BEST PRACTICES OF INSTITUTION

Following are the Two Best practices of Institution
1. 'Skills enhancement program for employment ready Graduates' and
2. 'Innovative projects for inculcating the spirit of research & development'

1. **Title of the practice**:
   Practice-1: 'Skills enhancement program for employment ready Graduates'

2. The context that required the initiation of the practice (100– 120 words):

There is a huge gap between academic practices of producing the Engineer graduate and Industrial requirement. Most of Industry wants to have the competent graduate to serve in their industry. Whereas College graduate have to undergone with predefine syllabus of affiliated University, which is not flexible. Therefore out of box Industry relevant syllabus is needed to conducts apart from available course curriculum. Therefore it is necessary to breach the gap between Industry's expectation and fresh Engineering College graduates attributes acquired after undergoing university curriculum and syllabus. Hence the best efforts by teachers from the College are essential. Due to this practice students shall get qualified by university degree along with flying colors of knowledge and skill. Even though the same is necessary to get benefitting employment in industries but it is not sufficient as per industry's bench mark. To mitigate the challenges, it is necessary to identify the gap precisely and correctly to develop mechanism and structure to bridge it. To Frame and implement 'Beyond syllabus course contents' of required skill set is the motto of practice.

To implement the scheme, following is the process undertaken:
1. Identify industries that would support the initiative with Institute
2. Proposal for Industry Institute interaction and collaboration
3. Identify gap between University Curriculum and Industry expectations
4. Design the curriculum, syllabus and scheme of training
5. Get it validated from Industries
6. Identify internal & external resources to implement the scheme
7. Motivate & train the identified internal resources
8. Identify and motivate the students who undergo beyond syllabus activity with focus and discipline
9. Involve Industry for training, internship and evaluation
10. Market the practice to user Industry and arrange for placement drives

3. Objectives of the practice (50–60 words):

The Engineering graduates unemployment is surprising. To identify the cause of unemployment and practice of employability enhancement skill is the basic objective. The gap between University curriculum and dynamic expectation of Industries is one of the causes of the same. While University curriculum is based upon the fundamental principles of science and engineering and the Industry expect ready employable fresh graduates to start working immediately. The principle and concept of the practice of requisite skill is to inculcate communication skill, soft skill and domain specific technical skill as per expectation of Industries and in association with the Industries.

4. The Practice (250 – 300 words):

In this activity, training is provided to students through Core Technical Area (CTA) in various domains. The CTA for information technology include software testing, software development, information security, Remote infrastructure maintenance and management, networking. The core technical areas for electronics and telecommunications includes Embedded with IOT, MATLAB programming and for mechanical engineering includes Automation, engineering services (CAD), Testing. Under CTA, different activities are conducted like foundation course for third year, Summer Internship Program and Advance course for final year. The live interaction with industry personnel is done through online session as well as through personal interaction. The placement brochure containing details of information about practices is published and circulated to user industries. Head of Department, faculty and training and placement officer (TPO) visit the industries and arrange for campus placement drives. The structure of CTA is depicted below.
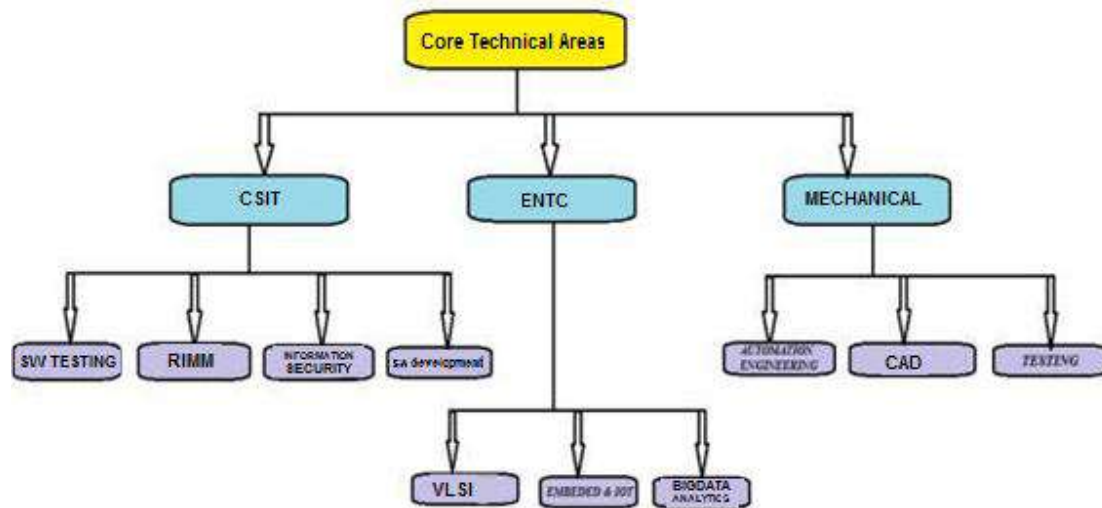

Fig.1 Technical Skill Enhancement through CTA

5. Obstacles faced if any and strategies adopted to overcome them (150 – 200 words)

Definitely, when we start to communicate the Industry and its expections, we face the lot of problems right from whom and how to contact the Industries. The following stages were adopted:

1. Form the 4-5 sr. faculties group of each Department
2. Identify and enlist the suitable industries
3. Communicate with Industry with mail and express the will
4. As it is need of both side, they had also given positive responses
5. Visit the small and medium scale Industries at Nagpur and discussed the matter
6. MOUs with Industries for specific purpose and
7. Obstacles in industry communication get resolved

6. Impact of the practice (100 – 120 words):

The participation and involvement of industries in designing, validation and implementation of course content as well as providing internship and evaluation of project is over whelming.

The placement records improved. This practice has proved that the selection of CTA undergone students is much higher than non CTA students. The feedback from industries about the performance of CTA undergone students is at par with one year industry trained graduates. It can be inferred that the project and practice of CTA gives industry acceptable and employable fresh Engineering Graduates. It confirms that this practice is good for Engineering graduate employability that the bridge the gap between Institute outcomes and expectations of Industry.

7. Resources required:

The following problems or constraints were encountered during conceptualization, design, validation & implementation of the practice:

1. Sufficient time slot to interact with Industry experts
2. Student's interest to work with Core Technical Area apart from regular course
3. Design curriculum and syllabus in consultation with Industry to bridge the gap
4. Validation of the Course curriculum and implementation scheme from industries
5. Human resource from College to motivate them for extra responsibility
6. Additional training to faculty require to acquire new skill set and knowledge
7. External sources to supplement practices with industries perspective
8. Sufficient financial fund provision for training and development of in house faculty or by deputing them at industries or institution of higher learning or professional, also financial constraints for hiring professionals
9. Virtual setups for online interactions with Industries
10. Marketing of practice with user industries

8. About the Institution

i. **Name of the Institution:** HVPM's College of Engineering and Technology, Amravati
ii. **Year of Accreditation:** 2017
iii. **Address:** HVPM Campus, Hanuman Vyayam Nagar, Amravati PIN–444605 (Maharashtra)
iv. **Grade awarded by NAAC:** B++
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BEST PRACTICES OF INSTITUTION

1. Title of the practice:

Practice-2: 'Skill based Innovative projects for inculcating the spirit of research & development'

2. The context that required the initiation of the practice (100 – 120 words):

The inculcation of research culture, critical and creative thinking, sensitization towards social and environmental issues for which optimal solution can be found using technology is a challenging task. The implementation of practice involves team of Heads of Department, young enthusiastic faculty, Training and Placement officer, interaction with industry experts and researchers. The identification of statement of problem itself is a challenge. The present education system is tuned with writing answer script for the expected questions either from old question paper sets or text books, while engineering always encounter with unexpected challenging problems which are required to be solved under constraints of time, human and financial resources. To give, this real life experience through innovative projects posed many challenges during implementation of the schemes.

3. Objectives of the practice (50 – 60 words):

The application of knowledge and skill for solving real life problems is the main job profile of professional engineers. Mini and major projects carried out during course of study; give an opportunity to acquire the skills of application of principles of science and engineering. The engineering solution has to be economical, optimum, societal and environmental friendly and most importantly innovative .The attributes of aptitude for innovative, critical and creative thinking is a challenge. Institution consciously works for innovative projects to train the young minds to be future ready through the practices. Teachers also get oriented towards research and development, publications & patents.

4. The Practice (250 – 300 words):

A team of teachers from various technical domain areas and interest are identified to lead the group. The faculty is expected to advise, guide and facilitate project development with students. The faculty is given special training either in house or by deputing at industries, institute of higher learning or training centre. The students are identified on the basis of detailed analysis of their academic background, area of interest, flexibility to learn, attitude to accept challenges. They are groomed by giving beyond syllabus core technical area knowledge and skill through a structured program of about 120 hrs during third year of study. The industry inputs are also sought during training of the students. The statement of problems are identified from various sources like industry, analysis of social needs, thrust areas like clean energy, digital India, safety and security of women and as given by various State and Central Ministries on their website. A team of faculty and students design and develop the solution which is implemented as prototype. The projects are evaluated by industry, during various project competitions at inter collegiate, inter university, state and national level. The practice becomes the novel

teaching learning process also as the concept of self learning, flipped learning, cogeneration of knowledge, participative and collaborative learning experience result in novel ideation and optimal solution for real life problems.

5. Obstacles faced if any and strategies adopted to overcome them (150 – 200 words)

The change of teaching learning process of the technical education system is the obstacle as it requires motivation and persuasion of the faculty and students to go beyond university curriculum and syllabus. Support from industry to identify the real time problem, valuation and validation of innovative solution is another obstacle of the practice. The Training of faculty for domain specific skills and opportunity for exposure in advanced technology laboratories pose new challenges. The Financial resources to create facility of experimentation for innovative projects are also the challenge.

6. Impact of the practice (100 – 120 words):

The impact of practice for development of innovative projects on real life problems are

1. Lab to land projects are done
2. The innovative projects are developed on organic solid waste like waste from vegetables, fruits markets and eating houses is implemented by Amravati Municipal Corporation successfully. The project is based on solid waste management rules and regulates in 2000, 2004, 2016. It is decentralized waste management system giving wealth from waste
3. Innovative project on plastic waste management system is also developed and implemented by the Amravati municipal corporation. at Sukali waste depot
4. Senior faculty member of the Institution selected for Nano-technology based innovative project development at IIT Bombay laboratory
5. Faculty with teaching staff of the college is also working on innovative projects under the same scheme of Government of India at IIT Bombay. The projects are successfully developed and patents are published on the work.
6. Senior Students undertake mentoring and conduct training & competitions for junior students on the same concept & process
7. Unnat Bharat Abhiyan technology based Projects for Village are developed
8. AICTE has announced world's largest innovative project competition Hackathon. The innovative idea of students and mentors of our college on the theme of "Smart watch for being watched" for the security of women and children is short listed for final round.
9. A Project team of Third year students is also short listed in Texas All India Level Project competition.
10. The Students have developed innovative projects during internship on the problem statement given by industries.
11. The faculty and students have successfully developed innovative projects on advanced technology and received awards in inter collegiate research project competitions "Avishkar" of affiliating University.

Awards / Recognition received by Faculty

Sr. No.	Department	Name of Faculty	Name of Award/ Recognition	Type (National/ International/ Institute)	Year
1	CSE	Prof. A. M. Jaiswal	Winner at Avishkar SGB Amravati University	University	2016-17
2		Prof. J. I. Syed	Winner at Avishkar SGB Amravati	University	2015-16
3	CSE	Prof. Y. R. Rochlani	Winner at Avishkar SGB Amravati University	University	2014-15
4		Prof. N. A. Rathod	Winner at Avishkar SGB Amravati University	University	2012-13

Awards / Recognition received by Faculty

Sr. No.	Department	Name of Faculty	Name of Award/ Felloship	Awarding organization	Type (National/ International/ Institute)	Year
1	EXTC	Prof. V. L. Agrawal	Avishkar	SGBAU, Amravati	University	2017
2		Prof. H. P. Oak	Avishkar	SGBAU, Amravati	University	2016
3		Prof.JinnalTapar	Avishkar	SGBAU, Amravati	University	2015

Awards / Recognition received by Faculty

Sr. No.	Department	Name of the Faculty /PhD Scholar	Name of Award / Fellowship	Awarding organization	Type (National/ International/ Institute)	Year
1	IT	Dr. P. L. Ramteke	Avishkar	SGBAU, Amravati	University	2014-15
2		Prof. P. D. Chowhan	Avishkar	SGBAU, Amravati	University	2014-15

Student Awards

Sr. No.	Name of Student	Name of Award/ Recognition	Year
1	Ms. Reshma Vishakarma & Ms. Swati Wannalikar	1st Winner in Avishkar at HVPM COET Amravati	2014

7. Resources required:
1. Dedicated 2-3 Teachers from College for Innovation and research Projects
2. Industry support to identify the real time problem
3. Training facility for domain specific skills and opportunity for exposure in advanced technology laboratories
4. Financial Provision to create facility of experimentation for innovative projects
5. The research project development Platform

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