SCMS SCHOOL OF ENGINEERING & TECHNOLOGY, KARUKUTTY

2020-21

BEST PRACTICE 1

THE PARADIGM SHIFT IN TEACHING-LEARNING TO COPE WITH THE NEW NORMAL

1. Title of the Practice: The paradigm shift in teaching-learning to cope with the new normal

2. Goal

This report is intended to discuss the procedure followed by the SCMS School of Engineering and Technology (SSET) to cope with the challenges posed by the dangerous pandemic outbreak, COVID-19. After the closure of physical classrooms, the institution shifted to online platforms, the course delivery, assessment, extra and co-curricular activities have been conducted. With periodic responses from the stakeholders, especially students, the system is in a positive feedback loop for the betterment of the students.

3. The Context

The outbreak of the pandemic demanded social distancing, and the Government has also been forced to close educational institutions temporarily. The U.G. and P.G. courses were in the middle of 2019-20 even semester. The classes were at the height of their activity when the temporary closure was announced. After the initial chaos of few days, SSET decided to resume the teaching/learning process remotely. The announcement was made through the official website and communicated with the students and parents through the class coordinators. SSET, as a dynamic community, embraced the new normal quickly.

4. The Practice

a. Academic Activities: As the initial step towards remote learning, it is decided to create digital learning resources, both textual and visual, for the course contents to continue the previous classes. These course contents were

communicated to the students through Google Classroom. The academic council took care of the whole procedure, ensuring all courses are assigned with Google Classroom and the entire students of the respective classes can access the learning resources. After posting the contents, teachers carried out discussion sessions with the students through different online conferencing platforms, including Google Hangouts Meet, Google Meet, Microsoft Team, WebEx, Zoom, etc. This flipped mode of teaching/learning is adopted for a while, and later teachers started presenting the course content through the conferencing platforms and then posted the resources in the Google Classrooms. Student satisfaction on the remote teaching/learning process is evaluated, and corrections are made wherever necessary. Project guidance and evaluations, remedial classes, and mentoring sessions were also conducted through the online conferencing platforms. University entrusted the institutions to complete the final year examinations. At SSET, Heads of Departments monitored the exam procedure, and teachers posted question papers through Google Classroom, monitored students through live meets, and later collected answer scripts through Google Classroom.

b. As it's found that Google Meet is a more secure, adaptable, and popular platform among students for conducting classes, it is used to run 2020-2021 odd semester courses. With a proper timetable, SSET took the entire classes to run online and completed the studies and internal examination in the time frame advised by the university. Google Classrooms and Google Meets were made accessible by the heads of departments, and continuous monitoring is done to ensure the quality of course delivery. Periodic Class Committee Meetings helped to align the teaching/learning process with student needs. Now, the ongoing 2020-2021 even semesters are also running in a blended learning model.
c. The practical sessions are conducted live for all laboratories where there is a possibility of online/offline simulator tools. Otherwise, the staff filmed the experiments done in the SSET laboratory, and the video is sent to the students. Virtual labs are also made use to teach skills to the students.
d. Co-curricular Activities: SSET became a part of the Coursera for Campus Campaign. With a catalog of 4808 courses, students and faculty members sharpen their skills through a total of 3291 enrollments as of April 2021. In addition to Coursera, SSET encouraged students to do NPTEL courses as well. A good number of webinars, workshops, and talks have been conducted by all departments, where students get a medium to interact with the supporters from Academia and Industry. Students were also encouraged to be part of online-hackathons and other peer-driven activities to interact with the outside world.
e. The Student Chapters of Professional Bodies are also encouraged to conduct activities exploring the seamless opportunities opened through Internet and Communication Technologies.
f. Extra-Curricular Activities: The Onam celebrations of 2020 are conducted entirely in online mode through the Instagram platform. Students explored the

online forum features to run all the events without any degradation in enjoyment as it is live on the campus. Several talks were done by the National Service Scheme of SSET to create public awareness on COVID-19 protocols, precautions, and treatments. Posters are also published for the same deed.

5. Evidence of Success

The live meet sessions for course delivery are always running with an attendance of >75%. The project works, and lab sessions are completed and submitted for evaluation on time. The examinations are conducted in total attendance, and the pass percentage is good. The placement percentage of 2020 and 2021 pass-out students is better. The feedback from students shows that they are satisfied with how the teaching/learning process is happening in the institution.

6. Problems Encountered and resources required

a) Extensive Course Content: The students found that the lengthy course content was complex for them to perform first-time learning. Also, the extensive learning resources are sometimes challenging to download with an unstable network. The contents were divided into small knowledge units of 5 to 8 minutes of studies using cropping and compressing tools.

b) Lack of Engagement: A significant problem encountering by students is distractions during live teaching sessions and lack of engagement. Break-out rooms, small quizzes, peer instructions, etc., helped to alleviate the issue to an extent. The mentoring sessions address this issue and motivate students to attend classes without much distraction.

c) Technical Issues: The humid tropical climate of Kerala is notorious for its rains. Power outage is typical here, and it heavily affects students to be part of live sessions. Issues with data bandwidth and internet blackouts also affect studies. To ease these issues, live sessions are backed up with learning resources, and recordings are posted in the Google Classroom.

BEST PRACTICE 2

HUMAN-CENTRIC INNOVATIONS

1. Title of the Practice: Human-Centric Innovations

2. Goal

To develop cost-effective & innovative inventions through a faculty-student partnership model using the existing facilities at SCMS School of Engineering &

Technology, that could better equip the COVID-19 frontline workers to fight the pandemic. Regardless of the hurdles and restrictions faced by the global academic researchers, we focussed to invest time and technology to promote awareness and research on COVID-19 at institution level.

3. The Context

With India registering its first Covid-19 case in January 2020, it was clear that the pandemic had come knocking on India's doors when least expected. With the lack of pharmaceutical interventions to control the spread of the virus, vivid containment, isolation, tracking and other measures were brought into place to avert a community spread.

a) By March 2020, researchers had identified that the tiny virus-laden 'aerosols', which can linger in the air for long periods, played a major part in the transmission of the virus. In the absence of vaccines or treatments, the only way to contain the spread was mass testing, non-pharmaceutical interventions, such as lockdowns, and the use of personal protective equipment to maintain personal hygiene and impose physical distancing among individuals.

b) With public and personal hygiene being declared as a decisive factor to curb the spread of the virus, the country saw an all-time high demand for personal protective equipment such as surgical mask, N95 masks, face shields, etc.

c) A decision was quickly taken by the faculty members & management of SSET to develop cost-effective & innovative inventions through a faculty-student partnership model using the existing facilities at SCMS School of Engineering & Technology (SSET), that could better equip the COVID-19 frontline workers to fight the pandemic.

4. The Practice

SSET has witnessed the special flair of its faculty members towards active research. A proposed faculty-student partnership work model was approved by the management. An action plan complying with the lockdown & social distancing guidelines was formulated. The days that followed saw extensive virtual brainstorming sessions and the following ideas were shortlisted and implemented at the FABLAB-SSET. 40 nos of Automatic Sanitizer dispenser were made available at different Health Care centers as a token of gratitude to the frontline workers.

1. Splash Protection Face Mask
2. Reusable N95 Compatible Face Masks
3. IR Based Automatic Door Openers
4. Ventilator Splitter
5. IR Based Hand Sanitizer Dispenser
6. SCMS Disinfecting Box
7. SCMS Biodegradable Disposal Unit for used Masks and Gloves
8. Automatic Respiratory Assistance For Ventilator

5. Evidence of success

The indigenous faculty student partnership has been the key ingredient in coming up with challenging solutions. The various supporting products related to COVID -19 has been made into a reality at the FABLAB-SSET.

SCMS Biodegradable Disposal Unit for used Masks and Gloves

IR Based Hand Sanitizer Dispenser

Automatic Respiratory Assistance For Ventilator

Disinfecting Box

3D printed masks, face shields, Y-splitter