



Details of Two best practices successfully implemented:

Best Practice 1: Tie Your LACES(TYL) Training

Part-I: Abstract

Tie Your LACES (TYL) program focuses on the professional competency of students. TYL focuses on Language, Aptitude, Core domain, Experiential and Soft skills, along with programming skills and industry-relevant technologies. Conduction of Hackathons to help students gain competitiveness. The training is provided right from the first year. Continuous evaluation of the skills is done and a TYL scorecard is tracked for each student. In addition to TYL Aptitude & Soft Skills organized in students' pre-final year, Programming Skills training programs in summer break. First started with 1 week of Programming Fundamentals course (L2) followed by 1 week of Programming Language courses in Java, C++, and Python (L3) for all students interested in IT Jobs. After L2 & L3 training, students are guided to have self-driven Programming Language Proficiency training (L4) in the language of their choice, followed by Advanced Topics (L5) training such as Full Stack Development, Cloud Computing, Machine Learning. After every training, Programming Skills assessment tests (L2, L3 & L4) are conducted to ensure that students are ready for placement drives of software jobs.

Part-II: Detailed Report

1. Introduction

Tie Your LACES (TYL) is a program to improve the employability of students when they go for placement drives in their final year. It helps students in their holistic development required for Corporate Jobs or for any career option they choose.

TYL Training and Activities develop students in skills of 'L A C E S' that represent 'L' for Language, 'A' for Aptitude, 'C' for Core, 'E' for Experiential, and 'S' for Soft Skills. TYL Skill development activities are through all the years of students' coursework. TYL activities are designed, planned, and being executed for all semesters of all batches and all degree programs namely BE, MCA, MBA, and M.Tech.

- Every TYL Skill Level development ends with an assessment test. Students need to clear the assessment to progress to the next level of skill. Students need to pass assessment tests to get eligibility for placements. The TYL process supports both quick and slow learners with remedial classes, mentorship, and career counselling.

- TYL program is planned for all courses and all semesters. All students should take full use of these TYL programs to earn their 'dream job' with a 'high salary package'.

2. Focused Area

All TYL Topics follow a certain naming convention. For example, in ‘P2-Python’, the first character ‘P’ represents Programming, ‘2’ represents the Level of the course and the remaining characters give details of the topic.

- All TYL topics are categorized into: - Lx for Language skills, Ax for Aptitude skills, Cx for Core domain skills, Px for Programming skills, Sx for Soft skills, Tx for Tools skills, and Bx for Business Skills. Lx, Ax, Cx, Px, and Sx are applicable to BE, MCA, and M.Tech courses, whereas Bx and Tx apply to the MBA program.
- All TYL Skills are developed in students from the first year to the final year in phases. For example, TYL A1 Aptitude is covered in the first year of BE, whereas TYL A2 & A3 Aptitude training is planned in the 5th & 6th semesters of BE. Similarly, Px topics are covered with TYL P1-Basics in 1st year of BE, TYL P2-Python and P2-Advance in BE, and TYL P3, P4, P5 training are planned in 3rd year. TYL program is designed in such a way that skill levels go up as students progress in their coursework.

3. Approach to the Problem: TYL TRAINING DONE

1. One week of TYL A3 Aptitude (Quantitative, Reasoning, and Verbal) and TYL S3 Soft Skills Trainings for all pre-final year BE and pre-final year MCA students.
2. One week of TYL A2 Aptitude (Quantitative, reasoning, and Verbal) and TYL S2 Soft Skills Trainings for all pre-final year MBA and pre-final year M.Tech students.
3. TYL A1 Aptitude (Quantitative and Reasoning) training for all 1st-year Chemistry Cycle students as part of even semester timetable.
4. TYL S1 Soft Skills (Getting out of fear and Resume writing) training for all 1st year Physics Cycle students as part of even semester timetable.
5. TYL P2-Advanced Computing Concepts training for all 2nd-year 4th semester BE students.
6. TYL P5- Advanced Technologies (Cloud Computing, Full Stack Development, Machine Learning, and Big Data Analytics) for all 3rd-year 6th semester BE students.
7. TYL B2-Business Domain skills and TYL T2&T3-Data Analytics using Excel for 1st-year 2nd semester MBA students.

4. Implementation

Organized a series of Tie Your LACES (TYL) 24hrs Online Hackathons for our students as mentioned below.

2020-21: Even Sem: Theme of the Hackathon: “Digital Life after COVID-19 Pandemic”

1. Organized TYL Online Hackathon – JAVA from 7th to 8th July 2021.
2. Organized TYL Online Hackathon – Python from 17th to 18th July 2021.
3. Organized TYL Online Hackathon – C++ from 2nd to 3rd July 2021.
4. Organized TYL Online Hackathon – BDA/FSD/CC/ML from 22nd to 23rd July 2021.

2020-21: Odd Sem: Theme of the Hackathon: “Digital startups post Pandemic”

1. Organized TYL Online Hackathon – Python from 28th to 29th Nov 2020.
2. Organized TYL Online Hackathon – JAVA from 21st to 22nd Nov 2020.

3. Organized TYL Online Hackathon – Big Data Analytics/Cloud Services/Full Stack Development/Machine Learning using Python on 2nd to 3rd Dec 2020.
4. Organized TYL Online Hackathon – C++ from 13th to 14th Nov 2020.

2019-20: Theme of the Hackathon: “Response to COVID-19”.

1. Organized TYL Hackathon on 20th Oct 2019 in C++ which is open to all students. A total of 08 teams have registered and 6 teams have participated in the hackathon.
2. Organized TYL Hackathon on 26th Oct 2019 in JAVA which is open to all students of CMRIT. A total of 26 teams have registered and 24 teams have participated in the Hackathon
3. Organized TYL Hackathon on 4th Nov 2019 in Python which is open to all students of CMRIT. A total of 27 teams have registered and participated in the Hackathon
4. Organized TYL Hackathon on Big Data Analytics / Cloud Services / Full Stack Development / ML using Python on Nov 11th, 2019. A total of 15 teams have registered and 13 teams have participated in the Hackathon
5. Organized TYL Hackathon on 27th April 2020 in C++ which is open to all students
6. TYL Hackathon on “COVID-19 IDENTIFICATION USING X-RAY/CT SCAN IMAGES USING CNN” organized on 16th May 2020. A total of 10 teams had registered and participated in the hackathon.

2018-19:

1. Organized “TYL Hackathon on R Programming / Embedded with IOT / Auto CAD” on Feb 16th, 2019.
2. Organized “TYL Hackathon on Python Programming” on Feb 24th, 2019.

5. Conclusion

To enhance the employability of our students, multiple training on aptitude, soft skills, programming, and core skills were organized through our Tie-your-LACES program. These training programs are helping our students to clear higher thresholds set by the companies visiting us for campus placements as mentioned below.

Year	#Students Placed	Max Salary
2021-22	625(As on 4th April 2022)	25 LPA
2020-21	792	23.5
2019-20	742	22 LPA
2018-19	616	18 LPA
2017-18	560	18 LPA
2016-17	596	12 LPA

Best Practice-2: Innovation and Entrepreneurship (I&E)

CMRIT has an Innovation & Entrepreneurship (I&E) Cell in every department. The I&E cell targets to create an ecosystem for student entrepreneurs which includes ethics, morals, values, funding, start-up support, mentoring, development of emotional intelligence, academic mentoring, field touch, social consciousness, environmental impact, etc.

The key features include:

- Design thinking workshop for all students across departments.
- Patent drafting and filing workshops
- Start-Up workshops for students.
- Students participate in National level hackathons like SMART INDIA HACKATHON, NATIONAL INNOVATION CONTEST, DRUG DISCOVERY, TOYCATHON ETC.
- Mentor students to get involved in innovative projects and hone their entrepreneurial skills.
- Motivate and mentor students to become future Innovators and Entrepreneurs

The responsibilities of the coordinator to create a positive culture for startups are:

- Driving startups and all kinds of projects in the specific area
- Providing support to other projects which need support in the specific area
- Creating new projects
- Collecting ideas / Looking out for real problems in the area
- Encourage multi-disciplinary technical activities
- Larger involvement of faculty and students
- Creating awareness from time to time on the area
- Looking for external collaboration industry or premier institutes
- Winning awards at state/national/international level in specific areas
- Monthly tracking and updates

CMRIT, one of the most forwarding thinking and innovative educational institutions, is proud to start an incubation center to enable its students to get first-hand experience in entrepreneurship, promote innovation-driven activities at the institute, and provide a comprehensive and integrated range of support including space, mentoring, training programs, networking and an array of other benefits.

Just as one cannot imagine a college today without a library or a place for physical activity, we believe that an incubation center is equally essential in today's competitive and fast-changing world. Through the incubation center, students gain hands-on experience in innovation and entrepreneurship while being nurtured and encouraged by faculty, management, and industry experts.

The CMRIT Incubation Center, along with the CMRIT MakerSpace, aims to be the hub of innovative and high-impact ventures in social, educational, commercial, and other domains. It hopes to bring forth a revolution in how and what students learn and achieve while in college.

Structure of CMRIT I&E Cell:

I&E Cell is headed by the chairperson who is chosen by the members of the cell after collective deliberations. All activities are monitored by the chairperson and I&E Heads representing different departments. One of the members is chosen as the convener to plan the activities. The calendar of events is meticulously planned and prepared in advance by I&E cell members who ensure proper implementation of the planned events. Heads of the Department provide the required support to the I&E activities in their departments. They are responsible for overseeing the I&E activities in their departments in conjunction with I&E heads.

These collective efforts have led to the institution of innovative policies to achieve the goals set out expeditiously. CMRIT formulated CMRIT IPR Policy 2020 followed by CMRIT Innovation and Start-up Policy-2021 in line with National Innovation and Startup Policy 2019. In addition to internal members, CMRIT has involved external experts in bodies such as the institute innovation council. A large number of experts from Government and Industry have shared their knowledge with CMRITians which has resulted in enormous progress in the filing of patent applications, entrepreneurial projects, and initiation of faculty-driven startup culture.

Outcome:

- Number and different types of I&E and IPR activities Conducted: 140
- No. of student's & faculty ideas generated: 68
- No. of IPs generated, published, and granted:
 - Patent published:* 31
 - Granted Patent:* 10
 - Granted Design:* 11
 - Trade Mark:* 02
 - Technology Transfer:* 01
- No. of Student & Faculty Start-ups/Ventures established: 17
- Details are available in NAAC template 6.1.2.

The I&E cell displays team spirit in organizing various events, many of which are collaboratively organized across departments. The knowledge regarding ideas, processes, and practices is shared across departments. In summary, the I&E Cell purposefully practices decentralization and participative management.

Highlight selected start-ups established by students/faculties with mention of founder/co-founder name. The details are summarized in the table below.

Sr. No.	Name of the Venture/Startup/ SME Unit Established with the Support of HEI	Name of the Founder	Name of the Co-Founder
1	AnHestia	Swathi	Nithesh Kumar Reddy
2	PureAthera	Shalini K V	Sanjay Kashyap
3	Nun Selene	Swethashree	Vidyashree
4	Ele Phoebe	Chethan S	T Avinash Reddy
5	Love Rhea	Ramesha G N	NA
6	CuteApate	Preethi N	NA

7	Din Harmania	Venketesh Murthy	Chandrappa M
8	Q2 Demeter	Sharmila R	NA
9	Mew Thetis	Anand Raja C	NA
10	The Iris	Srinivas S M	Anindita Gosh
11	AnAstrae Innovative Solution	Pranav Bhat	NA
12	Arms Minerva	Ms. Amrutha C K	Mr. Rahul Sanjay Mahendrakar
13	Carlo Stea	Mr. Navneeth kumar	Mr. Prince Vergiiese
14	CO3 Structural Systems	Mr. Gowtham Reddy	Mr. Mohsin Ali Khan
15	DS9 Elements and Structure	Mr. Sharvan Kumar	Mr. Dharshan Reddy
16	ZENS	Ms. N. Zain Ahamad	Mr. Nitish Srujan
17	Space Tech Orbital Pvt Ltd	Mr. Ashutosh Srivatsav	NA
18	Tech Force	Mr. Velraj Kumar	NA

- To focus on the National Innovation Contest, we have submitted 53 ideas initially. Out of 53, only 21 ideas are converted into Proof of Concepts. All 21 have been reviewed by internal committee members. After the evaluation 14 PoC is submitted to the IIC portal and Five PoCs are shortlisted by zonal level nomination. From that, one PoC got selected for the finals; Team Leader: Mr.Akilesh Bellad, Department of EEE, and it was guided by Prof. Sumit Mohanty, Internal Innovation Ambassador Dr. V. Agalya, and the external Innovation Ambassador Prof. N.M. Jothi Swaroopan. To be ready to take part in different innovation contests, CMRIT regularly maintains a repository of project ideas. Out of the potential 53 ideas compiled, 21 ideas was brought to the level of Proof of Concepts (PoC). The latter was scrutinized by the internal review committee members to evaluate the feasibility and viability of the ideas. Thereafter, 14 PoCs was submitted to the IIC portal. At the zonal level evaluation, five PoCs were shortlisted out of which one PoC got selected to the finals.

Team Leader: Mr. Akilesh Bellad, Department of EEE; Guide: Prof. Sumit Mohanty; Internal Innovation Ambassador: Dr. V. Agalya; External Innovation Ambassador: Prof. N.M. Jothi Swaroopan.

- In the intercollegiate competition event organized by the Federation of Karnataka Chambers of Commerce and Industry (FKCCI) **Manthan 2021**, CMRIT participated in the competition by submitting 26 ideas. The event attracted a total of around 700 project ideas from across Karnataka state. The jury shortlisted 197 teams for the quarter-finals, out of which 21 ideas are from CMRIT. All the shortlisted teams are moved to the semi-finals and 6 teams of CMRIT are short-listed for the finals.
- CMR Institute of Technology organized an internal hackathon as a forerunner to SMART INDIA HACKATHON (SIH) on the 14th January 2020 in its campus. A total of 18 teams participated. 10 projects were of software and 8 were of hardware domain. 5 teams from software and 2 teams from hardware domain were shortlisted for the next round. Winners of the internal SIH participated in the SIH 2020. Three teams from CMRIT were selected for the grand finale of the Online Smart India Hackathon 2020. The team **Import Brain** with the project title “A positive psychology game to promote objectives of Beti Bachao and Beti Padao” received the Jury Special Mention in the finale.
- TECHNOVATION: CMRIT organized an intercollegiate event on 27th September 2019 to attract ideas and showcase talent spanning different facets of technological innovation. The

theme was “Artificial Intelligent-Based Applications for the Betterment of the Society”. The outcome was several student innovations by way of ideation and conceptualization of novel technology-based processes and products for the betterment of society, and having high social relevance. Adjudicators of the event were industrial personnel, founders of AI start up companies, and innovators from NGOs engaged in societal projects. The event, and the ideas generated therefrom were highly appreciated by both students and the adjudicators.

The AI Application Themes are: Telecommunication, Biochemistry, Mechatronics, Healthcare, Visualization, Transportation, Agriculture, Energy, Mobile, Web and Cloud Solutions, Defence, Manufacturing, Nano Computing, Finance, and Retails.