Velagapudi Ramakrishna

Siddhartha Engineering College

(Autonomous)

Vijayawada – 520 007, Andhra Pradesh

Report on

Performance of the Institution for the Academic Year 2021 -22

by External Peer Team of IQAC

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Submitted to

ज्ञान-विज्ञान विमुक्तये

University Grants Commission (UGC)
Bahadur Shah Zafar Marg,
New Delhi - 110002.

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IQAC-EXTERNAL PEER TEAM REPORT ON

PERFORMANCE OF THE INSTITUTION - ACADEMIC YEAR 2021 -22

Members of External Peer Team:

Dr. P. Siddaiah - Principal, Acharya Nagarjuna University College of Engineering & Technology, Guntur & External Peer Team Member, IQAC, VRSEC

Dr. L. Krishnanand - Professor, Department of Mechanical Engineering, National Institute of Technology, Warangal (NIT/W) & External Peer Team Member, IQAC, VRSEC

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1. **Name of the College** **:** Velagapudi Ramakrishna Siddhartha Engineering College Kanuru, Vijayawada – 520 007

2. **Name of the Principal** **:** Dr. A.V. Ratna Prasad

3. **Telephone/ Fax / Email** : Phone No: 0866 – 2582333; 0866 – 2584930
   Fax: 0866 – 2582672
   Email: principal@vrsiddhartha.ac.in;
   info@vrsiddhartha.ac.in
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4. **Year of Establishment** : 1977

5. **Whether private or government or University maintained** : Private / Self Financing

6. **Autonomous Status** : 1. UGC granted Autonomous Status in the year 2006.
   2. UGC – Autonomous status extended for a period of 10 years up to 2028, Ref. No. F22-1/2017 (AC), dated 17.04.18

7. **Name of the Affiliating Univ.** **:** Jawaharlal Nehru Technological University Kakinada, Kakinada (JNTUK)

8. Courses Offered:

UG Courses: B.Tech.,

S. No.	Program Name	Sanctioned Intake	
		Without EWS	With EWS
1	Civil Engineering	120	132
2	Computer Science and Engineering	180	198
3	Electronics and Communication Engineering	240	264
4	Electrical and Electronics Engineering	120	132
5	Electronics and Instrumentation Engineering	120	132
6	Information Technology	120	132
7	Mechanical Engineering	180	198
8	Artificial Intelligence and Data Science Engineering	60	66

PG Courses: M.Tech., MBA, MCA

S. No.	Program Name	Sanctioned Intake	
		Without EWS	With EWS
1	Structural Engineering	18	20
2	Geotechnical Engineering	12	13
3	Communication Engineering and Signal Processing	12	13
4	Computer Science and Engineering	12	13
5	VLSI Design and Embedded Systems	12	13
6	Power Systems Engineering	12	13
7	Data Science	12	13
8	CAD / CAM	06	07
9	Thermal Engineering	12	13
10	Master of Business Administration (MBA)	60	60
11	Master of Computer Applications (MCA)	60	60

9. Students on Rolls:

Year of study	B.Tech.,	M.Tech.,	M.B.A.	M.C.A.	Total
1st year	1091	29	66	65	**5302**
2nd year	1302	48	64	63	
3rd year	1260			58	
4th year	1256				

Total	**4909**	**77**	**130**	**186**	

10. Faculty Strength:

Department	Professor	Associate Professor	Sr. Asst. Professor	Assistant Professor	Total	No. of Ph.D's
PRINCIPAL	1	0	0	0	1	1
CE	7	5	0	31	43	16
CSE	5	2	0	29	36	13
ECE	6	7	0	44	57	22
EEE	3	4	0	20	27	13
EIE	1	3	0	20	24	6
IT	2	5	0	23	30	11
ME	7	4	0	34	45	24
MBA	1	1	0	4	6	5
MCA	1	0	0	5	6	3
Science & Humanities	2	5	0	44	51	28
TOTAL	**36**	**36**	**0**	**254**	**326**	**142**

11. Examination Results

Program me Name	Programme Specialization	Number of students appeared in the final year examination	Number of students passed in final semester/year examination	Pass Percentage
B Tech	Civil Engg.	197	141	71.57
B Tech	Computer Science & Engineering	196	189	96.43
B Tech	Electronics & Communication Engineering	264	246	93.18

B Tech	Electrical & Electronics Engineering		139	113	81.29
B Tech	Electronics & Instrumentation Engineering		130	91	70.00
B Tech	Information Technology		132	124	93.94
B Tech	Mechanical Engineering		190	140	73.68
M Tech	M Tech		40	30	93.75
MBA	MBA		63	62	98.41
MCA	MCA	2019-22	63	62	98.41
		2020-22	58	51	87.93

Velagapudi Ramakrishna Siddhartha Engineering College, Vijayawada, sponsored by Siddhartha Academy of General & Technical Education is the FIRST Private Engineering College in the combined state of Andhra Pradesh established in the year 1977 and is ideally located in a vast expanse of 24 acres of land in Vijayawada on Vijayawada-Machilipatnam highway. The college is ISO 9001-2015 certified, recognized by AICTE and affiliated to JNTUK, Kakinada. UGC granted autonomous status to the college in the year 2006 and extended up to 2028.

The Institution uses information systems such as MOODLE Learning management systems, online content management system, and Libsys Library Information system to manage the general administration, exams, attendance and internal examinations. The college has explicit administrative set up to meet the college's vision and mission while addressing the needs of stake holders. The institute established good organizational structure with decentralization of academic and administrative powers. Involvement of faculty in the academic and administrative tasks shows existance of strong participative management in the institution. The institute has well structured internal quality assurance cell (IQAC) to initiate and follow up of various quality initiatives in the institute for the institute allround development.

The college has secured 141 rank in **National Institutional Ranking Framework** (NIRF) India rankings 2022 in Engineering category. The performance of the institution is satisfactory and appreciable in various quality aspects for the academic year 2021-22.

CURRICULAR ASPECTS

- Syllabus revision was made in all 7 Engineering PG programs diring the academic year 2021-22.
- 56 new courses are introduced during 2020 – 21 for the benefit of students with respect to employability / entrepreneurship / skill development. 694 courses focusing on employability/entrepreneurship/ skill development offered by the Institution during the year 2021-22.
- 39 value added courses imparting transferable and life skills are conducted for the benefit of students. 3542 students were enrolled in the 39 value added courses.
- About 97 Linkages with institutions/industries/research labs are established for internships, on-the- job training, project works, sharing of research facilities during the year 2021-2022.
- 1019 students undergone field work/projects/internships/student projects during the year 201-22.
- Feedback from stake holders on various parameters are exist through course end survey, program exit survey, employer survey etc. The feedback is analyzed by the department advisory board and is used for taking the corrective measures.

TEACHING – LEARNING AND EVALUATION:

- 1251 students are admitted against a sanctioned intake of 1426 during the year. The institution is presently having 77 ICT classrooms and 9 Smart Classrooms for the benefit of students.
- The institute is following the academic and activity calender strictly. The outcome based education is implemented satisfactorily in the institution. The course outcomes, program outcomes and program specific outcomes are analysed by the program assessment committee in the respective departments to implement OBE effectively.
- At present 326 faculty including 142 Doctorates, with varied experience and back-ground, take interest in continuing education and are actively engaged in research work and publish their findings regularly in National and International Journals and present in Conferences.
- Student Satisfaction Survey (SSS) – 2021-22 on overall institutional performance displayed in website of the institution.

RESEARCH, INNOVATIONS AND EXTENSION:

- Implemented five-year strategic plan for the institute and its annual review for achieving strategic goals.

- Improved Placements significantly closed to 1400 in top notch companies such as Amazon, Microsoft, Deloitte, CISCO etc.
- 249 Research Publications in the Journals notified on UGC, Scopus and WoS (Web of Science), 283 papers published as Book Chapters in edited Volumes / Books published, and papers in National/International Conference Proceedings.
- No. of ideas generated by students & faculty are 185 and Innovation / prototypes developed are 59.
- IPRs: Filed:08, Published:46 and Granted:03, Copyrights Registered:3
- Student &Faculty Start-ups/Ventures established:02
- Rs.3,10,871 was spent on Innovation and Entrepreneurship during the year 2021-22.
- Established 20 collaborative labs and Centres of Excellence in association with Siemens & Dassault - AP State Skill Development Corporation, IBM, CISCO, Oracle, NI, DRDO, DST, etc.
- The Institute sanctioned seed money of Rs.5,94,083/- to faculty members for carrying out research work.
- An amount of Rs. 10,76,887 was spent for financial support & Incentives for Research projects, Publications, fillingpatents, etc.
- R&D projects worth of Rs.1,02,65,032 were sanctioned by various government and non-government agencies to various departments of the institution.
- An amount of Rs. 1,67,51,142/- was generated through Consultancy during the year 2021-2022.
- Institution had 73 functional MoUs signed with institutions of National, International importance, other institutions, Industries, Corporate houses during the year 2021 - 2022.
- 46 Research capacity building programs (Research Methodology, Intellectual Property Rights (IPR), Entrepreneurship, etc.) were organized during the year.
- No. of Collaborative activities during the year for research, internship, on-job training, project work is 123.
- 30 computing systems were procured for research, with a configuration of HP PRO ONE 600G5 21.5 inches ALL IN ONE Desktops - INTEL CORE i7 9th Generation, 1TB HDD, 16 GB DDR4 RAM, Integrated Full HD 1080p Webcam, AMD Radeon 530 with 2 GB Graphic Card worth of Rs.18 Lakhs.
- An amount of Rs.37,61,095/- spent on developing facilities and training for non-teaching staffand teaching for undertaking consultancy.
- **Institution Innovation Council (IIC)** is established under the MHRD's Innovation Cell and

college achieved 4.5 star ranking for the activities organized with respect to Innovations, IPRs, Startups and Entrepreneurship.

- Recognized as Scientific & Industrial Research Organization (SIRO) by DSIR, MST, Govt. of India since August 2017.
- Implemented annual Academic Audit by external members from institutions of reputation such as IIT, NIT and State Universities etc., in addition to internal audit.

INFRASTRUCTURE AND LEARNING RESOURCES:

- An amount of Rs. 1674.97Lakhs was utilized for infrastructure development during the year.
- An amount of Rs. 1206.43 Lakhs was utilized for maintenance of academic facilities and maintenance of physical facilities during the year.
- An amount of Rs. 31,43,502 was spent for purchase of books/ e-books and subscription to journals/e-journals during the year. Dedicated book bank is available for the SC/ST students.
- Bandwidth of Internet connection available in the institution is enhanced to 1030 MBPS/ GBPS for the benefit of students and faculty.

STUDENT SUPPORT AND PROGRESSION:

- Institute along with Alumni Association provides a financial support of Rs. 13,95,000 (Siddhartha Sahaaya Scholarship) to 93 students and Rs. 30,60,000 to 143 students by North South Fundation.
- Institution organizes various skill oriented, personality development programs for the benefit of students.
- About 5302 students are benefitted through career counseling activities and competitive examinations. Out of which, 155 students are passed in the competitive examinations and **1390 students are placed**.

GOVERNANCE, LEADERSHIP AND MANAGEMENT:

- The institution is effectively implementing e-governance in various areas of operations as follows:
  - **Planning and Development**:

    Institute is using various information systems in its administrative and academic tasks. The college has content management system vrseconline for attendance and internal examination management. Autonomous section is using BEES software tool to

provide additional confidentiality in conducting examinations and decleration of results. The institute financial activities are recorded and monitored using Tally software. The Library management software LibSYS is used by the institute to track the availability of books in the library and utilization of facilities available in library.

- **Administration:**

  The college is using biometric attendance systems to monitor the regularity and punctuality of its staff members. E-mail, SMS and whatsapp are widely using in communicating various administrative decisions and information on scheduling of meetings at all levels of administrative setup. Electronic notice boards were placed in the prominent locations of the institute to display the information about events happening in the institute and important announcements to the students and faculty.entire campus is covered under CCTV survilance to ensure the secured premisis to the stakeholders.

- **Finance and Accounts:**

  All the financial transactions were recorded and monitored using Tally software (Payment of salaries, accountability of CL's/EL's/ML's etc and Student Records). The internal audit and external audit were in practice and the utilization of budget is satisfactory.

- **Student Admission and Support**:

  Student admissions are carried out by the state government through web counseling. The admitted student information is properly recorded and maintained in the administrative office. For the benefit of students in academics various online software tools such as MOODLE, vrseconline, LibSYS etc. were utilized. Student feedback is collected twice in a semester to take the corrective measures. Student councelling is in practice to solve their difficulties in the institution if any. Every twenty students were monitored by one faculty as part of the councelling. Women grievance cell is active and providing necessary support to the female students and faculty.

- **Examinations**

  BEE's examination software tool is in operation for pre-examination and postexaminations works in the autonomous examination section to provide the confidentiality in conducting the examinations and decleration of results. Barcoding and automation process is in practice to ensure the confidentiality and reducing the time to announcement of results. All the monetary transactions with respect to the

examinations are processed through CMS online software vrseconline.

- Academic and Administrative Audit has been carried out by Internal and External Agencies periodically to maintain the quality in the institute.

INSTITUTIONAL VALUES AND BEST PRACTICES:

- **Eco-friendly Campus**:
  - The institution established solar power system and approximately 50% of power requirement is met by solar energy.
  - Campus Solid Waste Management
  - Plastic Free Campus
  - Increase in Plantation & greenery area
  - Rainwater harvesting
  - Environmental Audit

- **Best Practices of the Institution:**

  Since the inception of the institute it adopts the best practices to become one of the best institute in the country. The college has many best practices to meet the expectations of the stake holders. Few of the best practices followed in the college are Performance Based Appraisal System, Industry collaborative Laboratires establishment, Industrial training, Technical model development, encouraging student publcations, and utilization of online learning management system MOODLE, Conducting Academic audit (Internal and external), proctor system, strong bonding with alumni etc. They have largely contributed to the achievement of the institutional goals as well as to the quality improvement of the activities.

  - It is observed that PBAS helped in the growth of the institution and securing the good rank in various government and non-government agencies survey.
  - Research skills among the students is nurtured in them from the fourth semester onwards through EPCS, Mini and Major Projects. Due to this practice the student publications were improved.
  - Studet's are involved in the development of protypes and technical models actively. A good number of models were presented and won prizes in the state and national level competetions. College itself conducting innovation day on 15th October every year in the memory of Dr. A P J Abdul Kalam's birth anniversary to showcase the models developed by the students thery by encouraging them to applying the principles they

have learned through core engineering courses.

- **Case Study**

Title of the Practice: Academic audit

Academic auditis a procedure of verifying and confirming the performance of academic practices and procedures against planned/standard procedures. Importance of academic audit is to increase the goodwill of institution, Students confidence, teacher's up-gradation, helpful in ranking of institution, satisfaction of stakeholders, etc. The academic audit is normally carried out at the end of every Academic year.

Objectives of the Practice:

- To take steps for the periodic internal academic audit of the teaching-learning and research activities of all departments/faculties and institutes.
- To set quality benchmarks for all units and evolve mechanisms for monitoring and ensuring performance in accordance with them.
- To evolve and implement strategies for self-evaluation to sensitize all functionaries to be
- accountable for student and stakeholder satisfaction.
- To streamline academic functions and standardize practices
- To ensure every faculty members perform his/her best in teaching and research
- To provide feedback to faculty members on areas which need improvement
- To build up a system for conscious and regular action to improve the academic and administrative performance of the institution.
- To promote measures for institutional functioning towards quality enhancement through internalization of quality culture and institutionalization of best practices.

The Context:

- Innovative teaching pedagogy by faculty members
- Full proof documentation and standardized formats
- Improved performance of students in internal and external assessments
- Monitoring and control mechanisms improve performance
- Standardization of practices for quality control
- Benchmarking for improved performance

- **Institutional distinctiveness:**

The thrust areas focused to achieve 'VISION' are

- Building strong linkage with Industry through Industry Collaborative Laboratories.
- Project based learning and providing solutions to the societal problems.
- Outcome based education

Out of the areas mentioned above the Institute has a distinction by establishing several Centers of Excellence (CoE) and Industry Collaborative Laboratories.

INDUSTRY COLLABORATIVE LABORATORIES:

CISCO networking academy: This facility established in 2017 is contributing towards Industry recognized certifications with career-oriented courses periodically on Cyber security, etc.

IBM software lab for emerging technologies: This lab is established in 2016, Dept of IT to provide training onessentials of Big data with Hadoop using IBM infosphere, etc and on identity management.

DASSAULT systems: This facility established in 2018 in ME dept. stands as a 3D Experience centre supported by APSSDC to offer training on a bi-layered format in technologies on CATIA, SIMULIA, DELMIA, etc followed by opting for training in the domains of Automotive, Aerospace, Defence Ship building etc.

ORACLE Corporation: The Lab started in CSE in 2017 has been running Oracle licensed software for developing applications.

APPLE authorized training center for education (aatce) this facility was established in 2019 in IT Dept to provide training on developing apps related to IOS and SWIFT Programming.

Video analytics research lab- It is established in CSE Dept in 2014 to provide a base for video analytics research and to improve algorithm robustness.

ANBLICKS ignite centre It is established in 2019 to promote collaborative research activity between Anblicks and VRSEC, and to provide internships, product development avenues and Placements to students.

Avantel Research Center is established in 2022 to promote collaborative research activity in the area of electronics and communication engineering, and to provide internships, placements to students.

CENTERS OF EXCELLENCE (CoE):

SIEMENS CoE: - This unique centre established in the college, in association with APSSDC as a PPP corporation to promote skill-development entrepreneurship in the state, is housed in a space of 23000 Sqft and other facilities worth Rs.5.50 Crores with 13 different labs.

CoE in COMPOSITES: This centre is established in 2014 with DST- FIST in ME Dept to develop new materials which are economical and ecofriendly. The facility has equipment worth Rs. 60 lakhs that can be used for research, testing and consultancy.

Due to the above distinctiveness, the following outcomes have been achieved for the AY 2021-22.

Outcomes:

- No. of ideas generated by students & faculty are 185 and Innovation / prototypes developed are 59.
- IPRs: Filed:08, Published:46 and Granted:03, Copyrights Registered:3
- Student &Faculty Start-ups/Ventures established:02
- Grants received from government and nongovernment agencies for research projects Rs.1,02,65,032.
- 14 Faculty were awarded with Ph. D in the college.
- Faculty with Ph. D qualification in the college are 142.
- Research papers published in the CARE journals notified on UGC website are 249 and books and book chapters are 283.
- Seed money received by faculty from the institution Rs. 15,06,447/- or Rs.5,94,083/-
- Revenue generated from consultancy and corporate training Rs. 1,67,51,142/-.

Student Outcomes:

- Placements for this AY are 1390 and above Rs 4 lakh package is 905
- Students won prizes/Awards in National and Global Competitions are 33
- Student Internships are 1019.

Significant contributions made by IQAC during the current year:

1. Encouraging students to publish their project outcomes.
2. Providing job oriented skills through e-box
3. E-content development facility establishment
4. Involvement of Alumni in academc, research and consultancy activities
5. Improvement of technical model development and participation in state level and national level competetions.
6. Revision of PBAS as per the key performance indicators of NBA, NAAC acreditations and ATAL and NIRF rankings.

7. Setting up of sensor-based energy conservation and institution of energy audit.
8. Identification and promotion of students for state and national level cultural and sports competetions.
9. Industrial training to the faculty to make them trained in latest technologies used by the Industry.
10. Regular training to support staff (Technical, Non-Technical/admin)
11. Annual planning on a) execution of extension activities (NSS) in adopted villages focusing on technical issues in particular and getting solutions by collaborating with outside organisations. b) Securing ample number of state and national lelvel awards.

Plan of action chalked out by the IQAC in the beginning of the academic year towards Quality Enhancement and Outcome achieved by the end of the academic year.

FUTURE PLAN OF ACTION FOR THE NEXT ACADEMIC YEAR:

The Institute consistently striving to impart Quality Education by updating Plan of action to meet industry and societal requirements. The plan of action is as follows:

- **Introduction of Minor Degree and Honours in B.Tech programme:** To impart the multidisciplinary skills in the student's, minor degree programs and degree with honours was introduced in the B.Tech programme.
- **Improving the student publications:** To motivate the students in publishing their project outcomes in conferences, journals and patents.
- Institutionalization of R & D Excellence award.
- Identification of one or two major thrust areas of research in emerging fields to fulfil "Make in India" and "Atmanirbhar Bharat" - subsequent strengthening by providing necessary infrastructural facilities & identifying competent faculty
- **Improving the Industrial Internships:** To make the students industry ready it is planned to encourage the students to attend insustrial internships during semester break.
- Industry / Institute (IIT's) collaborative joint venture projects across all the disciplines
- **National Institutional Ranking Framework (NIRF):** Securing 100 rank in coming years. Keeping this target in view, it is taken up a major item in the IQAC action plan.
- **ARIIA - Atal Ranking of Institutions on Innovation Achievements:** Categorized as "Band-Excellent" in 2021-22 by Ministry of HRD, Govt. of India. It is planned to secure a place in top 25, by improving the related metrics of ARIIA.
- Revamp of 'Continuous / Internal Assessment pattern'.

- Attention & Mechanism on 'Granting' of patents
- Attention - EPICS projects confining to societal problems with innovative solutions.
- Training programs on OBE – Focusing on Higher order knowledge levels, defining appropriate COs & enhancing PO attainment targets
- **Alumni identification and their diplomatic involvement for R & D and consultancy:** It is decided to utilize the services of alumni in Research funding, consultancy, Incubations, Startups, etc., by identifying the appropriate alumni.
- **Innovations, Incubation, Start-ups**: Establishment of Incubation centers and Startups in every department in the campus to promote the student innovations and startups.
- **Review of Performance Based Appraisal System (PBAS):** The Institution implemented the PBAS since 2013- 14, to evaluate the annual academic and Professional contributions of the faculty. Since its inception it is continuously revised as per the key performance indicators of NBA and NAAC accreditation processes and five year strategic plan of the institute. The PBAS evaluates various parameters related to academic talent, qualifications, innovations, Research & Development, contributions to the society, etc.
- **Review on further growth of faculty pursuing PhD, new PhD registrations and quality publications:** As of today, the percentage of faculty with PhD qualification is reached to 45. To reach the targets of '2020-25 strategic plan' of the institution, the IQAC suggested to review the faculty who are pursuing their PhD along with new PhD registrations. Along with this quality of publications, citation scores are also reviewed.
- **Enhancement of Hostel accommodation to students:** Boys hostel was constructed to accommodate 500 students as per the previous year suggestion given by IQAC. It is advised to provide the sports facilities in the hostel premises.
- Implementation of Activity Calendar in addition to Academic Calendar.

Concluding Remarks:

- Velagapudi Ramakrishna Siddhartha Engineering college is adopting best practices and maintaining the good standards in Industry relevant curriculum development, Teaching-Learning and evaluation, Research and Consultancy, Infrastructural facilities, setting up of Innovation and incubation centers along with various industry collaborative labs and center of excellence. It is striving hard to provide the quality education to its stakeholders.

- Improvement is observed in all the key performance indicators as per the NBA and NAAC accreditation processes and Institute's strategic plan.

(Dr. P. Siddaiah)
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