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Anita Patil Dr.

MKSSS's Cummins College of Engineering for Women, Karvenagar, Pune, anita.patil@cumminscollege.in

Neha Deshpande

MKSSS's Cummins College of Engineering for Women, Karvenagar, Pune,
neha.deshpande@cumminscollege.in

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Selection of Audit Courses for Engineering Students

Anita Patil^{1*} and Neha.N.Deshpande²

¹MKSSS's Cummins College of Engineering for Women, Pune – 52, Maharashtra, Pune,

²MKSSS's Cummins College of Engineering for Women, Pune – 52, Maharashtra, Pune,

¹anita.patil@cumminscollege.in, ²neha.deshpande@cumminscollege.in

Abstract: Rather than materialistic gain and possession, personality development is more of a process of growing human capabilities. Personality development is recognized as a vital component of corporate success, and it extends beyond the human realm. Especially freshly recruited engineers have to deal with challenging situations almost every day. Adaptability and strong interpersonal skills are essential soft skills for engineering students to cope with the strenuous/high-pressure work environment. The Audit courses can help in the holistic development of engineering students. These are introduced in the curriculum by AICTE in order to help students develop their personality, improve communication skills and learn about corporate grooming, for all branches of engineering. Audit courses focus across multidisciplinary domains and deliver holistic education with flexibility of subjects. The objective is to groom innovative minds into resilient personalities who can sustain and adapt to rapidly changing industrial needs and technological advancements. The perspectives to propose the audit courses vary across disciplines for e.g. foreign languages, performing arts and personality development. In India given the diversity and regional languages, students coming from different backgrounds need grooming in soft skills to back up their technical skills. Enhancement of personality can take place through different audit courses in a stress-free environment and enjoyable through different activities.

Keywords: Audit course; corporate etiquette; communication skills; holistic approach; multidisciplinary education; personality development

I. INTRODUCTION

The expansion of the global economy has completely changed the approach to imparting knowledge and training future engineering professionals. The goal is to focus not only on developing technical skill sets but also enhance one's personality to realize the physical, emotional, and creative potential of students. This is necessary for their own growth as well as for the development of the nation/society. Creating

scenarios requires students to focus on doing research, think out of the box and refer to books beyond the curriculum are key priorities. They also need to give equal importance to Work ethics, time management, teamwork, personal accountability, for overall development. These are critical parameters in a global business environment. Engineers are the modern era's inventors, designers, analysts, and constructors. The core competence is in the area of design, manufacture and maintenance of various systems in daily use that we use every day.

Today in India we have more than thousand engineering institutes providing technical education, with lakhs of students graduating each year. The mission of these Engineering institutions' is to create technical professional who have a good understanding of current technologies and are ready to take on the challenge of researching further to improve on existing technologies. The main objective must be to create technical professionals who can make the journey from Lab experiments to real world scenarios. To achieve this transition engineering education has to develop teaching systems in sync with industry requirements and larger global initiatives this will enable to help build an optimal system to support overall progress of the nation. For a promising future the students must possess the Ability to harness not only their Intelligence quotient (IQ) but also the Emotional Quotient (EQ) and Technical Quotient (TQ), They

must understand the importance of the need to collaborate and examine a solution from all aspects before implementing it. This requires uniformity in the curriculum at some basic levels and thus underlines the call made for the same by Industry experts and Consultants. The university curriculum to be aligned with industry requirements and needs to be focused on life skills as well as technical skills in equal measure. The key areas that the universities and colleges need to address for the holistic development of the student which can be covered under the audit courses curriculum are discussed in detail below.

1.1. Teamwork

Every Project is a team activity. In present scenario these teams are no longer local. Engineers today are required to work in global teams and effectively manage the diversity in such a global team. The success of a project is largely dependent on the interpersonal skills of the team members involved. The Engineer must be able to successfully motivate the team, bridge cultural differences, instill trust in the team members and deliver results. This highlights the importance of enabling engineers with interpersonal skills at par with the technical skills. Successful completion of a project is dependent on teamwork. This real-life requirement underlines the need to focus on Audit courses for the future engineers to be successful

1.2 Continuous learning

The focus on Digital Transformation and Industry 4.0 initiatives in Manufacturing industry is ample proof that technology and processes will continue to evolve and improve. The curriculum that ensured success for an engineer in the past does not hold true for the present engineers. With the advent of new disruptive technologies like AI, ML and block chain highlight the need for continuous learning.

The engineers who are able to adopt to change and align better will have a higher probability of being successful. To ensure success Engineers need to stay abreast the latest technological advances, be ready to learn and imbibe these technologies and be able to enable and teach team members to ensure success. Engineers needs to play the role of a student, mentor and guide to achieve expected outcomes. This require the curriculum to be designed in a way to include subjects other than technical as well

1.3. Creativity

Successful engineers are expected to have a natural capacity to 'think outside the box,' which may sound clichéd. The ability to take up challenging tasks and take initiative to resolve the issues is the essence of the engineering industry. Engineers who are passionate about trying out alternative solution and focus on continuous improvement and innovations are key assets for the organization. To achieve these innovations the engineers, need to venture into domains other than the technical ones to achieve results and organizations rely on multitasking and ability to address the problem holistically and not work in silos as important requirements. The engineer today needs to be creative within the constraints of availability of finance, time and feasibility of implementing the system on a large scale. So, they need to be practical in their approach and this requires innate understanding of all aspects including technical and non-technical ones

1.4. Problem solving

Problems are the root cause of any challenge. To be able to address problems engineer needs to be able to handle the technical challenges as well as the human factor. They need to be able to guide the team through the maze of issues to arrive at a solution acceptable to all. Problems are like Jigsaw

puzzles and the engineer needs to investigate and test every solution to arrive at an optimum outcome. This requires analytical skills and a knowledge of previously tried and tested resolutions in addition to the technical understanding. This requires the engineer to have the astuteness to go beyond the brief and look for options to address the problem at hand. To be effective the Engineers need to cultivate good listening abilities, unbiased approach to critically examine solutions suggested by all the members and at the same time ensure that everyone is working in one direction to resolve the problem at hand rather than driving their own agenda. This requires clear and concise communications and good people management skills which can be developed by having relevant topics as part of the curriculum. **1.5. Analytical ability**

Data Science being a separate subject signifies the importance of analytics in the organizations today. Companies use historical data points to establish a baseline and compare present outcomes with them. This also has become a measure for projecting future performance metrics. Previous exposure to handling challenges is important for an engineer to face his challenges. He cannot be myopic in his approach and only examine technical scope of the problem. To be able to do so he requires good understanding of nontechnical areas and technical aspects adjacent to his area of specialization. To be able to resolve the problem in its entirety and not offer piece meal solutions Engineers should think precisely and must be able to simulate the solution in multiple iterations to arrive at an optimum resolution to the problems. Moreover, the Engineer needs to ensure that he understands the problem at a micro level and assign the best suited people to respective areas and together deliver the best possible solution This would involve multiple

iterations and painstaking efforts to get to the desired result.

1.6. Communication skills

Communication is the most critical aspect of working in teams. Effective communication both verbal and written will help save a lot of time and resources in arriving at a suitable result. Keeping communication simple and easy to understand is the most challenging task. Engineers need to grasp the importance of this and be able to adopt accordingly. The skill lies in the ability to communicate in terms easily understood by all team members. Assumptions are key pitfalls in communication with the team. Engineer needs to understand that all the people may not be of the same domain and needs to communicate accordingly. He should be able to use simple term to demystify the complexities of the problem and define the expected outcomes. Clear and concise communication also helps the receiving party to respond in equal measure and helps reduce the iterations to resolve the problem. Communication also helps break down silos within the team and collaborate more effectively. Thus, we can conclude that team efficiency is directly proportional to the level of communication within the team. Audit courses will help engineers develop this skill and use it effectively in their careers.

1.7. Logical thinking

Logical Thinking need to be imbibed and cannot be taught the process however can be experienced through a set of practical walkthroughs of problems resolve in the past. This is also a prerequisite to developing strong analytical skills. In addition to technical expertise an engineer will require to have hands on expertise to be able to apply a logical thinking approach to a problem. Discussing case studies on similar problems would help an engineer fine tune his logical thinking capabilities A passion for learning new things and taking responsibility

for new initiatives are key to the chain of logical thinking process. To be able to apply a logical thought process to improve an existing system the engineer needs to understand the ASIS system thoroughly and identify the areas for improvement.

1.8. Attention to detail

Engineers must pay close attention to details. This will enable them to identify areas for improvement and avoid errors which could lead to mishaps. Detailing helps to breakdown a complex project into smaller and simpler projects with milestones and measurable results. These results can be simulated to predict the outcome. This aspect of detailing needs to be taught and the ability to visualize the problem from all aspects needs to be learned. Technical education will help solve the problem but the attention to detail aspect needs to be learnt separately. Detailing a problem helps identify bottlenecks and resolving these bottlenecks can be prioritized. This can help resolve a problem effectively and efficiently.

1.9. Mathematical ability

Today the engineer has a variety of software tools at his disposal to address a problem. Over dependence on these tools may sometimes lead to errors and costly overruns. The engineer needs to balance out the use of software tools with traditional methods of verification to establish reliable outcomes. For critical or bottleneck operations all software simulations should be backed up by requisite mathematical calculations. To be able to deliver on this the engineer needs to have the tenacity to complete the requisite task at hand for comparison with software results.

The Engineers should be able to develop the complete mathematical model and analyze every step and compare the results with the software. He should be able to prove the results using alternative theories to be able to deliver a safe and efficient system. This approach is critical to success and can

only be inculcated at an early stage of the career or during academics. This approach can be tailored through audit courses and are important for their careers.

1.10. Leadership

Leadership means the ability to extract the best out of the team and to ensure that goals / objectives are achieved in a time bound manner. Leaders not only have to lead by example but also need to be able to plan the activities, delegate effectively without micromanagement and win the trust of the team. Leadership also requires unbiased approach and good listening abilities to manage the team. A leader needs to be able to lead the team members and motivate them through tough phases of the project both individually and collectively. Leaders are always looked upon by team members as a mentor and guide who can provide answers to tough questions. Thus, the leader has to put in the most effort to live up to the expectations of his team and deliver positive outcomes. Leadership cannot be taught but needs to be experienced. Communication skill is a cornerstone of leadership so are most of the qualities discussed above. The key challenge for institute today is to build leaders with strong technical background for the future.

II. LITERATURE REVIEW

Emotional Intelligence enhances the overall development of students in medical industry. Emotional Intelligence is said to develop soft skills like communication skills, empathy etc. As the medical students deal with patients it is necessary for them to develop their emotional intelligence. The module developed by Anuja S Panicker, R Deepa, S Vimala, G Poornima got higher results. It was also found that among the three components of EI, namely, perception, appraisal, and regulation, the regulation component was higher among the students who had taken training of EI [1].

Leaders of the institute always play a major role in achieving the status, accreditations, quality of education in the institute and having reform in the education structure. According to the NEP 2020 leaders are always trained in order to achieve these levels of success, leaders will not happen without the training. The academic leaders are the ones who are supposed to create a conducive environment for others to work and motivate the other in achieving the institute's goals [2].

After conducting an Exploratory Factor Analysis, Deepak Kumar and Pushp Lata focused on the term "syllabus" from the perspective of teachers' comprehension of the many criteria of syllabus creation (EFA). Teachers teaching secondary school were given a questionnaire containing 21 statements on various areas of the syllabus in order to better understand the teachers' perspectives on the various aspects of the syllabus. According to the EFA findings, teachers believe that a syllabus has four components. The purpose of this study was to examine teachers' knowledge of several syllabus characteristics. It demonstrates that teachers have gained a grasp of the elements that provide the parameters of the syllabus' distinct and unique qualities. The research backs up the broad concept of syllabus and its criteria as described and propagated by many theorists in the study's introduction section [3].

This paper, Holistic Student Development Model for Improving Employability of Engineering, examines various holistic development models that have been adopted around the world, such as internships, self/online/blended/design-based learning through goal-oriented activities, as well as what we propose and implement at TCET, as well as the challenges we faced and the learning we developed. Throughout the institute, diversity, equity, and greatness must be entrenched.

Collaboration, critical thinking, creativity, and invention, as well as problem-solving abilities, are necessary for self-directed, activity-based, multidisciplinary, analytical, and team-based learning. This type of education, which is delivered through the various activities, focuses not only on learning but also on putting what has been learned into practice. It has been observed that the impact of organizing such events for the holistic development of students has earned the institute plaudits from colleges in the area, as well as state, national and international levels. Self – motivation has improved among students for purposes other than learning and holistic development [4].

The focus of creative pedagogy is on the students. The credo of teachers who avoid the traditional chalk and talk method is to leave an indelible impact on the minds of students through alternative teaching techniques. The teaching approach of a language must be improved in today's fast paced and dynamic learning environment. The study looks at how to create new pedagogical techniques for teaching Legal English. It will also include recommendations for course administration modifications that can be implemented within the NEP (New education Policy) 2020 framework. The study demonstrates that there is a critical requirement to create learner-centric activities when teaching Legal English, and that the teacher must use out-of-the-box ways to ensure digital content readiness [5].

III. METHODOLOGY

Brainstorming sessions were conducted by HOD's, deans and the senior faculty. Suggestions were received from experts and BOS members. They suggested few audit courses which may help students for improving their personality.

1. Professional conversational skills
2. Multiple Intelligence which included Meeting skills
3. Negotiation Skills
5. Financial Literacy
6. Leadership Skills
7. Soft skills Module

Some industry experts also suggested few titles for value-added courses

1. Critical Thinking
2. Negotiation Skills
3. Currency
4. Design Thinking
5. Financial Literacy
6. Leadership Skills
7. Soft skills Module includes

Professional conversational skills, Verbal and written documentation skills, Meeting Skills, Body Language/Kinesis/Paralinguistic Skills

Discussion was also conducted with respective Industry experts and then the list of audit courses was presented in Academic Council. After taking into consideration different suggestions from Industry experts, stake holders etc., following courses Audit Courses were finalised.

- 1) Women Health and well being
- 2) Professional Ethics and Etiquette
- 3) Yoga and Meditation
- 4) Leadership and Personality Development

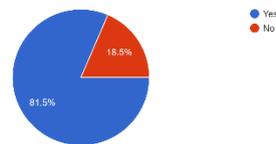
IV. OBSERVATION

To study the effectiveness of the selected audit courses, a survey was conducted through feedback of questions. 124 students replied to the

questionnaire. Following questions were asked to students:

1) Was the orientation given to you all before selection of Audit Course?

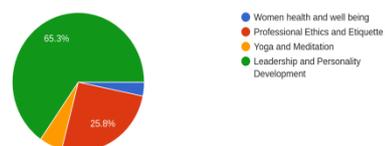
3. Was the orientation given to you all before selection of Audit Course?
124 responses



81.5% students said, “Yes, they were given orientation”.

2) Which Audit Course did you select?

4. Which Audit course did you select?
124 responses



Out of 124 student’s responses: 65.3% opted for Leadership and Personality Development, 25.8% opted for Professional Ethics and Etiquette

3) Did you enjoy the audit course?

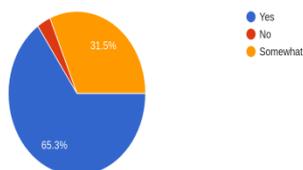
6. Did you enjoy the audit course?
124 responses



95.2% students said , “Yes, they enjoyed the audit course”.

4) Do you feel there is a positive change in your personality after completing the audit course?

7. Do you feel there is a positive change in your personality after completing the audit course?
124 responses



65.3% students said, “ Yes”.

V. INFERENCES

Students had selected Audit courses of their choice for various reasons:

1. They wish to develop their personality skills and build self – confidence,
2. To learn professional ethics
3. To enhance their leadership qualities
4. To unveil their true potential
5. They liked the content and the curriculum.
6. Some students also selected Yogasana and Meditation for their health improvement and mind relaxation.

Overall, all the Audit courses were a stress buster activity after a daylong online teaching-learning session.

There were suggestions accepted from the students related to the course. Most of the students were happy with their selection, the mode of delivery of the session and the curriculum of the session. As these courses were conducted online, there were some suggestions like there should be more games and activities to be conducted, practical sessions to be conducted offline.

VI. CONCLUSION

Taking into consideration the suggestions from Industry experts and stake holders, the following

audit courses were finalized for Second Year Engineering students:

- 1) Women Health and well being
- 2) Professional Ethics and Etiquette
- 3) Yoga and Meditation
- 4) Leadership and Personality Development

All four courses offered as audit courses were impactful and the students feel that they were useful in grooming their personality, increased confidence in them and also increased awareness about certain important things such as taking care of physical, mental and financial health .

VII. REFERENCES

- 1 “Effectiveness of Emotional Intelligence Training Program for Undergraduate Medical Students” by Anuja S. Panicker, R. Deepa, S. Vimala, G. Poornima in the *International Conference on Best Innovative Teaching Strategies (ICON-BITS)*, 29-31 July 2021, Pilani, Rajasthan, India
2. “Holistic Student Development Model for improving Employability of Engineering Graduates” by Shiwani Gupta, Jesal Varoliya, Anupriya Babbar, Archana Nanade, R. R. Sedamkar in the *International Journal of Recent Technology and Engineering (IJRTE)*, Volume-8, Issue-2, July 2019
3. Exploring the Parameters of Syllabus through Teachers’ Perception (2022) – Deepak Kumar and Pushp Lata in *International Conference on Best Innovative Teaching Strategies (ICON-BITS)*
4. “National Education Policy 2020 – Roles and Competency Framework for Academic Leaders” by Pratibha Bundela Gupta and B. L. Gupta in *International Conference on Best Innovative Teaching Strategies (ICON-BITS 2021)*
5. “Innovative Pedagogical Practices for Teaching Legal English” by Pronema Bagchi, in the *Proceedings of the International Conference on Best Innovative Teaching Strategies (ICON-BITS 2021)*

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