

# 1. EXECUTIVE SUMMARY

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## 1.1 INTRODUCTION

Conceived and executed in 1998 with a far-sighted vision to transform the socio-economic profile of the region by Dr. E.M. Abdullah, the doyen of medical fraternity of yesteryears, the College eponymously takes its name from the cherished memory of his gifted mother, the late Syed Ammal, who was the moving force behind the fleet of other illustrious institutions – Syed Ammal Higher Secondary School, Syed Ammal Matric and Higher Secondary School, National Academy Montessori Matric Higher Secondary School, National Academy School, National Academy Matric School, Syed Ammal Arts and Science College, Syed Ammal Trust Hospital – the precursor institution of the Trust - Raasi scan and A.R. Hospital, all with an overarching humanitarian and social focus to uplift the educational standards and wellbeing of the region and beyond - that were to rise up one after another, circa, over a span of six decades. From its humble beginnings, Syed Ammal Engineering College (SAEC) has striven over the years to bloom into an institution of repute and standard in the comity of institutions of its elan and calibre. Affiliated to Anna University, Chennai, and approved by All India Council of Technical and Education (AICTE) and the State Government, the college offers graduate programmes in Civil Engineering, Computer Science and Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering, Mechanical Engineering streams and post-graduate programmes in Computer Science & Engineering, Embedded System Technologies, VLSI design, Manufacturing Engineering, Master of Business Administration (MBA). Spread over an extent of 25 acres of landmass, amidst serene and salubrious environs, the college has state-of –the- art technology and avant-garde resources for its academic and administrative apparatus - be it library, pedagogical aides, class rooms, computing systems, laboratories, workshops or hostels and cafeteria, and even sports and leisure, besides housing a score of professional bodies and chapters, including that of IEEE, ISTE, CSI, IETE, IE (India) and SAE on the one hand and fine arts and culture on the other, to enliven and burnish the seemingly heavy and dreary weltanschauung of engineering education.

### Vision

- To be an Institute of eminence and to evolve disciplined and globally competent engineers and technocrats.

### Mission

- Generating an enabling environment for academic excellence through quality work.
- Moulding rural students into professionally competent and intellectually proficient employable force through curricular, co-curricular and extra-curricular activities.
- Creating globally talented human resources with ethical outlook and moral values, for the larger benefits of the society

## 1.2 Strength, Weakness, Opportunity and Challenges(SWOC)

### Institutional Strength

The objective of carrying out SWOC analysis is primarily to understand the shortcomings of the institutions both quantitatively as well as qualitatively. This exercise also results in identification of appropriate areas of technology and thereby helps in developing industry ready employable graduates. The Principal, the Heads of the Departments, the faculty, supporting and administrative staff and sample of students of all branches participated in SWOC analysis. The major inputs considered are 1. Teaching-learning 2. Research & extension activities 3. Students Progression 4. Infrastructure & Financial Support 5. Human Resources

Three UG programmes such as CSE, EEE & MECH were Accredited by NBA. ECE, CSE, EEE & MECH. Departments are recognized as Research centres by Anna University, Chennai. Three UG Courses such as ECE, CSE & EEE have got Permanent Affiliation by Anna University, Chennai. Eco-friendly and conducive learning atmosphere. Well maintained state-of-art building infrastructure and laboratory facilities. Sustained and Valuable Suggestions given by the Stalwarts of educational system, Dr. M. Abdullah Khan, Former Dean of Anna University and Prof. M. Salihu, Former Vice Chancellor of MK University, since the inception of the college to till date, for the development of the institution. Constant encouragement given to the faculty members in pursuing their research leading to 25 Ph.D. holders in various departments. Among them, 12 got Research Supervisor Recognition from Centre Anna University, Chennai. Our research centres has produced 40 Ph.D scholars in various specialization. The faculty members of our college published more than 600 research papers in reputed journals and conferences. The faculty members of our college published more than 50 Books in reputed Publications in India, Switzerland, Germany etc. The faculty members of our college got more than Rupees Ninety Lakhs various funding Agencies like AICTE, Anna University and TNSCST etc. Our College has organised National and International conferences sponsored by IEEE, AICTE etc. Our College has organised more than 500 Workshops/Seminars/Faculty and Student Development Programmes/Guest Lecture/Symposium sponsored by CSI, ISTE, IEEE, AICTE, TNSCST etc.

### **Institutional Weakness**

Majority of students are from rural areas with Tamil as the medium of instruction in school level. Hence, Academic performance and GATE qualifying students are low. The institute industry interactions are not upto the level because the institution is situated in the rural area, where there is less number of industries. Less number of sponsored research projects from external agencies. Robotics and Automation related facilities are not available. Non-Availability of industry supported laboratories. Entrepreneurship efforts need to be improved.

### **Institutional Opportunity**

An improved research environment can be foreseen as good number of faculty members pursuing Ph.D. Empowering all the faculty members by analyzing ways and means to undertake consultancy projects. Students internship in industries will be encourage. Students participation in club activities and intercollegiate competitions Preparing students for GATE, BEC and aptitude Examinations Scope of PG students to pursue Ph.D. under the supervision of the faculty members of the institute in association with the Affiliating University. Enough Areas are available to develop Technology Incubators and to initiate activities in association with NGO's & Government organisation. Introduction of curriculum beyond syllabus will help the students to improve their employability skills More opportunities to place the students in MSME Industries by consistent efforts and MoU's with organization like ICTACT, etc.,

## **Institutional Challenge**

Training rural based Tamil medium students in English language and developing their communication skills is really a challenging job. Competition from Autonomous Institutions/ Deemed Universities functioning in the nearby areas. Bridging the curriculum gap to meet fast changes in technology and the industrial needs.

## **1.3 CRITERIA WISE SUMMARY**

### **Curricular Aspects**

The Institute follows the curriculum prescribed by the Anna University. The curriculum is well translated to the students after through preparation as well as critical thought by the teachers concerned.

- Choice Based Credit System introduced in 5 UG programs and 5 PG programs from the academic year 2017-18.
- 709 new courses have been introduced in the past 5 years. The institution encourages the faculty to keep themselves update their knowledge by offering refresher courses, faculty development programmes and workshops. In addition, the institution has provided 50 value added courses and 33 certificate courses to students for developing skills to bridge the gaps in the syllabus.
- About 70% of students participated in certificate and add-on courses.
- Institution is sensitive to gender, environment issues, human values and professional ethics. Anna University has introduced courses on professional ethics, Human values and Environmental science.
- Departmental activities are scheduled which include Industrial visits, Implant training, Guest Lectures, Symposium, Seminars, Conference, Placement and Training and Association activities.
- About 70% of students have undertaken the field projects and internship every year.
- The IQAC academic coordinator monitors and assists the faculty members for effective curriculum delivery.

Department invites suggestion and feedback from students, teachers, employers, Alumni and parents regarding the curriculum and institution ensure its availability in the website.

### **Teaching-learning and Evaluation**

- Average 56.93% of seats are filled as per the applicable reservation policy. Institution conducts induction program for the students after admission.
- Based on the marks attained in the internal exams and their performance in the learning process, the students are categorized into advanced and slow learners.
- As on date, three students from differently abled category registered in the Institution. At the beginning of each semester, the college level academic calendar is prepared with all essential details viz., reopening and closing dates, internal examinations dates, holidays, college level activities.
- The department prepares the academic calendar in align with the college calendar by including department specific activities and events.
- Each department distributes the calendar to all students and faculty members to plan their activities. The time table and the course plan are prepared well in advance.

- The faculty members are assigned courses based on their competency matrix, subject expertise and experience. Each faculty member prepares the structured lesson plan, detailed course materials, question bank for theory subjects and lab manual for practical subjects as per guidelines given by IQAC.
- Faculty members incorporate the teaching pedagogy considering experiential learning, participative learning and problem solving methods in content delivery during their preparation.
- All the faculty members use ICT for effective teaching-learning process. Each faculty member is assigned with 15-20 students for mentoring.
- Institution has faculty members with Ph.D degree in the academic year 2018-19. Class Committee meetings are conducted thrice during the semester.
- The chairperson of the committee communicate the rules and regulations of the department, examination procedure, discuss the syllabus completion and collect feedback on academic and administrative difficulties faced by the students.
- Based on the feedback, appropriate remedial measures are put into practice to improve the performance of the students.
- The major decisions/ improvements done based on the feedback received are communicated to the students. OBE is implemented in all programmes.
- The information on POs, PEOs and COs are communicated to the stakeholders. Student attainment of learning outcomes is measured by checking the level of CO and PO attainments for all the courses.

### **Research, Innovations and Extension**

Research, Innovations and Extension Institution has a dedicated team of researchers headed by a Director (R&D). A senior faculty member in each department has been nominated as research coordinator. Faculty members and undergraduate/postgraduate students are provided with adequate resources to pursue research in their respective field of interest. Students are encouraged to take up research project under the supervision of the faculty members. 38 workshops/ seminars are conducted on IPR & Industrial linkages. During science expo, students are displaying their gadgets to encourage young minds who visit the expo. The Institution has 32 Ph.Ds holders, 19 pursuing Ph.D. and remaining faculty members are working collaboratively. The faculty members pursuing research are encouraged by providing them the required equipments, books, leaves for research work, financial assistance for conferences/journals, e-resources, computer facilities, Wi-Fi etc. The college provides incentives to the faculty for their research contribution. Research meeting is conveyed to discuss proposals to funding agencies. The departments of CSE, EEE,ECE and Mechanical Engineering are recognized as “Research Centers” by the Anna University. 17 faculty members are recognized supervisors of Anna University and other Ph.D holders are motivated to obtain supervisor recognition. The faculty members who do not possess Ph.D degree are advised to register for research work. The institution has a well defined code of ethics to check malpractices and plagiarism in research. Institution honors the teachers who receive recognition and awards. 238 research papers have been published in the UGC recognized journals. 83 papers have been presented in national/international conferences. 30 books have been published by faculty members. Institution has an Industry Institute Partnership Cell (IIPC) which has signed 15 MoUs with Industries to carry out collaborative work in project development and consultancy. 292 industrial linkage program such as internship, field trip, on-job training and research have been organized. Faculty members and students are actively involved in 24 Institutional Social Responsibility activities through structured forums like NSS, YRC, Rotract and Clubs and Societies. Many recognition and awards are received for various extension activities from University, State level agencies and NGOs.

### **Infrastructure and Learning Resources**

The college has all the necessary facilities with experienced and well qualified faculty members to develop the young minds with high academic ambience. In accordance with the increasing enrolment, there has been remarkable improvement in infrastructure facilities. In our college has well-equipped Laboratories with equipment as per the curriculum along with high-end equipment's are also available for student projects and research, computer, laboratories and centres, a library with all the modern e-amenities, auditorium, seminar halls, common areas and class rooms equipped with modern ICT tools for intense learning. The college also has adequate space and amenities to conduct competitive exams like GATE, TNPSC, and TRB and organize National level competitions. The Institute library functions in a separate building with built-up area of approximately 911.87sq.m. SAEC library maintains all the books and journals are per AICTE norms. Digital access of resources is provided for teachers and students. Rare books are collected for faculty members to network events. Sports facilities are provided and students are encouraged to take part in inter class, college, university and national competitions. All of the classrooms and seminar halls are equipped with ICT facilities. The buildings are kept clean by housekeeping staff members. Institution has 90 MBPS internet connection to provide quality bandwidth to all the students in the laboratories and to the staff in the staffrooms and office. There is one computer for every two students in the campus. The Institute makes adequate budgetary provisions for the upgradation of infrastructural facilities including maintenance of building and housekeeping. There are established systems and procedures for maintaining and utilizing physical, academic and support facilities – Seminar, laboratory, library, sports complex, computers, and classrooms. All the other supporting facilities such as playground, canteen, transport, gymnasium and dispensary are available in the campus.

### **Student Support and Progression**

Institution has 2009 students from diverse background. To meet the needs of the students, student support service of our college is administered through a faculty advisory system. Department has faculty advisor system where 10-15 students are allocated to each faculty member for counseling and to improve the academic performance of the students. The Institution offers scholarship and financial assistance to academically strong and economically weak Students. On an average of 71% of students are benefited by scholarships and freeships provided by the government. 43% of students are benefited by the scholarship/concession provided by the institution besides government schemes during 5 years. The Training and Placement Cell of the college extends its service in the form of career guidance, resume building, soft skill training, technical training etc. It also supports campus recruitment in the form of pre-placement talk. 563 students are benefited from the training in the year 2020-21. 74% of students benefited from the training over 5 years. 28% of students are benefited by career counselling and guidance for competitive examinations offered by the Institution during the last five years. Library has materials for students who prepares for the competitive exams. Departments encourage students to participate in State, National and International level of curricular and co-curricular events.

The NSS, YRC and Rortract club of our institution motivate the students and staff to participate in the extension activities such as awareness rallies for Blood donation, Health camp and orphanage visits. 100 cultural activities and sports competitions organized in the campus during the last 5 years. Institution has a well defined redressal cell for addressing anti-ragging and sexual harassment. Antiragging and sexual harassment committees are established in the campus. Institution has an exclusive placement division under the headship of a Placement Officer. 75 companies have recruited the students. Highest salary offered during this year is 3.5 Lakhs per annum. Institution has alumni association meeting every year. All the passed-out students are members of the alumni association.

### **Governance, Leadership and Management**

The governing of the institution has an effective and transparent system in order to satisfy the vision and mission of the Institution. The institution has clear organizational structure and an effective decentralization. Regular periodical meeting has been conducted by the Governing Council in which various points for the development of the institution were discussed and the respective corrective actions were made. The Principal of the institution has an cordial relationship with the Management which makes easier the discussion of the infrastructural needs, development, administration and appointments. Management participates in the college functions viz., Graduation Day, College Day, Sports Day, Conferences etc. The Principal is the Academic and Administrative head of the college and responsible for the implementation the Vision and Mission of the college. All departments of the institution have a clear perspective/ strategic plan and it is deployed effectively. Each functional body is clearly defined with service rules and procedures. There are well defined procedures for the recruitment and promotion. Institution has implemented e-governance in the all the areas of administration. Various bodies/ cells/ committees are working effectively and regular meetings are called for the discussion and recorded. Various programmes viz., Career Guidance Programmes, Workshops, Value added course, symposium, social activities, Seminars and Conferences were organised in order to enrich the knowledge and showcase the talents of students. Teachers benefited with financial support for attend conferences/ workshops and towards membership fee of professional bodies. More number of professional development/ administrative training programs organized in the campus for benefits of teaching and non teaching staff during the last 5 years

### **Institutional Values and Best Practices**

The key aim of our institution is to promote education that would be sensitive to the needs of the various sections of the society with special emphasis on gender equality and gender sensitivity. The gender equity programs are organized by the institution to promote awareness about the importance of women's education for the betterment of the imminent society. In order to enhance the values and social responsibilities among the student community particularly for women, the institution has frequently organizing various programs like international women's day, entrepreneurial awareness programs for women and women's safety. These types of initiatives are proliferating consciousness among the student community to be the better citizens of the nation. The annual power requirement of the institution has fulfilled by the solar energy of 100 KW. The run off rain water from the terrace is channelized into the ground through the pipes, which are located in all buildings of the campus. The entire campus is dotted with trees, plants and lawns which are well maintained. The campus is green covered around 60% of pruned trees which are watered and appropriate care is taken for their maintenance. The institution is also maintaining complete transparency in its financial, academic and administrative progresses. Our institution is operating the practices like the development of employability skills by mentoring the students with the dedicated faculties. The establishment of placement cell in our campus is molding our students to prepare themselves as per the requirements of the industries. The Entrepreneurship Development cell is constantly inculcate entrepreneurial spirit and culture among engineering and management graduates and also motivate them to start up their businesses. The institution has its own unique diversified activities like co curricular and extra-curricular with concentrating on the social needs of the students. The campus has its distinctive infrastructure which includes well equipped laboratories, good volume of books and journals, medical care center, security systems, wide transportation facilities, indoor and outdoor play grounds, seminar hall and auditorium.