PARTICIPATION OF INDUSTRY IN CURRICULUM DESIGN AND DELIVERY

Dr. Balasubramani R, Professor & Head, Dept. of ISE, NMAMIT, Nitte

Email: balasubramani.r@nitte.edu.in

Abstract

In today's educational system, the participation of industries in curriculum design and delivery at institutions and universities is very much essential to prepare the students for employment. This will bridge the gap between the industry and institutions and will enable the students to become industry ready. This will also reduce the time, effort and resources spent on the students at industries, before they will take up the real projects. Various models are available in this context. In the first model, the industry will design the course as per its requirement and deliver the same in the partnering institutes through their trainers. The students need to write the final examination and those qualified will be absorbed in those industries. In yet another model, the industry will select the candidates for employment and then provide tailor-made courses to those candidates through the faculty, who have undergone special training through Train the Trainer workshops conducted by those industries. Most of the institutes, as a general practice involve industry people during their Board of Studies meetings and design the curriculum with their inputs. We have considered our own institute as an example to explain the processes of these models in detail with relevant case studies. Also this paper analyses the effectiveness of these models.

Keywords: Industry ready, Models of Participation, TTT

1. Introduction

Each year, India as a country produces the second largest number of engineering graduates in the world. At one time, there were only a handful of engineering institutes but now the number of institutes set up for various disciplines year on year indicates an engineering education boom in India. Engineering colleges in the country have been growing at 20 per cent a year. Further the quality of engineering education is also getting a boost.The paradox is that, despite the increase in the number of colleges, the competition for acquiring fresh talent every year is so heated that it gives an impression that resources are really scarce. In reality, there is aplethora of career options for engineers of current years. The challenge is not the supply of talent but that of talent that meets the needs of the corporate world. In other words, the challenge is that of employability! It is not about having a good curriculum or good faculty. What then is the employability enigma? It has been found that if the students augment their skills in a few specific areas desired by the industry, employability in the country can be significantly enhanced.

2. Need for Industry Academia Interaction

The technical manpower required by the industries is provided by the Institutions. In this context, a need has been felt to have this interaction at different levels. In the initial years of the growth and development of technical education, this interaction has been restricted mainly to placement of students. The number of students enrolling in technical Institutions is growing by the year. Rapid developments are happening in the area of technology, which is transforming every possible domain. Thus there is a need for strong partnerships between academic institutions and the industry. These will help educate and prepare students to be future-ready and accelerate innovations in the field of science and technology propelling inventions and discovery of new materials, products and processes, resulting breakthroughs that would help build new industries. There are immense possibilities of linkages in several areas including placements, curriculum redesign, teacher re-orientation, affiliated science and technology parks, joint research, and taking the outcome of research to the market [1]. Accordingly AICTE, New Delhi in collaboration with Confederation of Indian Industry (CII) conducted a survey of engineering Institutions in the country in 2012, with assistance from Pricewater Coopers Pvt. Ltd. The findings have been very encouraging, with more than 63 % of the Institutions (other than the IITs) having different levels of interaction with industries [3].

3. Curriculum Design

The process of framing the curriculum starts with its design. While designing the curriculum, the industries and academic institutions carefully choose the components to be included. Generally the Engineering Curriculum contains Basic Science Core Courses (30-40 credits) and Engineering Science Core Courses (30-40 credits) usually offered in first year of graduation. Professional Core Courses (60-80 credits) are generally offered from second to final years. Professional Elective Courses (20-30 credits) and Open Elective Courses (10-20 credits) are offered in third and final years. Humanities and Social Science Core Courses (10-20 credits) are usually offered in final years. Industries contribute in deciding the courses to be offered in Professional Core and in Electives.

A. Board of Studies

Usually Industry Representatives will participate in Board of Studies meeting conducted by academic institutions. They will thoroughly scrutinize the Professional Core Courses. Wherever upgradation is required to meet the current industry requirements, they will suitably suggest and that will implemented in the curriculum after getting the approval from Governing Council.

B. Industry Electives

The Autonomous and Deemed Universities have the flexibility to include Industry Electives as a part of their curriculum. Well known and popular industries design their own courses as per their needs and offer them as Electives to higher semester students. This is one of the finest and fruitful models working successfully. Students who opt for those electives will undergo training and qualify in the examination. Those students will be absorbed by respective industries. Industries used to develop the required courseware for the electives and usually upload in their respective Students

Resources portals. Some industries have developed Video-Instruction Led Tutors also by involving their subject matter experts. Delivered by subject matter experts, this training mode provides a near classroom experience including white boarding, lab exercises, student questions, and course materials. Also, they develop Course Slides, Facilitator Guides, Student Exercises, Case Studies and Lesson Plans. Some industries also develop Student Project Banks where the registered students can deposit artifacts related to their projects.

4. Curriculum Delivery

Once the needed Curriculum is designed, the next step is to deliver it effectively to the students. In this aspect, the industries collaborate in various ways with academic institutions.

A. Train The Trainer Workshops

As the electives are designed by Industry Experts, the academic faculty should be trained in those emerging areas to effectively train the students. In order to roll out the electives successfully, industries used to conduct Train The Trainer workshops in Academic Campuses and their Development Premises with their own experts. The program duration would vary from three to five days. During these workshops, faculty will be given exhaustive training on practical components. Industries also certify the faculty who successfully complete the workshops. These workshops are also called as Faculty Development Programmes.

B. Peer Enablement Programmes

Faculty who underwent Train The Trainer Workshops in turn conduct similar kind of workshops in their own institutions involving their peers in large numbers. By this way, they disseminate the knowledge among their peers, who will in turn train the prospective students. These kinds of programmes are called Peer Enablement Programmes.

C. Workshops for Students

Industries regularly conduct workshops for students in emerging areas of technology and engineering. By this, industries directly address the students and train them in the best practices followed in industries. These workshops fill the gap between the faculty offering and industry requirement, if at all any.

D. Seminars

Industries regularly visit academic campuses to offer seminars to both faculty and students. Usually seminars revolve around the topics not immediately available in the curriculum. It may be about recent happenings in the technical and engineering world or about improving the soft skills of the student.

E. Newsletter

Some industries develop their own Newsletter and circulate them among the registered students. These Newsletters contain most recent technical articles and discussions.

F. On-line Faculty Community / Networking Forum

Industries have developed On-line Faculty Community / Networking Forum to collaborate with respective subject matter experts. Faculty from different parts of the world exchange their ideas with industry experts in chosen fields and get themselves updated.

5. Curriculum Enrichment

Curriculum delivery is not a one-time process. Every year, the curriculum should be revised and the cycle continues. It requires a lot of motivation from faculty and students. In this regard, industries come up with a lot of motivational programmes for the benefit of faculty and students. Industries used to recognize best performing faculty and students in various aspects.

A. Faculty Enablement Programmes

These programmes are conducted by industries to update and refresh the knowledge gained by the faculties through TTT workshops. By undergoing these programmes, faculty will keep in touch with the latest trends in their field which will ultimately benefit their students.

B. Conclaves

Industries in association with academic institutions conduct various Research Conclaves. In this Research Scholars & PG students will get an opportunity to present their own research initiatives in the form of ideas, papers, proposals and products. Best Research Scholar will be awarded suitably.

C. Roadshows

Industries conduct Roadshows in Technical Campuses. In these Roadshows, they exhibit their features and orient students / faculty towards industry practices.

D. Industrial Visits

Industries encourage Students / Faculty to visit their Development Premises. These Industrial Visits give real time exposure to students as well as faculty. This helps the faculty to engage their classes lively by citing various real life examples.

E. Programming Contests

Industries organize various Programming Contests in emerging platforms to both the faculty and students in a wide manner. Students and faculty from all over the country can participate in these Contests. There may be different levels such as Regional, State and National. Winners from various levels used to get attractive prizes in addition to citation.

F. Sabbaticals

Based on the contribution of faculty towards implementing various Industry Electives in their curriculum, Industries allow faculty to undergo sabbaticals in their Development Centres for a period of 4 – 6 weeks. During sabbaticals, faculty will be assigned with some real time projects. Faculty will develop those projects by getting assistance from industry experts. This gives more depth to their practice. As this will be shared with

students, students also will get real time exposure. Participating faculty members will receive remuneration for their contribution to project. The project deliverables may include one or more from: Working Prototype / Proof of Concept, Design to Develop a System / Application, Analysis of Existing Systems / Applications, Literature Survey.

G. Technical Events

Industries used to send invitations to faculty / students regarding various Technical Events conducted in their centres. Faculty / students enhance their knowledge by attending these events.

H. Research Paper Publication Sponsorships

Again, based on faculty / student levels, industries sponsor them to publish their original research papers in reputed journals and conferences. This activity provides opportunity for partner college faculty members to: Showcase their publications, Sharing knowledge with academia and industry, Provides opportunity to get sponsorship from industries for registration fee towards paper presentation. Also, industries fund for the Research Projects carried out by the faculty.

I. Research Support

Faculty members who are pursuing their PG and Ph.D. programs may avail assistance from industries for their research. Industries can support by conducting research methodology workshops. This can also include research guidance from Industry Experts and opportunity to partner for research activities with industries.

J. Co-publishing in Journals / Magazines

Faculty members can partner with Industry Experts for writing articles and papers in areas related to Information Technology in reputed journals and magazines. Interested faculty would share the theme of the paper/article and connect with pertinent SMEs in Industries. This would help both faculty and Industry Members to supplement each other's knowledge and bring out a comprehensive view on the topic.

K. Soft Skills

The real success of a professional depends not only on their technical skills but also on their soft skills. Industries leverage on this aspect as well by providing Soft Skills training to the students / faculty.

L. Certification Exams

Renowned Multi-National Companies provide Certification Exams to Students at discount rates. Those who clear those exams have a chance to get Internships / Placement in the company.

M. Best Student Project Award

Some industries have the practice of awarding prizes for the Students' Best Projects.

N. Centres of Excellence

Some popular industries setup their Centres of Excellence in academic campuses to train students and faculty.

6. Industry Institute Interaction Initiatives at NMAMIT

NMAMIT which is an autonomous Institution under the affiliating university Visvesvaraya Technological University, Belgaum has lot of scope for industry-institute interaction. The interactions are happening at the department level and are helping the Institution in improving the teaching-learning process and provide a different experience to the teachers and students. Some areas where interactions are happening include curriculum design and development, introduction of new industry focused electives, faculty and student training, projects for students, additional courses and certifications for students to increase their employability, basic and applied R & D.

This section presents the different initiatives taken by the department of Computer Science and Information Science.

A. Infosys Campus Connect

Engineering and management institutions are the natural bedrock for Information Technology (IT) talent in the knowledge economy. As India moves towards becoming a true global leader in IT, these institutions and the IT industry have realized the need to scale up industry ready quality students to meet the growing demands of the industry. However there are impediments which cause a disconnect between the demands of the IT industry and the skills of fresh engineering and management graduates. Infosys understands that institutions require active collaboration and support from the IT industry to realize common goals.

As a primary stakeholder in creating a vibrant talent pool of future engineering graduates, Infosys launched Campus Connect (CC), in May 2004, a first of its kind Industry Academia interaction program. CC aims to be a forum where some of the best practices at Infosys can be shared with institutions. CC also looks at aligning the needs of institutions, its faculty and students, with those of the IT industry.

The main objective of CC is to evolve a model through which Infosys and academia
- Can partner for competitiveness
- Can enhance the pool of highly capable talent for growth requirements in the IT space
- Can enhance the quality of IT education

CC equips students not only in computer science and software engineering, but also helps them apply their learning to practical situations, with special emphasis on teamwork, project management, cross functional networking and effective communication. Several components are weaved together for effective, fast paced learning: Conclaves, Road Shows at Institution Campuses, Faculty Enablement Programs, Industrial Visits for Students and Faculty, Foundation Program Rollout, Seminars and Workshops on Campuses, Programming Contests for Students, Sabbaticals, Technical Events and Research Paper Sponsorships, Soft skills for students and faculty.

As on date, more than 275,589 students and 9814 Faculty members have been benefited by CC. Infosys is working with over 100 autonomous engineering institutions across the country to co-create and Co-Teach industry electives in the areas of foundational Computer Science, advanced topics like, Business Intelligence, Building Enterprise Applications and Soft Skills.

Inspire – The Campus Connect Faculty Partnership Model

Rationale for the Program

Faculty members play a vital role in in this collaboration between industry and academia and hence it becomes imperative to strengthen the bond with them. The rationale behind Inspire is to enhance the primary partnership model with faculty in such a way where:

1. The faculty is not only recognized by way of certification and awards but they also see a 'Growth Path' with Infosys
2. Recognition and rewards are aligned to their contribution
3. Competency development offerings from Infosys are also aligned to respective contribution of faculty

Inspire – Faculty Partnership Model

Inspire serves as a platform to boost the partnership between Infosys and faculty members of Campus Connect partnering institutions. Inspire encourages effective collaboration and continuous learning to enhance quality in education. Inspire is also a celebration of excellence where the faculty members will get recognized and rewarded for their outstanding contributions to Campus Connect programs and events. Additionally "Inspire" inspires by way of Awareness, Education, Engagement and Recognition to promote holistic learning. This visibility and recognition across the industry and academia will encourage the rest of the community to achieve greater effectiveness and results in turn. In addition to the flavour of recognition, Inspire will also provide an opportunity for the Campus Connect faculty community to visualize and accomplish a 'Growth-Path' with Infosys in terms of contributions to Campus Connect, thereby strengthening the mutual relationship and in the process avail more competency development offerings from Infosys.

Objectives of Inspire

Short Term

1. Recognition of faculty contribution and excellence
2. Enhance faculty motivation to participate in Campus Connect offerings
3. Provide faculty a potential growth path in terms of contribution to Campus Connect

Medium Term

1. Create a push pull factor with faculty
2. Provide recognition and rewards aligned with their contribution

Long Term

1. Competency Development of faculty
2. Sustainable relationship with faculty

3. Model for Aligned faculty offerings

Inspire Model for Partnership can be seen as a blend of recognizing faculty excellence and a platform for exercising their skills in a unique manner. The entire framework can be divided into the following three sections:

1) Faculty Credit Point Framework
Faculty members can earn credit points as they get involved in or contribute to CC program roll-out at their respective institutions. The two categories from which credit points can be earned are:

- Course Delivery (CC Foundation Program, Soft Skills or Industry Electives)
- Event Participation / Contribution to CC Offerings (Includes FEPs, Soft Skills Workshops, Peer Enablement Programs, Webinars / Seminars and so on)

This scheme will be kept open throughout the calendar year (from January – December) in CC Portal. All registered faculty members can maintain their Credit Point account in the portal where they can record their contributions in various categories. Credit Points will be calculated implicitly by the portal system based on pre-defined mappings. This framework is developed from a holistic perspective so that it covers primary performance and contribution categories of faculty members with respect to Campus Connect program. The scheme, since it is kept open throughout the year, provides flexibility and transparency for faculty members to plan their course of action to earn credit points.

At the end of a year (i.e. after end of December), concerned faculty members are expected to complete their submissions. The credit point account for that year gets frozen and final credit points will be assigned to them. This finalization will be subject to approval from the respective CC College SPoC and verification by CC DC SPoC.

Subsequently, based on the number of credit points bagged by faculty members, they will be segmented into the following three levels:

- Bronze Partner
- Silver Partner
- Gold Partner

2) Infosys Campus Connect Faculty Excellence Awards
Campus Connect Excellence Certificates based on levels will be awarded to the faculty members during an annual event held at Infosys DCs. This event, typically, will be conducted between April/May, where the recognition will be done for the faculty contribution during the previous year. All the eligible faculty members who have qualified for any of the levels (Bronze, Silver or Gold) will be invited to Infosys DC for this event.

The annual event will provide an opportunity for the identified faculty members to showcase the unique work / deliverables / practices which they have demonstrated or created. There will be a few live on-stage events on the day in Technical tracks and

winners would be rewarded. The winners would also be invited for delivering webinars anchored by Infosys.

Technical track includes the two following live events:
a) Content Guru

The participating faculty members need to submit any artifacts which they have created and deployed in order to enhance the course delivery and student learning effectiveness. The artifacts that may be created and submitted can include the following.

- Case Studies that model a real world scenario based on topics / focus areas from any of the Foundation Program or Campus Connect elective courses and their suggested solution(s)
- Integrated Projects that involves the application of concepts from Foundation Program courses and which involves creation of Project Deliverables (viz SRS, Design Documents and Test Plans) based on industry followed standards in SDLC
- CAMP Based Assessment Question Bank that emphasizes the importance of assessments in effective learning process. Here the participants can submit a Question Bank based on the courses in Foundation Program package and that adheres to the Campus Connect CAMP model with majority of Analytical and Practice Based questions
- Any other artifacts that have been created and used for course delivery, which has helped the faculty to enhance course delivery and student learning effectiveness

Content Guru is designed to reinforce:

- Application, analysis and synthesize of technical knowledge to model and solve real world challenges
- Practicing of industry standards and benchmarks in Project Development and Assessment Methodology

b) Distinguished Facilitator

The participating faculty members are expected to make a live presentation in front of Infosys jury, demonstrating novel and innovative facilitation techniques during course delivery resulting in better student learning effectiveness in class room. This presentation can include:

a. Learning Activities (Individual / Team)

b. Innovative assessments

c. Leveraging Technology

Distinguished Facilitator event is designed to bring-out:

- unique strengths of facilitators
- a platform to encourage constructive feedback to improve effectiveness

3) Alignment of Competency Development Offerings

The relevance of this partnership model is further enhanced by aligning the CC Program offerings (existing and new) with the different partnership levels. These competency

development offerings include Train The Trainer Program, Paper Publication Sponsorships, Sabbaticals, Research Support, etc.

B. EMC Academic Alliance

EMC collaborates with colleges and universities worldwide to help prepare students for successful careers in a transforming IT industry. The Academic Alliance program offers unique 'open' curriculum-based education on technology topics such as cloud computing, big data analytics, and information storage and management. All courseware and faculty training are offered at no cost to qualifying higher education institutions. The courses focus on technology concepts and principles applicable to any vendor environment, enabling students to develop highly marketable knowledge and skills required in today's evolving IT industry.

Tomorrow's IT organization—an ITaaS organization—will spend a lot less time building and maintaining technology assets and a lot more time orchestrating services and enabling the business to consume them effectively in its operations, decisions, and innovations. This holds profound implications for IT roles and skills. Some roles, such as service owner and cloud architect, may be new. Others, such as business advisor and provider manager, will expand and take on more central importance.

Cloud Architect - Bridge technology domains, ensure coherence of the computing environment, and manage the evolution of the cloud platform for end-to-end business services.
Automation Engineer - Provide cross-technology integration, automated resource management, self-service provisioning, and transparency of usage in the cloud environment.
Cloud Administrator - Manage configuration, operation, and performance of cloud environments for specific business purposes and services.
Service Manager - Manage the design, sourcing, resources, delivery, and service levels of a specific offering in the business and technology services catalog.
Business Advisor - Enable specific organization to meet information needs through effective consumption of cloud-based services.
Provider Manager - Manage relationships with outside vendors of business and technology services and incorporate them as needed into the services management and delivery process.

However, the dominant theme affecting most IT staff is that skills and experience must broaden and become increasingly cross-functional, spanning more technologies and service components, wider sources and uses of information, and more parts of the business. IT leaders must be extremely purposeful in developing and sourcing new skills. They must focus not only on new skills for emerging roles, but also on key skills such as virtualization where short supply hinders progress.

EMC Academic Alliance offers the following courses to prepare students for successful careers in the new IT landscape.
Information Storage and Management (ISM)
Cloud Infrastructure and Services (CIS)

Data Science and Big Data Analytics (DSBDA)
Backup Recovery Systems and Architecture (BRSA)

C. TCS SANGAM

In the workspace of 'Knowledge factory', the Academic Interface Programme initiative by Tata Consultancy Services will act as a sounding board in strengthening academic relationships and ensuring the entry of 'right people' into the organization. The impetus behind creation of this program is to enable academia and industry to seek improved ways of working together.

Supply Chain Management is one of the most important activities, addressed by Business Excellence Models, such as Malcolm Baldrige National Quality Award (MBNQA), European Foundation for Quality Management (EFQM) etc.; Academic Institutes are main 'suppliers' for HR intensive industry, like Tata Consultancy Services. The sourcing for the entire Initial Learning Programme (ILP) depends on the academic Institutions. The Academia- Industry will need to cultivate mutually beneficial and lasting relationships with one another. In this emerging framework, robust high-quality, long-term relationships, based on two-way investments of time & resources are becoming essential to understand, influence and improve the interactions between both sectors. TCS supports Academic World in various ways such as: Project Support and Internship to Students, Conducting Workshops in Academic Institutes, Sponsorship of Academic / Social Events, Best Student Project Awards, Professors from Academia on sabbatical to TCS, Sponsorship of TCS associates to acquire higher qualifications, Sponsored course on Software Engineering for selected final year students, Maintenance of TCS Academic Portal.

D. IBM Software Centre of Excellence (CoE)

The Information Technology world today is on the lookout for people who can apply their minds rather than mere support workers who are only good at following instructions. IT needs adaptive innovators, individuals, who can think on their feet, apply their learning and take smart decisions, those with a sound background supported by sound knowledge and bold individuals who can architect and carry out IT plans that will add business value. IBM has instituted Software Centres of Excellence to promote high quality education by providing state-of-the-art and emerging technologies in colleges/ universities with the objective of nurturing highly skilled computer professionals. IBM is thinking and acting in new ways to make our systems more efficient, productive and responsive. Smarter systems that make a material difference to the health of the global economy, the health of our planet, and the health and prosperity of global society. IBM's Software Centre of Excellence (CoE) project is another bright step towards building a Smarter Planet.

Software Centre of Excellence – A platform to fine- tune students' IT skills. IBM's Software CoE is an exclusive opportunity for engineering colleges to create numerous certified professionals with smart skills. The Software CoE is an offshoot of IBM's Academic Initiative which covers 2000 colleges and universities around India / South Asia and many more in the world. It is a global model committed to driving open

standards-based IT skills. Under the initiative, IBM partners closely with the local government and academia to create an enabling environment by allowing access to IBM software, course materials, training, curriculum development and certification. This will help India become an innovators' nation by investing in skills development and technology enablement, empowering future workers with the right skills to be able to compete in the larger global workforce. IBM Software CoEs are enabled to provide a platform for development of software skills for students. The concept of T-Shaped skills is commonplace for IT Service professionals wherein they are expected to be and perform like all-rounders.

IBM has collaborated with select engineering colleges across the country and will establish a series of IBM Software Centres of Excellence, creating a unique opportunity for students to learn new skill sets on IBM software products such as DB2, WebSphere, Lotus, Rational and Tivoli, as well as develop world-class solutions.

IBM will follow a two-pronged approach, providing the universities with access to technologies relevant to the market and training faculty to ensure that the right skills are taught. The students can gain firsthand experience of the software products that are installed at the campus. Through this initiative, IBM will work closely with the selected colleges and leverage them as centres of learning.

The colleges will have to provide infrastructure and high-end systems while IBM will extend its entire range of software suite free of charge.

The Software CoE will give students the opportunity to put skills to the test and allow innovation to take centre stage by providing exposure to leading and emerging technologies.

Best Software CoE contest

- Software CoE colleges also have the opportunity to participate in the Best IBM Software CoE contest. Winners of this contest will get recognition and a rolling trophy
- Criteria for the contest - Points will be assigned to each category:
  - Number of teams registered for The Great Mind Challenge
  - Number of projects submitted for The Great Mind Challenge
  - Number of DB2 certified students
  - Number of RAD certified students
  - Number of certified faculty
  - Number of training sessions conducted by faculty
  - Number of TGMC face-to-face short-listed teams
  - Number of IBM technologies taught in the college as curriculum

Students at the Software CoE will also have access to the following:

- Free IBM software training on select listed software
- Free software & training material
- Free certifications

• Permission to use IBM identity for Software CoE promotions
• Free 'The Great Mind Challenge' mentoring

E. Microsoft Ed-Vantage Program

Microsoft India launched the academic initiative Ed-Vantage in October 2012, basis the feedback received from academic institutions, students and partners on how Microsoft can engage with them in a structured way to add more value and strengthen employability skills. The focus of this program is on below principles:

- Creating platform for continuous learning and innovation
- Partnering with institutions and co-branding + marketing of the value-added services to students and surrounding communities

Ed-Vantage Program brings all the academic programs, offerings and teams in Microsoft to align and deliver a single window experience to academic institutions. The program works towards bringing in synergy between students, institutions and partners by providing end-to-end exposure to them on different tools and resources.

Ed-Vantage Program is divided into 4 levels of participation: Silver, Gold, Platinum and Platinum+ with the relevant benefits and criteria for each.

	Benefit	Silver	Gold	Platinum	Platinum +	Remarks
Academic Alliance	Framed Certificate	Silver Level Certificate	Gold Level Certificate	Platinum Level Certificate	Platinum + Level Certificate	
	Listing on microsoftedvantage.com	NA	Yes (Gold eligibility)	Yes (Platinum eligibility)	Yes (Platinum + eligibility)	
	PR Coverage	NA	NA	Yes	Yes	For eligible outcomes only
	Marketing Collateral	Yes	Yes	Yes	Yes	
Microsoft Lab	Microsoft Innovation Center (MIC)	NA	NA	NA	Yes	Deliver outcomes to retain for next year
	Microsoft Cloud Competency Center	NA	NA	Yes	NA	Deliver outcomes to retain for next year
Research	Research Connector	NA	Yes	Yes (with research ambassador status)	Yes (with research ambassador status)	
	Research Day	NA	NA	1 professor	2	Institution

					professors	can nominate
Other	Curriculum Assistance	Kit provided	Kit provided with guidance for 1 topic	Kit provided with guidance for 2 topics	Kit provided with 1 day workshop for 2 topics	
	Faculty Summit	NA	1 faculty	2 faculty	2 faculty	Institution can nominate
	Microsoft Leadership Visit	NA	NA	NA	Yes	
	Lifetime Free Office 365 (A2) subscription	Yes	Yes	Yes	Yes	Basis the institute's request for deployment
	On-campus Technology Workshop	NA	NA	Yes	Yes	

F. INTEL

Through Foundation for Innovative and Collaborative Education (FICE), it has started Intel Embedded Lab using ATOM processor. The necessary infrastructure was created by the company and has also provided the necessary funding and kits, which helps in training students and also in their project work. The Embedded system course, which was already being offered, its content was suitably modified to suit the new lab re-quirements. Two students from the Institution underwent their training at IISc, Bangalore. The students working in this lab have presented their research work at the Intel Asia Conference held at Malaysia and also at the Intel India Conference recently held at Goa.

G. SPAN InfoTech

The engineers of this company have de-signed a course entitled “Essentials of IT Industry” and have been offering it as an open elective. The conduction of classes, evaluation and grading of performance of the students is done entirely by the engineers of the company.

H. NVDIA

NVDIA has setup a CUDA development centre in the Institu-tion, through which interested students get trained on CPU-GPU programming.

I. WIPRO Mission 10X

WIPRO – WIPRO offers a training programme called Mission 10X and NMAMIT took the initiative and provided necessary support for the conduct of this training programme for all the faculty of the Institution. During the year 2012-13, Mission10X collaborated with twenty five engineering colleges across India and established Mission10X

Technology Learning Centers (MTLC) that houses the UTLPs. The inauguration of all the 25 centers was completed in the month of March 2013 and NMAMIT is one of them. This lab is housed in the department and has Embedded ARM processors and offers project work to undergraduate students from E &C and Computer and Information Science students.

7. Benefits Obtained and Looking Forward

The current status of Industry-Academia interaction at NMAMIT is very encouraging and show lot of potential for further interaction. Based on the levels of interaction discussed previously, NMAMIT has had interaction at all the three levels, which shows the maturity of these interactions. The efforts have helped the Institution and interacting industries in terms of providing current curriculum to the students, providing additional training and skills to enhance their employability, providing additional training to the faculty and supporting their R & D activities and providing readily employable students to the industries. This interaction has further strengthened the efforts of the faculty in getting significant research funding from government funding agencies and also from many leading industries and organizations. There has been a significant increase in publications in leading international journal and conference proceedings Additional benefit of this interaction has been in community development, helping local students and industries, from the knowledge gained through this interaction. Significant intellectual property has been generated both by the institution and industries helping in the development of future technology.

8. Conclusion

This paper provides an overview about the current status of industry partnerships with different departments for promoting effective teaching and learning experience to students of NMAMIT. The efforts has been mutually rewarding to both the Institutions and interacting industries, with significant improvements in curriculum, training inputs, project work, R & D outputs, publications / patents and placements, to both students and faculty. Overall there has been increase in intellectual outputs, which will contribute to the overall growth and development of the Institution.

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