Best Practice-1

1. Title of the Practice

IEEE and ACM chapters

http://ieeejuit.co.in/

https://juit.acm.org/

2. Objectives of the Practice

IEEE Chapter: Conducts series of technical and non-technical events throughout the year consisting of all possible domains along with the techloop sessions which are organized on a weekly basis. Conduct these events for others to grow and for us to gain the opportunity to grow along as well.

ACM Chapter: ACM student chapter Waknaghat comprises of several teams which help the student grow and learn of their interests and where they can excel. The Association for Computing Machinery (ACM) is the world's largest educational and scientific computing society, uniting educators, researchers and professionals to inspire dialogue, share resources, and address the field's challenges.

3. The Context

IEEE Chapter: IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity. IEEE and its members inspire a global community through its highly cited publications, conferences, technology standards, and professional and educational activities. EEE nurtures, develops, and advances the building of global technologies. As a leading developer of industry standards in a broad range of technologies, IEEE SA drives the functionality, capabilities, safety, and interoperability of products and services, transforming how people live, work, and communicate.

ACM Chapter: Advancing Computing as a Science & Profession" With this as their motto, The Association for Computing Machinery (ACM) is an international learned society for computing which was founded in 1947 with its headquarters in New York, United States, and is the world's largest scientific and educational computing society.

4. **The Practice**

IEEE Chapter: The JUIT IEEE Student Branch emerges as an innovative and excellent channel of the IEEE organization to help pursue its goals which are defined as scientific and educational, directed towards the advancement of theory and practice of electrical, electronic communication, computer science and engineering, the allied branches of engineering and the related arts and sciences. JUIT IEEE-SB serves its student members by helping them achieve technological advancement by rendering them access to the industry's most essential technical information and research, networking opportunities, career development tools and many other exclusive benefits.

IEEE Region 10: The IEEE Region 10, also sometimes referred as the Asia Pacific Region, comprises of 57 Sections, 6 Councils, 17 Sub-sections, 515 Chapters, 60 Affinity Groups and 958 Student Branches. It covers a geographical area stretching from South Korea and Japan in the north-east to New Zealand in the south, and Pakistan in the west. With over 100,000 members it is one of the largest regions in IEEE. Visit website.

IEEE Delhi Section: Delhi Section is one of the 12 Sections in India coming under Asia-Pacific Region, the Region 10 of IEEE. At present it covers entire northern part of the country consisting of the four states of Rajasthan, Haryana, Punjab, Himachal Pradesh, and the National Capital Territory of Delhi, Union Territories of Chandigarh, Jammu & Kashmir, Ladakh. IEEE Delhi Section, which started on May 13, 1976 (after remaining as Sub-section since 1974), has as per latest (September 03, 2020) statistics 3571 active Members (including 19 Society Affiliates), consisting of 0 Honorary Member, 7 Life Fellow, 7 Fellow, 33 Life Senior, 392 Senior Member, 7 Life Member, 1302 Member, 28 Associate Member, 528 Graduate Student Member, 1247 Student Member, 1 SA.

ACM Chapter:

Our working process aims to foster an environment to grow and polish the technical skills of its members. We are a community that inspires and motivates its members to learn new technologies, think creatively and work on innovative projects. Here we are just bragging some about some of our awesome projects. To build a tech-oriented environment throughout the

campaign, facilitate tech enthusiasts, to recognize new possibilities and future advancements. ACM-JUIT supports, celebrates, and advocates the era of computer-machinery.

From Coding through days to tech development in the night, we organize event to let the programmers, developer and designers from different domains showcase their expertise and create an extraordinary experience through the learning process. We facilitate various competitive and educational events to instill confidence and pride within the community of computing individuals.

Web and Design

Web design is the process of creating websites. Graphic design means creating illustrations

Programming

Computer programming is the process of designing and building an executable computer program to accomplish a specific computing result.

IOT

IOT or The Internet of Things refers to the ever-growing network of physical objects that feature an IP address for internet connectivity

Data Science

Data science is the study of data. It involves developing methods of recording, storing, and analyzing data to effectively extract useful information

5. Evidence of Success

As a result of commencement of these IEEE and ACM chapters' students and university has been able to produce technical manpower conforming to global standards, which is reflected by university's placement record showing increase in placement offers with better packages. The students are able to acquire skills of life-long learning and cooperative work culture. Besides, the curriculum of the university has witnessed global acceptance as evident by many of our students getting admitted in various foreign universities of repute for higher studies. Explore create and develop new ideas and to add to our stack of innovations after execution of those ideas. It is to work for the research, connect with peers and be your most creative self to flourish as a bright mind within the computing professional's world.

IEEE Chapter: http://ieeejuit.co.in/#events-section

ACM chapter: https://juit.acm.org/

6. Problems Encountered and Resources Required

As such the university did not encounter any major problem in adopting and implementing this best practice. The resources turned out to be well within the availability of the university.

Best Practice-2

1. Title of the Practice

Biogas digesters that run on waste food, agricultural residues and animal waste to produce biogas for cooking purpose.

2. Objectives of the Practice

The objective of the Practice is to ensure the management of the waste food and agricultural residues in the form of best out of waste methodology.

3. The Context

Poor management of food waste causes the loss of natural resources, human health issues, pollution of rivers and seas, the generation of methane emissions from dumps and landfills, and a missed opportunity to recover valuable energy, organic matter, nutrients and water contained in food waste. Not only that, but one of the biggest issues with filling up our landfills is that it creates huge amounts of methane, a greenhouse gas. Methane traps heat in the atmosphere at a rate higher than carbon dioxide does (86x more), resulting in more rapidly escalating climate change.

It's clear that something needs to be done. We need to –

1. Reduce the wastes we personally contribute to landfills.
2. Find other methods for what we'd usually rely on non-renewable sources of energy.

With creating biogas from food waste, both of these issues are solved in one go.

4. **The Practice**

Production of Biogas from food waste, agricultural residues and animal waste. Biogas is a type of natural gas. It's created by breaking down the bacteria in organic waste (such as plant and animal products) in 'anaerobic digestion' – a digestive process in a purposely-built container, and an oxygen-free environment. When creating biogas from food waste, the biogas is created by anaerobic digestion, recycling the organic material fed into the vessel which releases biogas.

But that's not all: the biogas from the food waste process separates the energy created – the biogas itself – and any other solid run-off ('digestate'), which can also be used for sustainable living. The actual creation of biogas from food waste takes place in purpose built 'reactors' (vessels). Once the food waste and organic waste scraps are added to the reactor, the bacteria inside the reactor works in stages to break down the waste, creating a chain of chemical reactions that end in biogas formation (as well as digestate runoff in liquid and solid form).

Conversion of food, agricultural and animal waste into energy using an innovative waste treatment system in terms of Methane is an economically viable and sustainable solution for organic waste management in India. It also complies with SWM 2016 rules.

5. Evidence of Success

16 biodigesters have been setup in JUIT and in other schools and institutes also by a dedicated team of JUIT. Whereever the biodigestors have been placed good amount of methane is getting produced

Once the biogas is captured, it can be used for a whole range of sustainable living activities, including:

- Cooking
- Powering engines, turbines and other sustainable living tools
- Upgrading it to biomethane for use in a natural gas

Using biogas from organic waste will affect–

- Personal environmental impact, from cutting down your reliance on non-renewable sources of energy. Not only will you be generating a renewable energy source, but you'll be less responsible for contributing to landfills.

- Your energy bills. Using biogas to cook, or even power your home, means a reduced energy bill. In fact, just one cook (powered by up to 6 liters of organic food waste) will give you enough natural energy for up to 2 hours.
- Saving the environment by using any methane (the harmful greenhouse gas that is released from landfills) for conversion to biogas, your carbon footprint and personal responsibility for atmospheric emissions decreases drastically.
- Agricultural intentions. The digestate produced by biogas from food waste can be used as fertilizer, to continue growing your own organic crops. You could even sell the natural fertilizer produced at a local farmers market, thereby creating a whole new revenue stream you might not have previously considered.
- Complete energy independence. And what better situation could you be in than that?

This best practice is making us capable to reduce your carbon footprint and reliance on fossil fuels while saving money on non-renewable energy

6. Problems Encountered and Resources Required

As such the university did not encounter any major problem in adopting and implementing this best practice. The resources turned out to be well within the availability of the university. The resources are agricultural waste, food waste and animal waste can be collected easily as University is in the vicinity of the village around. The food waste from the university itself is not being sent to landfills instead being converted in biogas and is being utilized in household energy requirements such as cooking gas or to be used in lightening purposes.

7. Notes

This best practice is very effective and important although it is capable to convert the organic waste in the form of biogas (methane) and the digested part can be used as manure in the fields. However, this must be the responsibility of all the citizens to not to waste the raw or cooked food in any sense. Because the waste of food in future can create the problems such as food shortage worldwide, exploitation of natural resources, and if there is heavy landfills and if they produce higher amounts of methane (unused) can impact the environment by increasing the green house gas impact and speed up the climate change, speedier than CO_2 itself.

Best Practice-3

1. Title of the Practice

Development of Infrastructure, and Learning Resources and promotion of interdisciplinary projects and research

2. Objectives of the Practice

To create learning ambience with respect to physical infrastructure and learning resources LRC & ICT along with promotion interdisciplinary research aligned with current world perspective.

3. The Context

The context for the best practice has been the aim of the university to provide modern construction and infrastructure of international standards, excellent academic facilities and congenial learning environment. Also, to create stock of learning resources to facilitate academic and research pursuits of the university supported by latest IT resources and technology.

In current scenario there is need of interdisciplinary learning as every field now a days needs a skill set that can be fit into multiple fields at the same time and understanding of these files increase the productivity and quality.

4. **The Practice**

The university has provided the best possible facilities in terms of infrastructure required for teaching-leaning process and also for administrative purposes. The lecture theatres, classrooms, laboratories and tutorial rooms, office spaces are built keeping in mind the limitations posed by hilly terrain and space restrictions, yet making it highly conducive for overall academic environment of global standards. Besides offering the best hostel facilities to students, residential facilities to faculty and staff, university also boasts of its sports The university has a spacious and well stocked LRC with e-journals, databases and fully automated functioning. The LRC users are provided open access to the resources available. At any time about 300 users can sit and work in the library. The circulation of Books is fully automated. The security system i.e. the 3M anti-theft electromagnetic security has been installed at the main gate of LRC to check any pilferage.

The ICT support services include well equipped technology/science labs and workshops, computer labs with latest hardware/software, science/Technology/ Computer labs equipped with latest equipment/machines/ hardware, etc. and a collection of licensed software. The whole university campus is network and wi-fi enabled. The lecture theatres, classrooms, laboratories and tutorial rooms, office spaces are fitted with latest ICT facilities for supplementing teaching-

learning process. In addition to this the university uses an integrated software 'campus connect' for all functions such as financial accounting/controlling, materials management, human capital management, campus management, student life cycle management including admissions, registration, evaluation activities, etc. The university also has a dedicated power backup to avoid disruption of teaching/learning.

Inter-departmental projects are given to the students where faculty and students work collaboratively work on the industry specific projects or outcome based projects such as developing apps for diseases, sensors for identifying environmental factors, green technology in civil engineering and biofuels.

5. Evidence of Success

The excellent infrastructure has been able to attract students from almost all corners of the country. The LRC has witnessed about 21000 walk ins per month, which is quite inspiring. The average number of login to e-resources exclusively through LRC is about 1000 per month. Easy dissemination of knowledge/information through ICT starting from lecture room experience to exams has greatly helped students and concerned parents.

Students even accomplish project having IT and Biology as specialization like developing apps for diseases, sensors for identifying environmental factors, green technology in civil engineering and biofuels. Students generate publications out of their 4th year research projects like working on endangered medicinal plants for their propagation and molecular exploration and study of lead molecules for treating chronic ailments etc showed freedom of research exploration along with advanced infrastructure provide by JUIT for the students overall growth and development.

6. Problems Encountered and Resources Required

The greatest problem encountered has been in infrastructure development due to hilly terrain, rural surroundings and limitation of space available. In spite of limited space the university has managed efficiently all its academic infrastructure.

Best Practice-4 and 5

1. Title of the Practice

Curricular Aspects and regular updates in Curriculum

2. Objectives of the Practice

The objective of the Practice is to ensure the quality sustenance and quality enhancement. To accomplish this, various measures are undertaken by the University as and when required, keeping in view the curriculum perspective. Curriculum update best practice is to decide the outcomes of a programme such as it helps in deciding whether to accept or reject a particular programme. To determine the need for the revision of the course or course content; and to help in future development of the curriculum for continuous improvement and employability of the students.

3. The Context

The best practice was initiated in the context of providing to students an environment of Sustained Disciplined Work, Self Learning, Flexibility in Pace of Learning, to give design orientation while remaining quality conscious and inculcate the skills of cooperative working. Curriculum evaluation serves two important and main functions: On first hand it provides a means of obtaining information that can be used to improve a course, and on the other hand, it provides a basis for decisions about curriculum adoption and its effective use.

4. The Practice

Sustained Disciplined Work

A typical semester is designed in an intensive manner with an emphasis on regular and continuous work. The Evaluation System is designed to encourage this concept.

Self Learning

In its attempt to move away from teacher-centered learning to student-specific learning, the Curriculum actively encourages self learning. For this purpose 15% of the time allotted to theory and tutorial classes is ear marked for independent study.

Flexibility in Pace of Learning

The evaluation system makes special provision for different paces of learning for different students. Thus, while specifying a time limit within which tutorial/practical work must be completed, there is scope to submit such work beyond the deadline.

Design Orientation

The curriculum is structured so that basic implementation skills and design skills are interwoven together. Thus, for example, a student of Programming Systems learns not only how to program but also how to design programmes.

Quality Consciousness

Students should be aware of the importance of continuous improvement, building zero-defect products and doing quality work. All courses will emphasize on quality as an integral part of teaching.

Co-operative Working

Given the complexity of technological problems of today large teams must work together to provide solutions. Thus, it is very important to learn group dynamics and to work in teams.

Regular curriculum update

JUIT followed best practices regular updates in Curriculum of UG and PG classes first discussed at departmental level then final approval by BoS and by academic council.

Curriculum renewal is being performed on regular basis with a regular review and feedback process from students, faculty and employment sector and that will focus on addressing specific identified issues respectively. Curriculum renewal is there if the present curriculum does not prove to be effective based on the current demands and requirements of the students and industries.

5. Evidence of Success

As a result of adoption of this best practice, university has been able to produce technical manpower conforming to global standards, which is reflected by university's placement record showing increase in placement offers with better packages. The students are able to acquire skills of life-long learning and cooperative work culture. Besides, the curriculum of the university has witnessed global acceptance as evident by many of our students getting admitted in various

foreign universities of repute for higher studies. Due to regular updating in curriculum students can keep them up to date with respect to current scenario.

6. Problems Encountered and Resources Required

As such the university did not encounter any major problem in adopting and implementing this best practice. The resources turned out to be well within the availability of the university.