

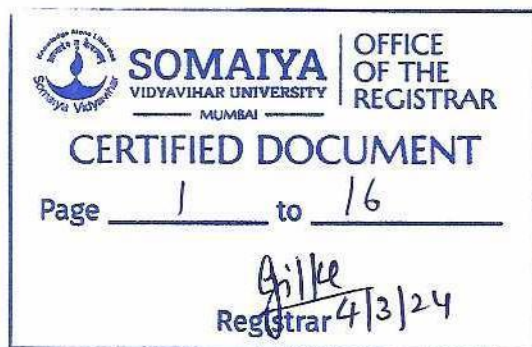
CRITERION VII

Institutional Values and Best Practices

7.2 Best Practices

Best Practice 2: Activities done under
“Constructivist Pedagogy”

Activities done in academic year 2020-21



Metric No: 7.2

Describe two Best practices successfully implemented by the Institution as per the NAAC format provided in the Manual.

Activities done under “Constructivist Pedagogy”

Activities done in academic year 2020-21

Activities done in academic year 2020-21

K J Somaiya College of Engineering

1. Title of the Practice: “Experiential learning”

2. Objectives of the Practice

- Engineering Exploration, semester II, undergraduate course, KJSCE: To create a comprehensive learning experience by fostering core engineering expertise across multiple disciplines. This exposure encourages critical thinking, which helps you make educated specialized decisions.
- Project management, semester VII, undergraduate course, KJSCE: To develop comprehensive project management abilities, with an emphasis on planning, execution, and teamwork. This integrated approach prepares students to effectively lead and participate in engineering projects, assuring success in their professional lives.

3. The Context

- Every Topic is taught in activity based learning and feedback was obtained from the students on the same. Based on the project activity, students were divided into groups.
- Project management activities are explained by experiential learning with role play.

4. The Practice

- Students performed the activity related to experiential learning using feedback obtained on the topic taught and role play for the topics.

5. Evidence of Success

- The success of the experiential learning is students enjoyed the process and developed good projects.
- Better understanding of the theoretical concepts.

6. Problems Encountered and Resources Required

- Conduction of activities in online mode was the biggest challenge.

Best Practice-2: Project Based Learning

1. Title of the Practice: Project Based Learning

2. Objectives of the Practice

With a view to encouraging the students to track their innovative skills to meet the standards set by the ever-changing needs of the Society, KJSCE- SVU set about the task of setting up Project based learning techniques wherein technology can be used to meet the needs of delivering to mankind ways and means to beat climate change, pollution free sustainable energy and preserving the rare resources on Earth for the betterment of life.

Considering this, KJSCE- SVU set the objective of Project based learning techniques as one of the best Practices being followed to develop problem solving approach and critical thinking among students. This would prepare students to face real life problems.

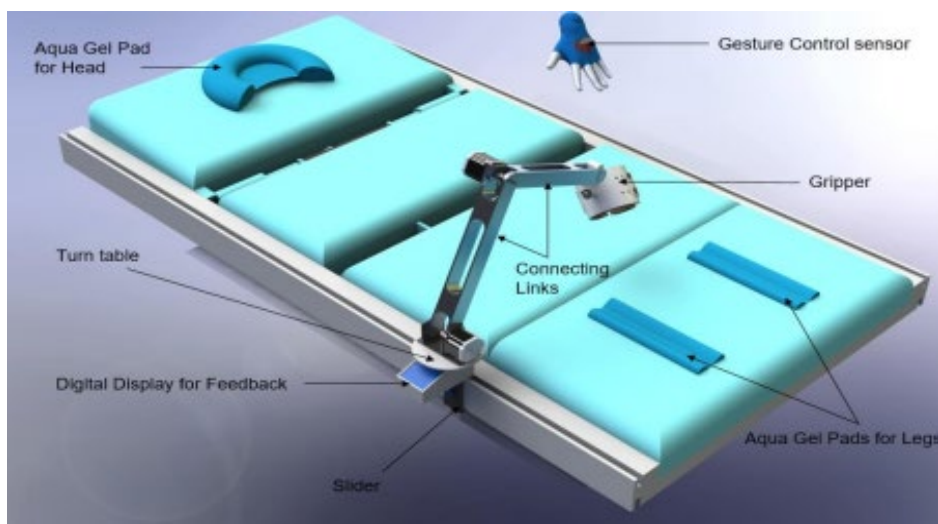
3. The Context

- Project based learning is recommended to address the needs of millennial learners. It is a student-centered methodology that promotes development of the 4Cs- Critical thinking, Communication, Collaboration and Creativity. Engineering students need to develop these skills right from the first year.
- This requires training of budding Engineers for real world engineering problem solving and to inculcate engineering knowledge, team building, and communication skills and provide a deeper understanding of academic concepts.
- In the implementation of Project Based Learning, the role of the instructor changes to that of a consultant position.
- The idea is to conceive and mentor development of new projects thus providing an opportunity for students to work as an organized team within the constraints of delivery timelines. The student has the advantage of working as an Engineer in different verticals and thus gets an exposure to the complete life cycle of project development.

4. The Practice

- A variety of projects/ internships under Project-based Learning are incorporated in the curriculum. Interested students are paired up with faculty members who explain the problem statement, set timelines, and periodically monitor the progress of students.

- **Mega Projects** instituted to enable students to learn from doing and demonstrating their talents, thereby achieving life-long learning experiences. Facilities for the Mega projects such as Orion Racing India, Red Shift Racing India, Onyx, ETA, and Robocon which are having collaboration with various Industrial Houses located in India and abroad are active and work round the clock in the Institute Campus.
- The College has also a tie up with IIT Bombay for **e-Yantra lab and e-Farm project** to train students to develop innovative ideas that have potential of further getting converted into a product/service.
- **Bloom box entrepreneurship cell** is an initiative to encourage students to provide an environment to develop unique solutions to societal problems through start-ups. For this activity, the Cell conducts expert talks, start-up visits and organizes start up exhibitions and workshops and students are given an opportunity to intern with Start-Ups.
- **Biomedical Engineering and Technology Incubation Cell (BETiC) Lab** is an engineering partnership arrangement with IIT Bombay wherein projects are undertaken in the field of Medicine and originate from the need statements of Medical Practitioners.



CAD Model of the Solution developed

- **Software development Centre, Code Cell and Somaiya Machine learning Association** are a few platforms provided to students to develop projects. Also, **Hackathon** are held in most of the departments giving students an opportunity to participate in competitions.

- As a part of the **Internship on local area planning for the Mumbai Metro project** in which faculty and students were involved, data was to be collected, collated, and mapped into the QGIS software for further analysis.
- **Project activity-based courses** such as Engineering Exploration, Environmental studies and Industrial applications help the students to focus on projects related to the relevant needs and gives exposure to different thrust areas.

A transformation in teaching and learning approaches was essential to prepare students to solve complex problems in a global world. The College is finding it challenging to fit projects into a curriculum along with ever changing technological advances in a timely manner.

5. Evidence of Success

- The Orion Racing team qualified for the Formula Student Hungary 2021 and was invited for Formula Student Spain 2021.
- The Robocon team won the best idea award in 2020 and stood within the top 10 positions in the Country in the last couple of years.
- Team Red Shift Racing India secured AICTE recognition and got associated with Companies like Godrej and HP and achieved a 6th ranking amongst 200 teams participating in BAJASAE India 2021.
- Team ETA has developed fuel efficient cars to meet the criteria for energy efficient transport in India.
- Team Onyx participated in a national-level competition VIT Aerodominator held from 2nd - 4th October 2020 and secured 3rd position.



VIT Aerodominator Results are out!

A team with some of our newer members participated in the competition and brought us some glory!

We secured the highest predicted flight score and the third rank overall!

Rank	Team Number	Team Name	College Name	Design Report	Technical Presentation	Predicted Flight Score	Total Score
1	AD-005	Team Vimanas Inc.	VIT University, Vellore	40.625	37.5	8.58	87.705
2	AD-011	Aero MIT	Mumbai Institute of Technology	34.75	33.75	8.24	76.74
3	AD-012	Team Onyx India	K.J. Somaiya College	34.25	32.25	10	76.5

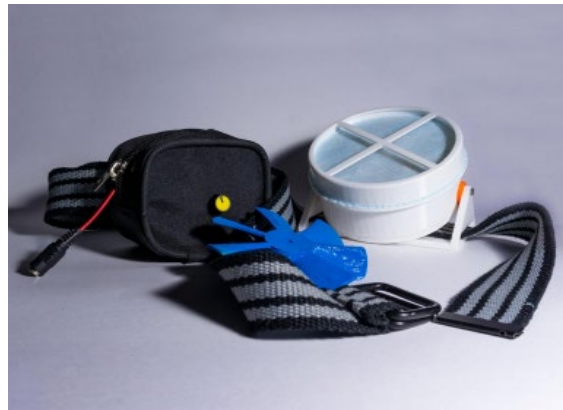
A hearty congratulations to Team Vimanas and Aero MIT for coming through with amazing designs!

- Under the eYIC, the team developed a physiotherapy portable device and secured 6th position in the National finals of e YANTRA Ideas Competition held online on 12th July 2020.
- Under BETiC, e-MEDHA 2021 held from 8th - 16th May 2021, the team developed a CAD Model of “Robotic Arm with gesture Control”.



- In Smart India Hackathon 2020 held from 1st - 3rd Aug 2020, the team secured 1st prize under the category of problem statement defined by Bureau of Police Research and Development, GoI.
- For the Mumbai Metro project study to decongest the Garodia Nagar Metro Station, key suggestions were proposed to increase the efficient flow of traffic around the metro station.

- Based on performance during the External internship, 12 Students received Preplacement Offers in 2020-21.
- It is a matter of pride to state that Mr. Nihaal Singh Adarsh, a student of second year Electronics Engineering developed “Cov-Tech Ventilation System” for PPE suits that provides adequate ventilation from inside for enabling the covid warriors to work for long hours without perspiration. He has a patent filed for this product.



6. Problems Encountered and Resources Required

- The major issue faced was with defining the scope of the problem statements such that students can manage it along with their academics. To enable students to complete the projects, the necessary hardware and licensed software were required to be provided by the college.
- Identifying External Internships, approaching industries and building contacts with them to offer internships to our students was a major challenge. Most of the students preferred external internships as Industry experience helped them understand the industry culture and requirements well.
- The Industry Academy Interface of the College was required to act as a bridge to share expertise, experience and infrastructure between Industry and the College.
- The College had to get some items fabricated from other manufacturing firms having expertise. The students had to approach these Organizations to get the items manufactured for which sponsorship was required.
- In spite of the pandemic situation prevailing in the Country and the World over, the teams were able to perform online, though the MEGA Project teams faced certain hurdles for physical road testing of vehicles.

7. Notes (Optional)

- UG and PG students have been engaged in experiential learning to compliment with the classroom level learning so that they can be confident while presenting the papers on their dissertation and project work in various conferences.
- Faculty members have been encouraging in-house internship wherein students from different departments take active participation thus encouraging Interdisciplinary Research.
- Projects like Automated Bioreactor, Smart E-Mask, Paper Strip Analyzer, and AI-based Emergency Vehicle Management System and many more have been developed by students. The following manuscripts, based on completed projects under Project-based Learning, have been written by the students.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3857217

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3857116

<https://ssrn.com/abstract=3859424>

<https://ssrn.com/abstract=3857859>

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3856197

<https://ssrn.com/abstract=3857795>

<https://ssrn.com/abstract=3857802>

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3649825

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3604309

<https://www.youtube.com/watch?v=2Maw0L7SZbU>

<https://svu->

naac.somaiya.edu/C7/7.2.1/Supporting+Documents/BP2+Project-based+Learning+2020-21.pdf

<https://svu->

naac.somaiya.edu/C7/7.2.1/Supporting+Documents/BP+2+Acticity+AY+2020-2021.pdf

- Experiential learning opportunities have been provided to students by means of MOUs entered with Companies like CISCO Systems India (Pvt.) Ltd. and FESTO India (Pvt.) Ltd to make the students familiar with the industrial grade products.
- Students have been using the facilities of Riidl, an incubation and maker lab, on the campus to conduct research, to develop new products on the best equipment available and take their idea to the market.

K J Somaiya Institute of Management

ANKUR ELI (Experiential Learning Initiative)



1. **Objective:** Ankur Experiential Learning Initiative is to provide students an opportunity to *'Learn by Doing'*. ELI 'Ankur' is aligned with the Institute's vision and mission and its emphasis is on social and ethical responsibility.
2. **Context:** 'Ankur' is to improve English language and communication skills of the Gujarati medium school children. The course is structured so as to build their proficiency in English through building their listening and speaking skills.

This initiative is primarily for the students from 5th to 8th standard students who are 78 in number. S.K Somaiya Vidya Mandir does not charge any fees to students and it is the right initiative taken considering the need of the hour for our nation's overall development. We take immense pride in being a part of this beautiful initiative and look forward to it.

3. **Practices: The School Mentoring Project** is an eight-month mentorship program wherein students' mentor and teach underprivileged students of the neighbouring

school, S.K. Vinay Mandir on the Somaiya campus. Students are mapped on a one-to-one ratio based on gender, interests, languages spoken, life skills etc. to a bi-medium class 6th, 7th and 8th grade students from the school. Students facilitate the learning of basic English language communication and soft skills for S.K. Vinay Mandir School children. Students meet their school mentees at Vinay Mandir for ELI every Friday from 2.30 p.m. to 5.00 p.m.

The Ankur-Eli was conducted online on Zoom/ WhatsApp platform for VM School.

KJSIM sponsored mobile phones to select underprivileged kid, the list provided by the VM school. The initiative was extended to one more school – The Nareshwadi Learning Centre.

Maths was also taken along with English language by the mentors. They conducted sessions on Saturday from 2 to 4.

Many school students who have moved back to their native villages could also join on line and take benefit of these sessions.

Expert Guest Session conducted for mentors by

Ms. Zeenat Bandoowala – NGO ‘Backward Planning for increasing rigour in instruction’ – 20/10/2020

Mr. Manish Shetty from Teach for India- ‘Teaching as Leadership’ 20/11/2020

Ms. Abha Basargekar – ‘Scaffolding second language learning’ - 12/09/2020

A four-member faculty committee comprising of Dr. Radha Iyer, Dr. Prema Basargekar, Dr. Poonam Chauhan and Prof. Gita Sashidharan mentor, ideate, develop and execute Ankur-ELI with SIMSR students.

Uniqueness of the initiative

- Ownership is vested in students due to pedagogy and assessments.
- Faculty involvement is purely voluntary.
- Students choose ELI based on their compassion, empathy & commitment to create a difference in society.
- A healthy 1:15 faculty-student ratio.

- Sustainability of the ELI as it is urban & accessible.
 - SIMSR learning through the past two years' experience of conducting ELI.
4. Problems/Resources: NA
 5. Notes: NA

S K Somaiya College

1. Title of the Practice:

- . Experiential Learning
- A. Internships
- B. Project Based Learning

2. Objectives of the Practice:

- To bridge the gap between theory and practice, enabling students to apply their knowledge in real-world settings.
- To develop essential skills, gain industry insights, and build professional networks, better preparing them for future careers.
- To align the curriculum with current trends and requirements, enhancing students' employability and career prospects.

3. The Context

SKSC adopts constructivist pedagogy, focusing on student-centered and experiential learning approaches. By incorporating internship programs, project-based learning, and side-based learning opportunities, we seek to empower students with practical skills and real-world experience. By immersing students in hands-on experiences and encouraging self-directed learning, the college creates a dynamic and supportive learning environment that nurtures lifelong learners and industry-ready professionals.

4. The Practice

- Learners are required to pursue an internship and submit its report for which they are assigned credits.
- Learners are provided with valuable hands-on experience through visits to diverse organizations, such as Stock Exchanges and Media Houses.

- Learners are engaged in project-based learning, where they actively participate in real-world projects and hands-on activities.

5. Evidence of Success

Learners have demonstrated a profound understanding of the subjects beyond textbooks. These activities have helped learners transformed into confident and capable individuals.

6. Problems Encountered and Resources Required

Co-ordinating and establishing communication with various organisations to provide relevant internship opportunities to the learners was a challenge.

K J Somaiya College of Education

Workplace based Internship Model (2020-21)

School and Teacher education have to work in collaboration so as to produce teachers who contribute to the best possible ways. With this aim an Experimental model i.e. Workplace based Internship Model was carried out. This model was used in line with the needs of recruitments of teachers at schools. It aimed at a smooth transition of the prospective teachers into the real classroom scenarios. Initially the model stresses on focusing on the induction program. The prospective teachers were oriented to the culture and working of the institution so that they can perform to their best during the entire internship program.

Objectives of WBL based Internship Model

1. Establishing the connections between course work, field engagement and real world work environment
2. Providing opportunities for developing professional skills and competencies among PSTs required for ever changing and challenging job scenario
3. Developing positive professional identities among PSTs.
4. Providing wide career opportunities to the psts.
5. Creating platform for collaboration among the college and school through constructive dialogue and non- hierarchical working relationship

The Context:

Schools have to put in lot of efforts for grooming the students according to their culture and expectations. Through Workplace based Internship Model a group of students would be placed in all four semesters in one school itself For this the prospective teachers were associated with a mentor teacher so that they can share the queries or challenges at any point of time .After the teaching practice sessions the mentor sent the feedback either in written form or orally. Apart from them the teacher educators who monitored the trainee teacher's lessons also gave. By semester 4 the prospective teachers were well equipped to adapt to the working of Akanksha group of schools. Through this model the prospective teachers would getting the best platform to be fit for being recruited in the school..

The following are the main components of the work-based internship model:

Hands on experience:

One of the main objectives of this strategy is to give student teachers hands-on experience in real-world teaching situations. They gain a deeper knowledge of the challenges of teaching by actively participating in classroom activities, lesson planning, and student assessments.

Mentoring:

During their internship, student teachers are matched with seasoned mentor teachers who will provide them with advice and assistance. This mentoring is priceless since it provides individualized feedback, helpful criticism, and professional progress. advice.

Reflection:

The work-based internship approach includes reflection as a key component. It is encouraged for student teachers to reflect on their teaching experiences, pinpoint their strengths and areas for development, and modify their approaches as necessary. Reflective practice encourages on-going development and self-awareness.

Theory and Practice Integration:

The approach places a focus on the coordination of the theoretical ideas taught in B.Ed courses with real-world classroom implementations. The teaching process is enriched by this information synthesis, and student teachers are better prepared to choose effective teaching strategies.

Numerous advantages come with the workplace-based internship program for pre-service teachers:

Practical Skill Development:

By putting their theoretical knowledge to use in practical situations, student instructors develop practical skills such as fundamental teaching methods, classroom management strategies, and efficient communication approaches.

Building ties with seasoned teachers, school administrators, and other student teachers through internship experiences enables student teachers to develop their professional networks. Future employment possibilities may greatly benefit from these connections.

Flexibility:

Student instructors gain the ability to modify their instructional strategies to meet the particular needs of distinct students by working with varied student populations and in a variety of teaching situations.

Building Confidence: Student teachers gain confidence and a sense of competence in their teaching talents when they successfully navigate genuine classroom problems.

About the students:

The student interns were pursuing second year B Ed program. There were a total of 9 students in all who finished Semester 1 and 2 in which they learnt about Pedagogy of school subjects like English, Maths, Geography, English, Science and Hindi. The details of the students are as follows:

Name	1st pedagogy	2nd pedagogy
Manju Mathew	Science	Maths
Rashmin Keshwani	Science	Maths
Bhavika	Economics	Maths
Roseline Fernandes	Economics	English
Elizabeth Fernandes	Economics	English
Onkar Singh	Maths	Science
Pooja More	Science	Maths
Seema (Marathi medium)	Marathi	History
Pooja Yadav	Science	Maths

Regarding the competency of the students they had been trained to design innovative lessons and differentiated worksheets .Apart from this they were trained on the use of web-tools for

teaching as well as assessment. They were also oriented to the use of online teaching platforms like Google Meet and Zoom.

The Practice of WBL Internship Program:

In the online internship program they were oriented about their roles and duties as interns and at the same time were informed about the work culture and the expectation of the institution from them. During the Internship the student teachers gave co-teaching lessons, individual lessons, by incorporating different methods and approaches to teaching. The Student teacher were mentored by Akanksha School teachers. The students followed the instructions of the school teachers and gave their best lessons.

The college worked in best capacity to build a strong relation with the school. Students not only gave lessons but also designed content for these schools. Despite being online internship program students made online resources with the help of various online soft-wares like geogebra, Kahoot, pedlet etc to create interactive learning experiences for school students. Apart from this they also created interactive videos of their teaching to teach in asynchronous mode. Each student meticulously completed the requirements under Internship

Regarding supervision of lessons:

Right from the first week onwards all the lessons of the students were supervised by the teacher educator. Each day the zoom link was provided well in advance. After each class a break of fifteen minutes was observed to enable students and the teacher educator to join the next link smoothly.

Problem encountered and resources required:

Despite of Holistic efforts in our pilot launch of the model only one out of nine students was placed in AKanksha group of school with the conversion rate of 9.01%. . The year 2020-2021 was Pandemic Covid 19 year, when other teacher education institutes shunned internship altogether, we gave the opportunity of Online Internship and also made all possible efforts to launch our Workplace Internship Model.

Online internships within the work-based learning model face several challenges. Firstly, maintaining effective communication and supervision can be difficult in virtual settings, potentially leading to misunderstandings and reduced mentorship. Additionally, providing hands-on experiences and practical skill development online can be limited, impacting the overall learning outcomes. Overcoming these challenges requires resources such as robust digital platforms for seamless communication, project management, and skill assessment. High-speed internet access, necessary software, and hardware are essential for participants to

engage fully. To enhance virtual engagement, dedicated mentors and supervisors must be available, offering regular guidance and feedback. Incorporating virtual labs, simulations, and remote project collaborations can help simulate real-world experiences. Clear guidelines, well-structured tasks, and regular evaluations are necessary for successful online internships, ensuring that students gain meaningful

Glimpses of Workplace Internship Model 2020-21

