

**CRITERION VII  
INNOVATIONS  
AND  
BEST PRACTICES**

## **Criterion-VII - INNOVATIONS AND BEST PRACTICES**

### **7.1 Environment Consciousness**

#### **7.1.1 Does the University conduct a Green Audit of its campus?**

Yes, the University takes a lot of effort to make the students and the faculty environment conscious and make them keep the campus green by planting more trees and clean by making the campus plastic free zone. This helps to provide a pleasant atmosphere for the faculty and students to pursue their academic and non-academic pursuits in a clean environment. The plantation is done under the aegis of the maintenance department and NSS volunteers.

#### **7.1.2 What are the initiatives taken by the university to make the campus eco-friendly?**

- **Energy conservation**
- **Use of renewable energy**
- **Water harvesting**
- **Check dam construction**
- **Efforts for carbon neutrality**
- **Plantation**
- **Hazardous waste management**
- **e-waste management**
- **any other (please specify)**

The university has been taking a lot of initiatives to make the campus eco-friendly since inception as mentioned below.

#### **Energy conservation**

The students and faculty have been sensitized and taught the importance of switching off the electrical equipment when not in use. All the students and the faculty are requested to switch off the lights and fans when they leave the classrooms. Large windows have been provided in all the classrooms, which give a lot of ventilation and natural lighting even during the winter enabling the university to conserve energy. The university is also gradually buying CRT monitors, which help in conserving energy.

#### **Use of Renewable Energy**

Efforts are being made in the university to make use of renewable energy. Use of Solar energy for lighting is being taken up in the campus. Projects in the field of solar energy are being undertaken by the MSME. A few solar street lights have been installed. Solar kit

procured from IIT Bombay helps to demonstrate solar energy concepts and applications to students.

### **Water harvesting**

The university has been making a lot of efforts to harvest the water during rains. The campus has large open space with natural ground to absorb rainwater. Rainwater harvesting has been implemented as per the rules and regulations of the Tamilnadu Government. The university has implemented various methods to improve the groundwater table in and around the campus by implementing the effective Rainwater harvesting system. A pilot research study has been carried out to find the effectiveness of the water harvesting.

### **Check Dam Construction**

In the university campus, there are no streams or water courses to implement check dams.

### **Efforts for Carbon neutrality**

The university campus is plastic-polythene free zone, which makes the campus eco-friendly. Efforts are being made to reduce carbon emission and keep the campus pollution free. College buses and other vehicles get the pollution free sticker once in six months to ensure that carbon emission norms are met. The dead leaves and the waste papers are not allowed to be put on fire. The leaves are buried in the soil itself and the papers are disposed off. A number of trees have also been planted. Many transactions are made paper less through e-mails. Exclusive areas have been provided for vegetation for ecological balance.

### **Plantation**

The university has a lot of green cover in the campus. This has been achieved through a systematic management of the plantation. The University has a team of gardeners who keep the campus green. NSS volunteers are also encouraged and motivated to plant saplings in the university. In the last two years, around 3200 saplings have been planted.

### **Hazardous waste management**

Usage of plastics is prohibited in the university campus. The cafeteria and the kiosks in the campus use only paper cups. The biological wastes and chemical wastes are carefully disposed without

harming the environment of the campus. A sewage treatment plant is in place in the hostels. Recycled water is used for horticultural purposes and land scaping.

**e – waste management**

The university ensures disposal of obsolete electronic items in the campus. The e-waste is disposed through the vendors for the purpose of recycling. The electronic gadgets are disposed through vendors with proper e-waste management techniques without affecting the environment.

**Any other (please specify)**

Nil

**7.2 Innovations**

**7.2.1 Give details of innovations introduced during the last four years, which have created a positive impact on the functioning of the university.**

Several quality initiatives have been taken up in the University for its effective functioning. The following are the major initiatives, which have been taken and are presented with respect to the following criteria.

**CURRICULAR ASPECTS**

The curriculum is proposed by the Board of Studies of different faculties and approved by the Academic council and Board of Management which is implemented.

Experts from the industries and other universities are the member of Board of studies of the University who take active part in curriculum revision and in the discussions relating to the implementation of various other academic activities.

University elicits Feedback from students, teachers and other stake holders to revise the curriculum. Total review/revision of syllabus is generally done once in 4 years or and as required. The Board of Studies and the Academic council of the university update the curriculum according to the changing requirements due to the industrial and technological development.

The institution develops and deploys action plans for effective implementation of the curriculum starting with the Management Review Meeting (once in a semester) conducted by Vice Chancellor with all HODs where various strategies for effective implementation and operationalization of the curriculum to improve the results are deliberated.

The university provides the curriculum and syllabi containing text books and reference books, question pattern, list of practical experiments, which enables the teacher to plan the delivery of curriculum for each semester.

The HODs conduct Department Review Meeting (once in a month during the semester period) with faculty where they are instructed to impart the curriculum through innovative teaching methods, assignments, discussions on case studies or practical examples, workshops, seminars, industrial visits, apart from traditional teaching methods.

Class Committee Meetings are conducted by chairperson (who is not teaching the class), in the presence of HOD, with Staff members handling the courses and students representatives thrice in a semester. It is like Quality Circle with the overall goal of improving the teaching-learning process.

MOUs signed with Industries, to conduct value added programs, internship, projects.

Entrepreneurship development has been given an impetus by setting up of Technology Business Incubator and MSME Business Incubator which are supported by the Department of Science & Technology and the Ministry of Small, Micro and Medium Enterprises respectively.

Innovative courses have been introduced in new fields such as like smart and sustainable materials, solar energy, disaster management, precast concrete construction, and advanced manufacturing technology, which are beneficial to the students to acquire latest knowledge and perform better after completing their studies.

Internal quality assurance system has been introduced and academic audits carried to review several performance criteria including curriculum. Feedback from students and faculty on curriculum are also considered. Suggestions are given due consideration.

## **TEACHING, LEARNING AND EVALUATION**

Developing e-resources, conducting personality development programmes, enhancing communication skills and providing training for aptitude questions for placements are some of the holistic approaches taken to enhance learning.

The university encourages e-learning and has made efforts to provide educational CDs, NPTEL video lectures, EDU SAT programmes and audio visual aids to promote power point presentations. These technologies are being used by our faculty for effective teaching.

The University Library has e-resources for various subjects and also has web link with publishers of journals and books and subscribes to on-line Journals. Department libraries have been created to help the faculty and students to refer to books in the departments. Previous question papers of University for all the subjects are available.

All the departments are equipped with LCD projectors. The campus is connected with 1Gbps internet connectivity via optical fibre cable besides Wi- Fi connectivity. Most of the blocks are provided with exclusive seminar halls to enhance teaching learning.

All the departments maintain a teaching/lesson plan which provides a clear schedule for the hour wise coverage of subject matters, course material and question bank, assignments etc.

Presentation skills, organization skills, cooperative skills and leadership skills of the students and faculty are promoted through various academic activities such as organizing student's symposia, national and international conferences.

Students are continuously assessed and their academic performance is monitored by conducting slip tests, unit tests, model examinations and assignments. The parents of the students are informed of their wards absence through SMS on a daily basis.

Experts from the industries and other universities are also invited to the university from time to time to give guest lectures and interact with the students and faculty members.

The IQAC of the University obtains feedback from students on each course taught as well as on each faculty for every semester. The IQAC committee carefully analyzes the students' feedback and appropriate instructions are given to the faculty to improve the quality of the teaching-learning process.

## **RESEARCH, CONSULTANCY AND EXTENSION**

The university on inception has established a separate Board of Research to promote research culture among staff and students. A research committee has also been formed.

Immediately after becoming a deemed to be University, Research programmes M.Phil. and Ph.D. were started. The emphasis is on quality research. The students and research scholars are motivated to take up innovative projects which are industry and society relevant.

The university has started Centre for Disaster Management, Centre for Advanced Materials and Centre for Nanotechnology to promote awareness among the faculty and students leading to research. The university has also established a Central Instrumentation Facility to undertake calibration.

To enhance the quality of teaching and research, the university has entered into MoUs and established linkages with more than 40 organizations including Research Institutions, Foreign Universities, Government Organizations and Non-Government Organizations.

The university has taken efforts to conduct workshops, training programmes to promote research culture among faculty and students. Seminars are conducted exclusively for research scholars. Workshop on research methodology is conducted for research scholars.

The university regularly organizes national and international conferences in various thrust areas to promote knowledge sharing and research and encourages publication in peer reviewed, reputed national and international level journals.

An amount of Rs.100 lakhs was sanctioned from University funds for establishing Sophisticated Analytical Instrumentation Facility with highly sophisticated spectrophotometers for materials characterization. This facility helps research of SPU and other academic institutions. The laboratories have been further strengthened by additional equipments for research.

Machines have been purchased from grants sanctioned through DST to the Technology Business Incubator, for Rs 150 lakhs in the area of Advanced Manufacturing Technology along with CATIA software.

The University has identified areas where consultancy services could be offered by the departments. Consultancy services are offered in the broad areas of Spectroscopic analysis, Testing/ Consultancy in Advanced Manufacturing techniques, testing/ consultancy services for

construction materials and website creation. The income generated from consultancy services is around Rupees 3.75 Lakhs.

Extension services are promoted by the NSS and YRC of the university. The university proposes to adopt the nearby Konambedu village and has been helping them by organizing awareness programmes.

## **INFRASTRUCTURE AND LEARNING RESOURCES**

The university has well equipped laboratories with adequate space, uninterrupted power supply and internet connectivity. Each faculty is allocated a separate cubicle. Each department is provided with computers and Internet connectivity for the benefit of faculty, scholars, students and administrative staff.

All the departments have an office room and common seminar hall in each block. The University has provided adequate toilet facilities for women students and faculty in each building. Women's rest room and health centre are also provided.

University has established a Health Centre with ambulance facility for the benefit of students and employees of University.

Stores has been set up on campus to purchase for the daily needs of the hostel students, day scholars and the faculty.

A photocopying centre is available on campus which provides photocopy service at nominal price for the student community.

Bio metric system is being introduced in the campus for the faculty and non teaching staff for attendance monitoring.

CCTV cameras are being placed at strategic locations to monitor the movements in the campus.

To ensure adequate power supply, a 500 KVA transformer has been installed which provides power to the entire campus. Further, one generator of 320 KVA and three generators of 125 KVA are available in the campus for sustaining the power supply during shut downs.

Software Asset Management involves managing and optimizing the purchase, deployment, maintenance, utilization, and disposal of software applications within University.

The Computer Centre provides Internet facilities to the entire university campus by using optical fibre leased lines from BSNL at

1GBPS speed. Broad band connectivity and Wi-Fi facility is available in our campus.

The University has SQUID Firewall used for internet security, network security, e-mail protection and secure remote access.

Library services are automated through the use of standard library software package, "AutoLib". The circulation service is fully computerized and all the documents are bar-coded. Four systems with Online Public Access Catalogue (OPAC) are provided to the users to access and browse and retrieve the online information from the library. Web OPAC module facilities on the intranet/internet environment are provided.

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## **STUDENT SUPPORT AND PROGRESSION**

The University provides financial support to students in the form of fee concession to the meritorious students.

An Induction programme is conducted for all freshers with their parents during which the students and parents are informed of the rules and regulations and the campus facilities.

Monthly class committee meetings are held regularly to discuss the academic issues with the students and faculty of the class concerned.

Parents-students-Faculty-Administrative staff meeting is also organized.

Attendance of students is monitored daily and SMS sent on the same day to parents of students who are absent. This has improved the attendance of students.

Students' performance in examinations is constantly reviewed along with the attendance and the parents are informed through SMS.

To provide more exposure to the students, Industrial visits are organized. Internship and Inplant training to business houses are also encouraged as self-study course in most of the departments

University has a registered Alumni Association which was formed in 2010. The association provides a platform for the alumni to contribute towards the development of the alma mater and its students. Alumni give feedback on curricular aspects, placement and innovation. They are also invited to address the students and give special seminars.

All the students of the University are covered by health and accident insurance. The premium for this insurance coverage for all the students is borne by the University.

Well-equipped health centre with round the clock ambulance service is available in the campus

Students are members in various cells such as Grievance Redress cell, Anti-ragging Committee, Anti-Sexual Harassment Cell, Gender Sensitization Committee, Sports, Cultural committees, Placement co-ordinators and Alumni Association.

Students committees run mess in both the Hostels (Men & Women).

Students are also on the editorial board in the magazine committee. Every department has student professional associations in which the students are members.

Placement Cell functions as nodal agency between the University departments and the industry to provide employment opportunities for students through campus interviews.

All final year classes have a student coordinator and placement coordinator to assist the students in placement activity along with placement cell.

The university has an Entrepreneurship development cell and a Technology Business Incubator to help the students develop their entrepreneurship skills.

## **GOVERNANCE, LEADERSHIP AND MANAGEMENT**

The Vice-Chancellor, the chief executive authority, along with the Board of Management, Academic Council and Finance Committee is entrusted with the task of developing, implementing and improving participatory and decentralized management systems. The VC is ably assisted by various departments headed by senior and experienced persons.

Leadership percolates to all the levels. As the head of the institution, the VC interacts with all the staff members and students periodically and motivates them in all aspects. The heads of departments and faculty in turn motivates their staff and students.

Management of various resources including finance, faculty, infrastructure and other facilities is done by meticulous planning and implementation. The organization structure provides enough scope for effective interaction and discussion for periodic review and improvement for optimum utilization of resources for best performance. Redeployment and augmentation of resources is done wherever required. Several initiatives were taken in this regard as mentioned below.

- Registration with DSIR as R&D institution for exemption of customs and excise duty for R&D projects.
- Creation of centre's in new/emerging areas.
- Applying for grants for research projects and centre's of excellence to foster research in important areas.
- Starting incubation centre's for technology and entrepreneurship development and encouraging innovation among students and faculty.
- Starting Central instrumentation facility for calibration of instruments.
- Value added courses to empower students with latest knowledge.
- Seminars and international conferences to enable research scholars to present their work and interact with experts.
- Industry interaction for enabling students and faculty for inplant training and work on industrial problems.
- Societal interaction to enable them with technology for improving their living standards. Applied for Women's Technology Park to DST.

Thus the management has taken several initiatives for achieving the objectives of academic excellence, high quality research, and usefulness to industry and society.

Innovative teaching methods, restructuring and introducing new courses in the emerging areas of knowledge, encouraging publication, organizing inter collegiate programmes, computerization of administration etc., are the measures taken by the leadership for the enhancement of quality for continuous improvement.

Leadership is groomed through decentralization by appointing the talented faculty as coordinators of various committees / cells

Thrust areas and emerging areas have been identified and various initiatives are taken to create Centre's in those areas for motivating students, faculty and research scholars such as Centre for disaster management, Centre for Nanotechnology, Centre for advanced materials, Central Instrumentation facility and Sophisticated Analytical Instrumentation Facility (SAIF).

TBI and MSME have been established for promoting technology and entrepreneurship development.

Applications have also been sent to MHRD for approval of Centre's of Excellence in the areas such as Disaster management, Nanotechnology, Solar energy and Super capacitors.

The University also promotes excellence by setting quality bench-marks for each department through academic audit and ISO audit.

The University has been implementing Quality Management System as per ISO 9001 -2008 standards since 2008. Certified by TUV SUD, the institution has framed Quality Policy which is being followed by all the departments.

The University has been certified for ISO Quality Management System through which the targets for academic, research and other performances are fixed and monitored through internal and surveillance audits.

The University has also been implementing Internal Quality Assurance System (IQAS) from 2013. Internal Quality Assurance Cell (IQAC) has been constituted which meets periodically and recommends appropriate action for continuous improvement of quality and achieving academic excellence.

The University has an efficient budgeting mechanism to monitor the effective and efficient use of financial resources. The University has a mechanism for both internal and external audit of its financial expenditure.

To ensure accountability of financial transactions, the University's budget is submitted to scrutiny by internal audit. The finance section of the University does the internal audit of all the expenditures made by the various sections of the University and academic Departments.

The receipt and charges are audited by a Chartered accountant and the tax returns are filed in the Department of Income tax. A copy

of it, as approved by the Finance Committee and Board of Management is sent to the UGC every year.

### **7.3 Best Practices**

#### **7.3.1 Give details of any two best practices, which have contributed to better academic & Administrative functioning of the University**

##### **Best Practice (I)**

###### **1. Title of the practice**

Promotion of High Quality Research by concerted efforts

###### **2. Objectives of the practice**

The following are the main objectives of the practice,

- To create required infrastructure and mentors for research.
- To promote research culture among faculty and students.
- To motivate students and faculty to take up innovative research for benefit of industry and society.

###### **3. The context**

- Necessary infrastructure are required.
- Mentors are identified.
- Research culture through creative thinking.
- Motivation of students and faculty through mentoring and exposing them to new areas and challenges.
- Encouraging interdisciplinary research.
- Industry interaction.

#### **4. The practice**

- New facilities created for advanced research like Sophisticated Analytical Instrumentation facility.
- Faculty identified as mentors and encouraged to apply for funding.
- Provided advance funding for sanctioned projects
- Conducted workshops, research training programmes and research scholars seminars.
- MoUs signed with national research laboratories and industries.
- Created centres in new/thrust areas.

#### **5. Evidence of success**

- SAIF is being utilized by many research scholars of our universities and other academic institutions. This has helped in high quality publications and useful research outputs.
- Centre for disaster management has motivated students and faculty to work in this important area. Search and rescue robot has been designed by ECE students and tested in the laboratory. A project proposal has been sent to BRNS for prototype development.
- Innovative courses introduced and value added programmes conducted.
- The number and quality of publications improved over the years.

#### **6. Problems encountered and Resources required**

- Registration with DSIR not extended.
- Many project proposals sent to funding agencies are pending.
- Research grant for Ph.D. scholars. Many proposals pending.

## **Best Practice (II)**

### **1. Title of the Practice**

“Teaching Learning Process”

### **2. Objective of the Practice**

To make the teaching learning process effective.

To monitor the academic performance of the students by continuous evaluation, by conducting slip tests, unit tests, model exams and assignments.

To maintain a teaching/lesson plan, which gives a clear schedule for the hour wise coverage of subject syllabus, assignments etc.

To motivate students to achieve 95% attendance and conduct seminars, specific assignment writing, group discussion and quiz competition.

### **3. The Context**

- To make the teaching learning process meaningful and efficient.
- To make the students understand the basics of the subjects and to make them strong in fundamentals.
- To motivate the students to give their best performance.
- To make them employable or take up higher education/research.

### **4. The Practice**

Maintain a log book for each subject separately containing details of attendance, unit test and model examination marks and coverage of syllabus for each hour.

Maintain the course file, which includes the syllabus, lesson plan, course material and question bank.

Unit test cell has been created which conducts weekly tests during the first two hours on every Monday and Saturday. The cell also conducts model examinations at the end of the semester on the same pattern as university examinations.

The performance of the students in the above tests are discussed with the students and periodically sent to the parents as progress reports.

Faculty counselors for every 15 to 20 students are nominated to counsel the students on all matters including academics.

Class committee meetings are conducted regularly to get the feedback of the faculty and the students on academic matters for all subjects.

Parents are informed daily about the absence of their wards by sms.

Parents are counseled to improve the academic performance of their wards.

Special efforts are taken for slow learners. Orientation classes for freshers are conducted at the beginning of the semester.

The methodology of internal assessment is clearly informed to the students at the beginning of the semester.

## **5. Evidence of Success**

Academic performance has clearly improved by the above process.

The counselling has helped in the overall improvement of the behavior of the students.

Strong basics in subjects has helped the students in taking up useful projects to the industry and the society.

Parents are very happy that regular monitoring of their wards is being done.

Many students take the unit tests and model exams seriously which helps them in their performance during University examinations.

## **6. Problems Encountered and Resources Required**

Many students are from rural areas and have studied in Tamil medium. Many students are first time graduates in their families. Hence, special efforts are required to bring them on par with others.