setup. • Wet waste is being used to generate Biogas for hostel kitchen on experimental basis • Use of Centrex tor telecommunication reduces power consumption on campus. • Implementation of Virtualization at both Server and Desk top level for computing facility and shifting to TFT monitors. • Establishing a centralized Data Center instead of laboratory wise distribution of application tools and e-learning.
	*Use ofrenewable energy
	• All Hostels have Solar water heaters and as of now the total capacity is

		21000 L.
		• There is a 100KW Bio power generation facility
		• A 14 KW solar panel Electrical power generating facility has been commissioned with appropriate control system to synchronize/ tie with BESCOM grid.
		• A biogas generation facility has been acquired to use wet waste to generate methane for cooking in Sir. M.Visvesvaraya hostel kitchens.
	*Water harvesting	
		• Rain water harvesting has been in place for last two decades and from the experimental stage now the campus has increased systematically the harvesting capacity.
		• Administrative Block roof water recharge capacity as per auditing is 1.1 lakh L.
		• The second system is located near the MCA Block with direct user storage technique. The storage tank has capacity of 1 lakh L.
		• The third location is near Telecommunication block which harvests roof top rain water of Class room complex, Chemical, Telecommunication and Library Blocks. The project was funded by M/s. KPMG after due auditing by KPMG and RVCE. This has an capacity of 30lakh L.
		• The water harvested during 2010-11 was 60 lakh L and increased to 76.9 lakh L during 2012-13, by putting additional harvesting facility of two hostel blocks.
		• The harvested water are filtered chlorinated and supplied.
		• The quality of water is regularly monitored by water quality management committee. Water samples are collected and analyzed on a regular basis.
	*Check dam construction	
		• The contour of the campus does not allow any check dam.
	*Efforts for Carbon neutrality	
		• Movement of petroleum driven vehicles are restricted during working hours.
		• Trees and decorative plants are planted and maintained.
		• Electrical Vehicles have been procured and more are being procured.
	*Plantation	
		• The number of trees in 2010 were 882. During 2010-12 due to aging and construction about 15 trees were felled. In 2012, the number of trees on campus rose to 1092. Due to aging 3 trees fell and 10 trees were felled. In 2012-13, 800 saplings were planted and the present tree count is 1850 of different ages. (Pl see Annexure for variety of trees on campus)
	*Hazardous waste management	
		• Care is taken that no Hazardous chemicals are directly drained. The chemicals are diluted in a septic tank and then sent to the sewage plant.
		• The output of the STP is tested regularly before it is sent for garden use.
		• The effluent with microbial waste generally contains non-pathogenic bacteria and fungi, which is of occasional occurrence in microbiology and microbial technology laboratory exercises. It is being subjected to

	sterilization by autoclaving at 121°C at 15lb pressure, before disposal or for land filling.
	• Effluent with nonhazardous pollutants like NaOH, dilute HCl and H2SO4 are generally having variable pH. Hence the pH is adjusted with acid (HCl) or alkali (NaOH) according to the variation to bring it to neutral pH before sending it to STP.
	*e--waste management
	• In recent years the institution is concentrating on environment issues and e-waste is one of the issues. As a preliminary step most of the new electronic instruments, computers and peripherals are purchased under buy back scheme so that we do not accumulate e-waste. • Awareness drives have been conducted to design a better collection, disposal, segregation and recycling process and methods for e-Waste management. The program also formulated recommendation to implement guidelines and identify nodal agencies for strict compliance at the first instant in consultation with pollution control boards and the producers of e-Waste. • We have identified Samarthanam and BVG have been identified for e-waste disposal.
	*Any other initiative : • The institution initiated "Green campus" programme in the year 2009. The aim of this initiative is to build clean environment. • The Institute has been conducting "Walkathon" a social awareness program on saving plants and trees. • The institute arranges for talks by famous personalities to discuss the importance of plants and trees in and around the institute. • **Cal-tech lab:** Centre for alternate building material is established in the department of civil engineering, to encourage and take up research work in the field of alternate building materials using sustainable, low energy consuming, green technology. This concept helps in controlling the environmental pollution, stress on natural resources and also use of waste materials in the developing the new alternative construction material. • **The** Human Settlement and Management Institute (HSMI) under the Ministry of Housing and Rural Development, Government of Indiahas granted aHUDCO chair, for taking up projects in alternative building materials and low cost housing. • In the machine shop jobs are designed such that sequential machining should be carried out and the same work piece is machined for three models. This reduces the wastage of materials. • As a TEQIP initiative twelve programs one in each month was planned to educate the need and management of Eco- friendly environment, following programs have been conducted.
7.2	**Innovations**
7.2.1	**Provide details of innovations introduced during the last four years which**

	have created a positive impact on the functioning of the College.
	- Collaboration with industries - Introduction of Self-study component 50 Credits for experiential learning out of 200 credits engineering program - Interdisciplinary major projects - Motivating student groups to take up innovative projects - Moving towards e-governance - Moving towards Virtualization and networking for e-learning - Credits for co-curricular and extracurricular activities. - Making campus self-sustainable
7.3	**Best Practices**
7.3.1	**Give details of any two best practices which have contributed to better academic and administrative functioning of the College.**
	Format for Presentation of Best Practices
1.	**Title of the Practice-I**
	Experiential learning
2.	**Objectives of the Practice**
	What are the objectives / intended outcomes of this "best practice" and what are the underlying principles or concepts of this practice (in about 100 words)?
	The objective is to enhance participation and learning capability of students. This also leads to inculcation of research and innovation thinking. The practice is intended to bring in interdisciplinary work culture. Expose students to emerging areas of science and technology resulting in better understanding of engineering in general and passion for a new domain.
3.	**The Context**
	What were the contextual features or challenging issues that needed to be addressed in designing and implementing this practice (in about 150 words)?
	India as a country has failed to develop new products and flourished only as a service industry. Increasingly industries have expressed that engineering graduates lack hands on technical skills and hence unemployable. At the same time the markets of developed world have saturated and they are looking at India for new innovative and affordable solutions. Further India has a unique advantage of demographic dividend. Therefore the institution has taken steps to introduce experiential learning and engaging students in innovation and entrepreneurship. **Challenges:**
4.	**The Practice**
	Describe the practice and its uniqueness in the context of India higher education. What were the constraints / limitations, if any, faced (in about 400 words)?
	After the UG programs became autonomous in 2007, several statutory committees were set up to monitor and guide proper functioning of autonomy. In addition institutional and departmental committees have been setup as a part of decentralization process and delegating responsibilities to various cadres. In order to bring a new thinking and create opportunities the Vice Principal, Head of the Departments and Deans posts have been made by rotation among senior

	professors. Budgeting procedures have been changed from 2012 to provide inclusive growth opportunity for UG, PG and Research infrastructure. Strategic planning is carried forward from the departments to IMPPIACT. The strategies are discussed in brainstorming workshop and finalized to be forwarded to GB for approval. This brings in total transparency in to the total process of institutional building. Students are also nominated to GB so that they can also participate in institution building. **Academic Practices:** As per the new policy of Indian Higher Education, the institution has adopted OBE frame work in curriculum formation. This framework requires participation of all key stakeholders to contribute in curriculum development and outcome assessment, thus bringing inclusiveness and transparency. **Evaluation and Assessment:** Faculty members teaching a course and experts from within the institution and other institutions are involved in evaluation process and assessment. Inputs of Academic Council are taken in improving the process. **Administrative Practices:** A 360° appraisal system exists (Self-appraisal, peer appraisal, HoDs appraisal and student appraisals) and the staff is counseled to overcome weaknesses and excel in their respective fields. Key posts are offered by rotation. **Financial Practices:** The budgeting starts at department level with a budget committee. The proposals are consolidated and discussed in institutional accounts committee keeping in mind the income prior to placing before the statutory Finance Committee for final approval. This ensures participation of faculty of all cadres to the college authorities. **Research & Innovation**: Interdisciplinary research work is encouraged among the faculty and students. Students are provided opportunities to participate in innovative projects & research through self-learning under the mentoring of faculty. **Extra- Curricular activities**: Keeping in view the importance of inclusiveness in all activities. Both faculty and students are involved in budgeting, planning and executing.
5.	**Evidence of Success**
	Provide evidence of success such as performance against targets and benchmarks, review results. What do these results indicate? Describe in about 200 words
	As per the master plan of infrastructure improvement, academic activities and governance the institution have been executed over the years. In a broader sense the road map is shown here under with the achievements so far and the steps being taken to reach the goal.

(2010-2020)

Change to outcome based education, Starting PG programs with industry partnership, Laboratories and chairs from industry, 100 patents, MoUs with industries, Centers of excellence in materials, large area flexible electronics and MEMS, Intelligent Transport systems, Clean energy and environment , cloud computing for e-learning.

(2000-2010)

UG Bio-Technology, 18 PG programs, Chairs, QIP and CEP for staff & Corporate employees, BITES accords Top rating to IT courses, IIP and EDP projects in progress, Campus Automation, NBA Accreditation of UG programs, Funded Projects worth Rs. 50.2 million, 46 Phds, 7 MS, Accorded Autonomous Status

(1990-2000)

Concentration on Research and publications, 61 projects worth Rs.27.4 million , MS, Phd, MOUs with other universities, 12 PhDs, 24 MS, 250 conference & 200 Journal Papers, TIFAC programs in FRP & HETP.

(1963-1990)

Expansion in UG programs from 3 to 11 programs in phased manner, achieving excellence in UG, Additional infrastructure , CMRTU set up.

1. Focus on research and funded projects from 2000. Sixteen Research centers granted recognition over last decade.
2. OBE based curriculum and execution with emphasis on self learning
3. NBA Accreditation for all UG programs multiple times and eligible PG programs
4. UG programs in Biotechnology
5. Three, M.Tech. programs were approved and started in 2004
6. The UG programs were awarded autonomy in 2007
7. New buildings have come up and renovation happened
8. Entrepreneur development project sanctioned by DST
9. MoU with industries to setup laboratories and start relevant courses.

6.	**Problems Encountered and Resources Required**
	Autonomy norms do not allow institutional autonomy, restricting transparency and participation of stakeholders in PG curriculum formation and evaluation. The budget requirements as per the inputs from departments towards UG, PG and Research are steadily increasing. More and more new ideas are coming up with participation of stakeholders resulting in per capita (per student) cost increasing from Rs.30,000 to Rs.250,000 in the last decade. In spite of that there is no significant change in the fee structure for past 10 years, causing resource crunch.

	• Pay scales revised twice, during 2006 and 2012. • Limited funding for research • No project funding for private institutions till IX plan • No overheads for private institutions • Merit given a go by
7.	**Notes: Please add any other information that may be relevant for adopting/ implementing the Best Practice in other institutions (in about 150 words).**
	Focus on Sustainability and Environmental and societal concerns The objective is to drive institution towards sustainable campus with zero water discharge, zero energy dependency and zero waste disposals. The objectives are to segregate waste at source, generate and use hybrid energy, use wet waste for Biogas generation and increase the greenery of the campus to reduce carbon dioxide. To educate the students on environment concerns, core and elective courses have been included. Introduce courses and projects related to this best practice. Multiple Routes to Clean Water and Waste Water Recovery.
	The context with which this practice has been implemented is, the dramatic changes that we have been experiencing on account of climate change, the emergence of the knowledge economy and increasing concerns at the local, National and Global level and institution's own SWOT analysis led to the initiation of this best practice. College and the faculty have been engaged in various domains relevant to sustainability/environment these include work on rain water harvesting, alternate building materials, new materials, waste re-processing, clean energy, clean water, weather monitoring, geo-informatics and reusing waste for different applications. Ever increasing cost of energy, water and growing size of the institution requires better methods of managing and reusing all types of wastes. **Challenges:** Create a change of mindset among faculty and students to look at the broader perspective of the need for sustainability, environmental and inclusiveness concerns and more importantly the urgent need for adaptation. As of now only about 20 to 30% students are actively engaged in activities of the environment club, but the rest have also to join this short term goal. Financial constraints and government's differential policies towards supporting/facilitating activities of faculty and students from self-financed institutions. Present Technology requires to be relooked for better efficiency and adaptability. Lack of support from industries and stake holders in implementing various plans.
	The best practice is practiced by educating the students about the importance of sustainability and environmental concerns courses including Environmental Science & Biology for Engineers, Material Science, Clean and renewable energy, Waste management, Disaster management, Geo Informatics, have been

	introduced. Some of these interdisciplinary courses bare mandatory and some are optional courses. In line with the best practice, the energy efficiency is a key feature. This includes virtualization, private cloud, moving towards thin client and adapters. Clean energy generation – 14 KW, Solar PV generators and 125 KW Biomass based power generation. It is planned to achieve 100% sustainability in next three years. 40000 L of solar thermal based hot water heaters and steam cooking thus saving on energy consumption. Over 10 million liters of Rain water harvested annually covering over 75% of the Campus combining roof top harvesting and recharging of Bore/open wells. The practice not to discharge sewage and waste water, STP Plant catering to 2.5 Lakh liters per day has been installed.

	The success achieved in implementation is evidenced by the awards and accolades received by RVCE.
	
	Awarded "Earthian 2013" by WIPRO for environment concerns & sustainability programs.
	
	Many funded projects in the areas of clean and sustainable technologies (over Rs 20 Crores) are being carried out in the institution.Now industries have also started supporting these initiatives this include linkages with KPMG for water harvesting, K-Pack for Effluent treatment, Siemens &Techsor Pvt. Ltd., Hind Hi Vacuum for solar energy, ISRO for air quality & weather monitoring and Siemens &Reep Technologies for Solid waste management.
	
	Green initiative with Eduplorer, India Ltd, Karnataka Pollution control Board and Geek Gardner.Electric vehicles are being used in and more vehicles are being acquired.Tree auditing is being carried out from 2010. Every year the institution plants trees on earth day and environment day.
	
	Implementation of Virtualization of computing facility and shifting to TFT monitors.
	
	Sponsored Research Projects also have been taken up in:
	    – Solar PV System
	    – Solar Thermal Systems
	    – Wind Solar Hybrid Systems
	    – Multiple Other waste to energy project and also
	    – energy harvesting and Scavenging related projects
	
	Recognized by KSPCB as a centre for water and air quality testing and certification.

	In spite of the achievements there are several challenges that the institution is facing some of which are: Bringing in acceptance, ownership and more enthusiastic participation in the institutional vision. Mobilizing financial resources for implementation of plans. Ease of availability of affordable indigenous technology and competent human resource. Resources are being generated by the institution by developing technology and training human resource.