VELAGAPUDI RAMAKRISHNA
SIDDHARTHA ENGINEERING COLLEGE
(AUTONOMOUS)
Kanuru, Vijayawada-520007, AP, India

Industry Collaborative laboratories & Centres of Excellence

Out of the thrust areas mentioned above to fulfil VISION and MISSION the Institute has a distinction of establishing several industry collaborative labs and centres of Excellence under Industry Institute interaction program for training, skill up gradation and placement of students to realise the objectives of Outcome Based Education. A total of 20 different laboratories were established and the details of laboratories and the training activities involved are described below.

INDUSTRY COLLOBARATIVE LABORATORIES

1. **CISCO NETWORKING ACADEMY** :
   Department of Computer Science and Engineering in collaboration with CISCO Networking Academy is providing a unique opportunity for our students to get Industry recognized certifications. Cisco Netacad is offering self-paced, instructor-led and career oriented certification courses in Cyber security, Essentials in Python and LINUX. These courses are offered periodically for duration of 30 to 90 hours. Over 1100 students and 20 faculty were certified during last 3years.

2. **IBM SOFTWARE LAB FOR EMERGING TECHNOLOGIES**.

   IBM software Lab for Emerging Technologies is established to provide training on essentials of Big data with Hadoop using IBM infosphere, application development for cloud deployment using IBM Bluemix and a fundamental course on identity management.All the training activities are of 32 hours of duration and over 250 students and 50 faculty were certified.

3. **DASSAULT SYSTEMS:**

   Department of Mechanical Engineering established a 3D Experience center supported by APSSDC to provide training to Mechanical Engineering students in Modelling software - CATIA, Analysis software – SIMULIA and Manufacturing software – DELMIA and conduct online examinations for Global Certification in the first level. In the second level,

they can opt for training in the domain of Automotive, Aerospace, Defence & Ship building etc, which is very useful for students in the global competitive world. This laboratory was established in 2018 and so far over 240 students and 14 faculty were trained and 56 students were certified for duration of 30 to160 hours.

4. **ORACLE CORPORATION:**

The institute has established Oracle Technologies Laboratory in 2017 and running Oracle licensed software for developing applications. Faculty of CSE were trained at Oracle Corporation on different technologies to train our students. During last three years 46 students were certified as Oracle Certified Associate Java SE 8 Programmer, 1Z0-808 and 26 students were certified in Oracle Database SQL 1Z0-071 SQL Fundamentals.

5. **APPLE AUTHORIZED TRAINING CENTER FOR EDUCATION (AATCE)**

APPLE Training centre was established in 2019 to provide training on developing apps related to IOS Operating System and SWIFT Programming. Specialized IOS Trainers from APPLE Company will provide initially training to the faculty and the trained faculty will train the students.In the first phase, faculty were trained on "Introduction to Swift Programming" for four days. An Add-on Certificate Course will be offered by the trained faculty for III Year Students in the second phase and will be completed during August, 2019

CENTERS OF EXCELLENCE:

1. **SIEMENS COE:**

The College was associated with the Andhra Pradesh State Skill Development Corporation (**APSSDC**) which is a unique organization formed as a Public Private Partnership (PPP) corporation to promote skill-development & entrepreneurship in the state of Andhra Pradesh.
APSSDC initiated a Center of Excellence in the college in association with Siemens in 2016. In this COE, 13 different laboratories were established with state of the art equipment catering to the training and skill needs of students of various branches of Engineering. The college has provided a building space of 23000 Sqft and other facilities of worth Rs.5.50 Crores. Most of the training modules in these laboratories are oriented to train Mechanical, EIE and EEE students and faculty.

S. No	Name of the Lab
1	Product Design & Validation Lab.
2	Advanced Manufacturing Lab.

3	NC Programming Lab.
4	Rapid Prototyping Lab.
5	Test & Optimization Lab.
6	Robotics Lab.
7	CNC Machines Lab.
8	Lift Installation & Maintenance Lab.
9	Electrical & Energy studies Lab.
10	Automation Lab.
11	Process Instrumentation Lab.
12	Mechatronics Lab.

Electrical and Instrumentation students and faculty are trained in Automation, Process Instrumentation, Electrical and Mechtronics laboratories. Mechanical Engineering students and faculty are trained in Product design and validation, Advanced manufacturing, Test and Optimization, CNC Machine, CNC Programming, Robotics and Rapid Prototyping Laboratories. These laboratories offer different courses and the students have been trained and certified in basic and advanced courses. Some of the courses are made mandatory as a part of academic curriculum.

2 TIFAC (Technology Information, Forecasting and Assessment Council) CORE- DST:

This project is a collaborative effort of TIFAC (representing government), VR Siddhartha Engineering College and industries in the domain of **Telematics**. VRSEC is the First private Engineering college in the state of AP to receive TIFAC CORE project worth of Rs 36.33 cr which includes Rs 27 cr worth of software. The centre was launched on 1st February, 2009. It is unique venture characterized by both public-private partnership and industry-academia interaction with 14 industry partners. TIFAC CORE has chosen Electronic Toll Collection (ETC) for Indian scenario as vertical area. Research was carried out on ETC which includes Automatic Vehicle Identification (AVI), Automatic Vehicle Classification (AVC), Transaction Process, Violation Enforcement and VANETS. Centre of Excellence in Telematics with the state of the art facilities to produce world class manpower and to be an innovative backyard to the industries. Projects were successfully completed and effective training is offered for both students and faculty using **NI -Lab View**.

3 COE in COMPOSITES :

Composites lab is established in association with DST- FIST is developed in Mechanical Engineering department in 2014 with an objective to develop new materials which are cheaper and environmental friendly that can be used for applications in advanced areas of automobiles and to promote rural areas to a great extent by developing natural composite as bi-product of agricultural waste.

The lab has equipment worth of 60 lakhs that can be used for research projects, testing and consultancy. Major outcomes from the activities of Composites lab are

- 4 Research projects were completed and 3 are in progress (worth of Rs 90Lakhs)
- 10+ Ph. D s were completed and 4 are in progress.
- More than 100 research articles were published in conferences and journals.
- 3 patents were published and 3 are in progress.
- Consultancy works worth of 7lakhs were completed.
- Student projects at UG /PG level are actively carried out.

4 VIDEO ANALYTICS RESEARCH LAB

It is established in CSE Department to provide a base for video analytics research and to develop interaction with research institutes like ADRIN and reputed academic institutions. The efforts in this area are helping the department to become a centre of excellence in video analytics research.The research work carried out in this lab is to improve algorithm robustness in three main areas: foreground segmentation, observation detection for single object tracking, and a hierarchical multiple hypothesis tracker for multiple-object tracking. The aim is to make the algorithm robust to 1) gradual and sudden illumination changes, 2) colour similarity between foreground object and background, 3) shadow and afterimage noise and 4) moving background object. A 2-stage mask grey world is employed to overcome sudden and gradual illumination changes while edge information is used to solve the colour similarity issue. An extended conditional random field is applied to remove shadow and afterimage components. A patch-based approach is proposed to enhance observation detection for single object tracking. The algorithm is a fusion between a feature-based descriptor and template approach for detecting the same object in consecutive frames. It is built to be robust to illumination change, blur, moderate size change, non-rigid object, low ambient illumination and homogenous textured object. During the last five years 100 students and 15 faculty were trained on Video analytics & Image Processing Applications and Research Proposals preparation – Digital Image Processing 14 hours. More than 7 research articles were published in reputed conferences and journals.

III . TEQIP –II (S.C.1.2)

- The institute has received World Bank aid through TEQIP –II (S.C.1.2) by MHRD, Govt. of India in 2011. An amount of Rs.6.0 Crores was received for the scaling up of post graduate programmers and demand driven research and innovation.
- VRSEC is one among the top 16 Engineering colleges that were selected for World Bank aid. The Institute Development Proposal (IDP) submitted has received highest marks in

the state of AP. The project is successfully completed in 2017 and stood as the best performed college in the state.

- Large number of students and faculty were benefited by attending and organising FDPs, seminars and workshops related to technological developments, innovation and research. Financial support for payment of Ph. D tuition fee and stipend for PG students has increased research component.

Considerable improvement is observed in Research publications in peer reviewed indexed journals, Patents published and Ph. D degree obtained for the faculty during last 5 years. Performance of the Institute due to the above distinctiveness:

Faculty Outcomes

- Total Grants received from government and non-government sources Rs. 5.50 Crores during the last 5 years.
- Total IPRs filed during the last 5 years is 30 (out of which 24 -published - increased from 2 to 30)
- 62 Faculty were awarded Ph. D in the college during the last 5 years.
- Faculty with Ph. D qualification are also increased from 46 to 107 during the last five years.
- Number of research papers published in the Journals and conferences are also increased from 132 (during 2009-2013) to 438 (during the last five years i.e. 2014-2019)

Student Outcomes

- Number of students placed during last five years increased from 482 in 2014-15 to 865 in 2018-19.
- No of students above Rs 5 lakh package is increased from 4 to 55 during last five years.
- No. of students won prizes/Awards in National and Global Competitions increased from 83 in 2014-15 to 217 in 2018-19.
- No. of student Internships increased from 183 in 2014-15 to 1134 in 2018-19.
- No. of students Participated in National contests increased from 849 in 2014-15 to 1444 in 2018-19.

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