

BEST PRACTICES FOLLOWED AT RV COLLEGE OF ENGINEERING

ACADEMIC PRACTICES

Program curricula is developed not only to meet the Program Outcomes (POs) but also to emphasize inclusiveness through interdisciplinary courses and Experiential Learning. Courses on Environment, Engineering Biology, Constitution of India, Entrepreneurship, Intellectual Property Rights, Sustainable Materials and several interdisciplinary electives are included in the curricula. Some of the best practices adopted at UG and PG levels include

The programs are designed with adequate number of foundation courses, advanced courses–SWEBOOK, MOOCS, NPTEL, QEEE, industry-based electives and laboratories to facilitate enhancement of competence of the students in all the relevant domains and render them employable, prepare them for higher studies, entrepreneurship and public service.

The foundation courses are designed as per the requirement of industries; e.g. programming skills, design thinking, communication skills and strong fundamentals in domain area are a part of the curriculum.

Students are allowed to take up interdisciplinary projects in final year with students of other programs. These initiatives help the graduates of RVCE to attain / achieve the skills required for an engineering graduate.

PG students are provided internship opportunities in industries, which is also a path to get better employment opportunities.

It is ensured to blend Innovative Quality Teaching with technology.

All our faculties are trained on modern tool usage.

Complete Transparent Assessment and Evaluation is followed

Several Research Opportunities are provided to all students

Transparent 4 level performance appraisal for faculty aides in improvement of teaching learning process.

TEACHING AIDS (USE OF INFORMATION AND COMPUTER TECHNOLOGY - ICT)

Digital Interactive Boards (11 Nos.) have been installed in various departments

Smart Boards (18 nos.) have been installed in the Campus, one in each Department for improving the Teaching-Learning process. 130 Classrooms with LCD Projectors. 147 Classrooms with Wi-Fi/LAN enabled Internet connectivity in the Classrooms.

SEMINAR HALLS & AUDITORIUM:

Overall 14 Seminar halls with state-of-the-art ICT facilities to conduct College-level Events, State, National & International Conferences, Workshops and Symposia.

One large Auditorium with best in class ICT facilities to conduct College-level Events, State, National & International Conferences, Workshops and Symposia.

LABORATORIES (LABS)/WORKSHOPS:

All the 154 Laboratories (Labs) / Workshops are well-equipped with latest state-of-the-art equipment's and materials not only to cater towards imparting of Curriculum related aspects to students as well go a level above in acting as a catalyst to motivate students to engage in Research related activities too. The Labs and Workshops are maintained well with regular/periodical upkeep done by professionals.

We are in the process of establishing a Design Studio for encouraging students to generate ideas which can be converted into Start-ups.

RESEARCH PRACTICES

The Institution has established state-of-the art interdisciplinary research centre with facilities for developing thin film sensors, functional coatings (micro and nano) for different applications and material characterization facilities. The Institution has received grants under sponsored research grants from National and State level funding agencies to the tune of Rs 719.0 lakh over the last five years. Each of the departments has research centre recognized by VTU, Belagavi in which 389 research scholars (part time, 366 and full time, 23) are pursuing Ph.D. and M.Sc. (Engg). The faculty are engaged in publishing papers in peer reviewed journals. The Institution has in-house journal 'RV Journal for Science Technology Engineering Arts and Management' – STEAM

NON - ACADEMIC PRACTICES

- a. Extracurricular activities
- b. Counselling & Mentoring
- c. Accountability mechanism (student, parent & teacher)
- d. Periodical Review on progress
- e. Peer review mechanism

SOCIETAL ACTIVITIES UNDERTAKEN

- a. Special activities for PU students
- b. Emergency Medical facility
- c. Educational plan for under privileged children
- d. Creating awareness about sustainable energy

EXPECTED OUTCOME & POPULARITY

- a. High level placement
- b. Quality Research Publication (SCI)
- c. Higher Education.
- d. Entrepreneurship

STRATEGIC EXCELLENCE PILLARS WITH OPERATIONAL INDICATORS

- a. Learning Operational Indicator
- b. Engagement with learning
- c. Student cohort targets developed and monitor
- d. Evaluate processes are revised, reviewed for relevance, and improvements are embedded throughout the semester.

TEACHING OPERATIONAL INDICATOR

- a. Number of active researchers with teaching responsibilities
- b. Number of examples of good practice and innovations in learning and teaching made available on web or shared
- c. Reviews of Course, Academic, accreditation documents

Curriculum Operational Indicator

Curriculum renewal in line with AICTE, UGC & VTU

Enacting monitoring, reviewing academic calendar and reporting cycle established

Research Operational Indicator

Evaluate

Service Quality survey

Student Experience survey

Institutional peer review

Number of mentoring/peer review relationships established .

Improvement in evaluation measures for staff involved in peer

GOVERNANCE SYSTEM PRACTICES

RVCE believes in transparency and efficiency in its governance. Accordingly, several committees and constituted from time to time. In compliance with the statutory bodies, the governance system at RVCE comprises of the following governing bodies and committees:

- | | |
|----------------------|------------------------------------------------------------------------------------|
| a. Management | g. College Internal Complaints Committee (As required by VTU) – initiated recently |
| b. Governing Council | h. Infrastructure Committee |
| c. Academic Council | i. Research Advisory Committee |
| d. Finance Committee | j. Academic Planning and Examination System |
| e. IQAC Committee | k. Student Related Committees |
| f. Board of Studies | l. ICT and Compliance Committees |

SUSTAINABILITY AND ENVIRONMENTAL PRACTICES

RVCE in line with the international commitments made by our Government for containment of Green House gas emissions/climate change at KYOTO (extension of the agreement for the second period 2013 to 2020 at Doha) and Paris has taken a no. of initiatives which are enumerated in the brochure. Further, RVCE has always been in the forefront in all the National initiatives taken by our Prime Minister with regard to improving cleanliness like Swachh Bharat, Swachhata Pakhwada etc. RVCE has also been not only complying with all the relevant and applicable statutory rules and regulations with regard to Environmental Management including waste management, pollution control etc, but also making all out efforts in conservation of resources, in bringing awareness about environmental degradation among the students, staff as well as general public. RVCE's vision focuses on 'sustainability' and accordingly explores, initiates & addresses environmental issues with a clear cut direction on 3Rs (i.e Reduce, Reutilize, Recycle) aiming at conservation of resources and also gainfully harnessing renewable energy/rain water etc. In addition to making all out efforts in bringing awareness amongst the students & staff about the effect of our activities on environment, proactively the Institute is making a no. of projects on alternate use of wastes or creation of new products. The Institute has strong industry linkages with various firms for better exploitation/management of vital resources viz. KPMG for rain water harvesting, PCB for air quality & noise monitoring, ISRO for automatic weather monitoring etc. “

As an environmental initiative, the Institute has introduced several courses on Environment in the curriculum at UG level. These include courses on Environment Technology, Biology for Engineers and Global Electives on Green Technology, Solid waste Management, Renewable Energy, air pollution control engineering, Water supply Engineering, Waste water Engineering, Industrial wastewater treatment, Environmental impact assessment, Hazardous waste management etc. Further to bring in awareness, the Institute also conducts programs like talks by experts in the field, conducting National/International conferences/workshops, street plays, panel discussions etc that highlight emerging environmental issues and facilitate dialogue among key stakeholders. Renewable resources exploitation efforts include installation of 500 KWP roof top solar power station and solar water heaters in all the Hostels, rain water harvesting system etc. The Institute has an excellent Waste Management System to collect, segregate and dispose of the waste generated. In order to dispose off the sanitary napkins generated, the Institute has provided Sanitary Napkin Incinerators in the Girls' hostels, Health centre, various departments and Girls' common rooms. Towards green initiative, the Institute has also provided lawns around the administration/departmental building blocks. The campus has an area of 52 acres and has over 2200 plants/trees. Further, towards creating a green th ndcampus, World Environmental day (6 June) and Earth day (April 22) are celebrated every year by planting trees in the campus. RVCE is always looking forward to make the campus environmental friendly, self-sustainable in terms of energy, water and waste management, thereby becoming a model Institute for others to follow. The details of these efforts are as under:

GREEN CAMPUS:

“Caring a Tree is caring of your Soul”

Maintenance of trees/plants/gardens: The campus has over 2200 trees/plants. The gardens/lawns are provided around the administrative office and in front of departmental/hostel buildings. Further, towards creating a greener campus tree plantations are th ndorganized every year to mark the World Environmental Day (6 June) and Earth Day (April 22) in the campus.

Nursery:

In order to take care of the needs of the campus, RVCE has an in-house nursery to nurture various lawns / gardens and to take care of saplings for planting new trees in the spacious 52 acre campus. Plantation of Saplings

INTRODUCTION OF CYCLES FOR MOVING AROUND THE CAMPUS:

In collaboration with M/s ZoomCars/OFO, the world's largest station-free smart bicycle sharing service provider, cycles have been made available to the students/staff for creating a healthier, quicker and greener alternative for last mile connectivity inside the campus.

E-waste collection and awareness week was observed at RVCE starting from 8th February 2018. Bins were kept at different places inside the campus to collect the e-waste during the week. Cycle Jatha was organized on 9th February 2018 to create awareness on e-waste. The proceeds of the programs to be used for the social cause.

WATER MANAGEMENT:

Water is a precious resource and its availability is quite limited. Keeping this fact in view, RVCE has adopted a no. of methods for not only to conserving/recycling of water but also to harvest the rain water in the campus.

RAINWATER HARVESTING:

RVCE, with assistance of KPMG, has installed 2 nos. of rainwater harvesting systems with a capacity of about 4 million liters. The rain water thus collected is used for bathing & other purposes by the hostelites. Further, it has also installed systems for ground water re-charging through bore wells/open wells.

Effluent Treatment:

All the effluent water generated in the labs in chemistry, chemical & Biotech departments are collected in separate collection tanks. At regular intervals this contaminated water is handed over to KSPCB approved vendor for treatment of effluent water & disposing the same safely.

Sewage Treatment Plant (STP):

RVCE has an STP Plant of capacity 2.5 Lakh liters per day. All the sewage generated in the hostels, departments, quarters are collected in wet wells and pumped to STP for treatment of the sewage water. The treated water is used for gardening and flushing of the toilets in hostels.

Energy Management:

Towards preservation of environment, RVCE is making all out efforts to monitor and control energy consumption, Conserve energy through utilization of more energy efficient lighting systems, equipments/gadgets and Tap renewable energy sources. Renewable Energy: In tune with its social commitment, RVCE has taken a number of measures to exploit all opportunities available to reduce its carbon footprint. As per the goals, RVCE has installed a 500 KWP rooftop solar power plants and solar water heating systems in all the hostels.

ENERGY CONSERVATION:

To conserve energy the following actions are taken: • All incandescent bulbs/ordinary tube lights/mercury lights are being replaced with LED bulbs/tube lights (so far, replaced over 1500 bulbs/tube lights with LED lights). • Conventional mercury lamp projectors are being replaced with LED projectors. • Replaced all the computers with CRT monitors with that with LED monitors. • Only energy efficient Star rated fans/appliances are being purchased and provided. • To monitor & control the power consumption, individual power meters are provided in all departments. • Further, a system of checking during night times have been introduced for reporting any irregularities/wastage of energy.

WASTE MANAGEMENT: SOLID WASTE MANAGEMENT:

Dry Waste Disposal System: Dry waste is collected from all the departments / sections in separate bins earmarked for Dry Waste, transported to a central location for segregating and disposal/recycling. Normal Paper/plastic wastes are handed over to Samarthanam Parisara, an NGO who uses the proceeds from wastes for educating/skill development of physically challenged persons. Sensitive documents/records related to answer booklets/question papers are handed over to paper manufacturers for their recycling. Other wastes like thermocol, discarded foot ware, rubber mats etc are handed over to BBMP contractors for disposing the same in ear marked places. In case of bulk purchases like computers, a clause is included in the Order itself for the supplier to take back the packaging material for reuse. Wet Waste Disposal Systems: Wet waste is mainly generated in hostels and Food Court. Food waste generated is directly handed over to piggeries for feeding the cattle. Other vegetable waste is used to a certain extent for converting it into organic manure. All the other left over waste is handed over to BBMP contractor for disposal of the same

in ear marked locations of BBMP. Collection of dry waste Transportation of waste Disposal of waste Wet waste to compost.

HEALTH CARE WASTE MANAGEMENT:

Biomedical waste is a hazardous waste and if it is not managed properly, it will pose a serious threat to the environment and human health. To address this issue, RVCE has provided sanitary napkin incinerators in the health center, ladies hostels and ladies common rooms. Needle Cutters has also been provided in the Health Centre for proper disposal of syringes. Plant Waste Management: RVCE has about 2200 trees/plants in the campus. These trees & plants generate lots of waste leaves/flowers, dried fruits, dry branches, etc. To facilitate easy conversion of the wastes into manure by cutting these wastes into smaller pieces, we have procured and installed a shredding machine. The small pieces thus cut are put into pits for converting them into manure. E-Waste Management: RVCE generates about 2000 kgs of e-waste per annum. As a policy, obsolete computers/instruments which are in working condition are normally donated to other needy organizations or Institutes. E-waste has lots of hazardous constituents which can adversely effect not only the environment but also the health of human beings, if not managed/recycled properly. Recognizing this fact, RVCE has a system in place to collect and dispose them to identified KSPCB approved e-waste recyclers. Needle Cutter Sanitary Napkin Incinerator Shredding Machine Collection and disposal of e-waste.

BIODIESEL PLANT:

Biodiesel is considered as a renewable energy alternative. Efficient and sufficient production of biodiesel from natural sources (mainly vegetable oils) is not only a way to protect our environment but also saves lot of foreign exchange. This requires developing new and cheaper technology for the production of biodiesel and growing plants that yield oil bearing seeds. There is a need to educate the farmers in particular to grow such plants so that in another 5-7 years there will be sufficient oil available for biodiesel production.

Taking these aspects seriously, Karnataka government has established a biodiesel development board. It has funded one centre in each district to work in this direction. One such centre is Biofuel research, Information and Demonstration Centre-RVCE (for Ramanagar district), funded by KSBDB, Govt. of Karnataka (Total amount sanctioned = 40 Lakhs, June 2012 to till date)

The centre has the responsibility of production, testing of biodiesel in the lab. As part of the project, the centre is continuously conducting awareness programmes, plantation programmes and workshops for the farmers, school students, teachers, self-help women groups, entrepreneurs in the BRIDC lab and in the villages of Ramanagar district.

CREATING ENVIRONMENTAL AWARENESS:

Road shows, skits, street plays & walkathon for environmental cause are regularly organized by the RVCE Staff & students to convey environment messages to the civic community. Educative Posters on Energy, Water conservation is put up at prominent locations across the campus.

International Conferences conducted in association with International Congress of Environmental Research. A series of workshops on 'Zero Waste' were organized through TEQIP funding. Funded projects related to environment and waste management executed to the tune of Rs.150 lakhs. Students were encouraged to take up projects related to environment protection and preservation.

REPORT ON BIOFUEL RESEARCH, INFORMATION AND DEMONSTRATION CENTRE-RVCE (BRIDC)

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