



Date: 21/7/2017

### A Brief Report on

### ISTE and AICTE Approved Two Weeks Short Term Training Program (STTP)

**Event Details:** ISTE and AICTE Approved Two Weeks Short Term Training Program (STTP) on “Developing R&D culture in Educational Institutes through Project Based learning”.

**Duration:** 19<sup>th</sup> June- 1<sup>st</sup> July 2017

**Venue:** Seminar Hall-III

**Participants:** Faculty from Thakur College of Engineering (All departments)

➤ **Objectives:**

1. Recognize the gap in attaining all learning attainments as per bloom's taxonomy.
2. To develop the research based activities in domain to address gaps recognised through the project based learning.
3. To do analysis of activities and study the impact on PSO attainment.
4. To list down all activities done and map with blooms taxonomy level and comment on level attained through the planned activities.

➤ **Staff Involved:**

1. Dr. B. K. Mishra – Principal
2. Dr. Lochan Jolly Dean SSW- Coordinator
3. Dr. Kamal Shah Dean R&D - Coordinator

The organizing committee is as follows:

Sr. No.	Name of Faculty	Name of Staff Member	Venue/ Committee	Responsibilities
1.	Dr. Lochan Jolly	Mr. Dinesh Kanswal	Overall Coordination	<ol style="list-style-type: none"> <li>1) To coordinate with other committee members for smooth conduction of the program.</li> <li>2) In case of absence of any committee members, need to make alternate arrangements or ready to work as a committee member.</li> <li>3) Timely reporting Principal about the activities.</li> </ol>
2.	Mrs. Purvi Sankhe	Mr.Dinesh Kanswal	Stage & Venue Arrangement	<ol style="list-style-type: none"> <li>1) Venue arrangement.</li> <li>2) Banners, bouquet &amp; name plates arrangements.</li> <li>3) Audio/Video testing.</li> <li>4) Availability of water bottles.</li> <li>5) Reporting to overall coordinators on timely basis.</li> </ol>

3.	Mrs. Vidyadhari Singh	Mr.Dinesh Kanswal	Anchoring	1) To start each session. 2) To introduce each speaker. 3) To conclude each session.
4.	Mrs. Archana Deshpande	Mr.Dinesh Kanswal	Overall Coordinator	1) Coordinating with all FDP coordinator's for the smooth conduct of the program. 2) Vote of thanks during Valedictory function.
5.	Mr. Niket Amoda Mrs.Ruta Pathak Mrs. Sadhya Maheshwari Mr.Iqbal Mujumdar Mr.Pritesh Bhana Mrs. Shweta Gulati	Mr.Dinesh Kanswal	Attendance and Feedback Management	1) To take session-wise attendance. 2) To do daily attendance analysis. 3) To take weekly feedback. 4) To do feedback analysis.

➤ **Planning:**

- On April 28<sup>th</sup>2017, Dean SSW called for a meeting of the FDP Committee and discussed about the conduct of ISTE approved STTP from 19<sup>th</sup> June to 1<sup>st</sup> July 2017. The responsibility of conducting the program and making all required arrangements was allotted to Departmental FDP coordinators.
- On June 6<sup>th</sup> 2017,Dr. Lochan Jollycalled a meeting of FDP and informed committee members about the event and the initial responsibilities like the designing & finalizing the brochure of the event, etc.
- On June 13<sup>th</sup> 2017,Dr. Lochan Jolly reported progress of work related to the STTP.
- On June 16<sup>th</sup> 2017,Dr. Lochan Jolly called a meeting of organizing committee to delegate the responsibilities of committee members.

➤ **Conduct:**

Participant Details:

Designation	No of members
Faculty members from EXTC,ETRX, IT, CMPN,MECH, H&S and CIVIL Departments	65

➤ **Description:**

**Schedule of the program is attached.**

➤ **DAY 1 – 19/07/17 (Monday)**

**1. Inauguration:**

The Two Week ISTE and AICTE Approved Short Term Training Program (STTP-2017) which was organized from 19<sup>th</sup> June-1<sup>st</sup>July 2017 on “Development of R&D culture in Educational Institutes through Project Based Learning” was designed to address the gaps developed in learning attainment as per the Bloom's Taxonomy.



The Two Week Short Term Training Programme (STTP-2017) started with lighting of lamp by the chief guest, , Dr. B.K. Mishra, Principal, TCET Dr. R.R. Sedamkar (Dean Academics), Dr. Kamal Shah

(Dean R&D) and Dr. Lochan Jolly (Dean SSW) followed by the singing of the Saraswati Vandana. Before the welcome address by course coordinator, our Principal, Dr. B.K. Mishra felicitated Prof. S. R. Jajoo (Resource Person) ISTE Executive Council Member. A heart-warming welcome remark was delivered by Dr. Lochan Jolly, Course Coordinator, of STTP-2017. In her address importance and contents of the training program. The session further continued with the address of Dr. B.K. Mishra who enlightened the participants about the importance of such training programs and how such programs help in developing R&D culture in educational institutes. He even mentioned that the primary objective of this endeavour is to inculcate and nurture the culture of research amongst all of us and also to guided us in how to integrate research in academics.

The last address of the session was given by Prof. S. R. Jajoo. In his speech, he spoke about the initiatives of ISTE, the different programs conducted by them and encouraged participants to come forward and contribute effectively in such programs.

**1. Innovative teaching for effective learning:**

Name of the delegate & topics covered	
<p style="text-align: center;"><b>Dr. R.R Sedamkar</b> <b>Innovative teaching for effective learning</b></p>	<p style="text-align: center;"><b>Highlights of the session</b></p>
<ul style="list-style-type: none"> <li>• <b>5 major shifts in 100 years of engineering education</b></li> <li>• <b>University based learning</b></li> <li>• <b>Innovative teaching scheme for TCET</b></li> <li>• <b>Role of teacher in employability of student</b></li> <li>• <b>Integration of various technologies for effective teaching</b></li> </ul>	<ul style="list-style-type: none"> <li>• Discussion of 5 major shifts in 100 years of engineering education with the faculties-               <ol style="list-style-type: none"> <li>1. a shift from hands-on and practical emphasis to engineering science and analytical emphasis;</li> <li>2. a shift to outcomes-based education and accreditation;</li> <li>3. a shift to emphasizing engineering design;</li> <li>4. a shift to applying education, learning, and social-behavioral sciences research;</li> <li>5. a shift to integrating information, computational, and communications technology in education</li> </ol> </li> <li>• How is the University based learning scheme is divided amongst Project based learning, Technology based learning, Research based learning Activity based learning Industry based learning and Self learning.</li> <li>• Above scheme can be implemented through different activity at institute level like learning from society, IPR, fundamental &amp; industrial research &amp; consultancy etc.</li> <li>• Teacher should have creative thinking &amp; make the student professional engineer to increase the employability of students</li> <li>• Need to start interdisciplinary courses</li> <li>• Need to developed skill, knowledge &amp; attitude of students through teaching</li> <li>• Need to get to aligned with 21<sup>st</sup> century students thorough various technologies.</li> </ul>

## 2. Activity conducted by all Domain In-charges:

After lunch all faculty members collected following documents for previous semester from each domain.

1. Term test papers (3 sets)
2. Assignments (3 sets)
3. Final exam paper
4. Syllabus detailing
5. Practical planning sheet

### ➤ DAY 2 - 20/07/17 (Tuesday)

## 3. Challenges Developing Research Culture in the College

Name of the delegate & topics covered	
<p><b>Dr. Deven Navin Shah</b> <b>Challenges Developing Research Culture in the College</b></p>	<p><b>Highlights of the session</b></p>
<ul style="list-style-type: none"> <li>• <b>Why research in Engineering College?</b></li> <li>• <b>What are challenges faced by institute to maintain R&amp;D culture?</b></li> <li>• <b>What is Research?</b></li> <li>• <b>What is contribution from students?</b></li> <li>• <b>What is Support, promotion &amp; evaluation of research?</b></li> <li>• <b>Why projects submitted for minor research grant gets rejected?</b></li> </ul>	<ul style="list-style-type: none"> <li>• Research is a part of curriculum.</li> <li>• There are three challenges:               <ol style="list-style-type: none"> <li>1. Tough task to establish and then maintain R &amp; D</li> <li>2. Recruitment process</li> <li>3. Extraordinary commoditization of higher education</li> </ol> </li> <li>• Build confidence to do research.</li> <li>• Need comfort &amp; not fear (of isolation, failure, continuous monitoring)</li> <li>• Zero tolerance.</li> <li>• Research is must for students but teacher need to lead the team.</li> <li>• Problems from student point of view:               <ol style="list-style-type: none"> <li>1. Attendance</li> <li>2. Negative feeling among students</li> <li>3. Fight in between teaching assignment vs research assignment</li> </ol> </li> <li>• Department wise research culture for funded research.</li> <li>• To start research with a motive and a well defined thought process and keep in mind the following points:               <ol style="list-style-type: none"> <li>1. One should have domain knowledge in depth</li> <li>2. Ability to challenge the technology</li> <li>3. Radical thinking leads to new ideas</li> <li>4. Good to refer papers but not biased way author</li> </ol> </li> <li>• One should highlight research issues, technology used etc in title of research.</li> </ul>

## 4. Activity conducted by all faculty members in their respected domain:

After lunch, all faculty members corrected minor research proposals which were rejected and also start preparing a new minor research grant for the current semester.



➤ **DAY 3 – 21/07/17 (Wednesday)**

**5. Research Culture Development**

Name of the delegate & topics covered	
<p style="text-align: center;"><b>Dr. Kamal Shah Research Culture Development</b></p>	<p style="text-align: center;"><b>Highlights of the session</b></p>
<ul style="list-style-type: none"> <li>• <b>Road map for research</b></li> <li>• <b>Awareness of funded Agencies</b></li> <li>• <b>Motivation to do research</b></li> </ul>	<ul style="list-style-type: none"> <li>• The session started with the discussion of phases of R&amp;D and a roadmap of R&amp;D in TCET.</li> <li>• The speaker suggested that the first step to research is gap analysis and the bridge courses should be designed after the gap analysis considering the NBA guidelines.</li> <li>• The students should be encouraged to take up projects considering environment, safety, ethics, cost and type as important factors. They should also be motivated to participate in technical events of other colleges.</li> <li>• The Speaker also discussed that Research Laboratories should be developed in view of relevance to PO and PSO.</li> <li>• The speaker also informed that the agencies giving Research Grants are University of Mumbai, AICTE, DST, DAE,IOSR and CSIR.</li> <li>• The session ended by motivating the Faculty Members through videos showing the technical advancements in the world.</li> </ul>

**6. Activity conducted by all faculty members in their respected domain:**

After lunch all faculty members are identified names of funded agencies in their own domain and started making research plan for the current semester.

➤ **DAY 4 – 22/07/17 (Thursday)**

**7. Alignment of Bloom's Taxonomy for effective outcome based education**

Name of the delegate & topics covered	
<p style="text-align: center;"><b>Dr. Madhuri Mavinkurve, Mrs. Payal Shah, Dr. Rajesh Bansode Alignment of Bloom's Taxonomy for effective outcome based Education (OBE) for Domain</b></p>	<p style="text-align: center;"><b>Highlights of the session</b></p>
<ul style="list-style-type: none"> <li>• <b>What is Triangle of Learning?</b></li> <li>• <b>What are the challenges in</b></li> </ul>	<ul style="list-style-type: none"> <li>• Learning Triangle consists of:               <ol style="list-style-type: none"> <li>1. Learning Objectives</li> <li>2. Assessment</li> </ol> </li> </ul>

<p><b>designing learning objectives?</b></p> <ul style="list-style-type: none"> <li>• <b>How to design instructional activities effectively?</b></li> <li>• <b>How can we align Bloom's Taxonomy for effective OBE?</b></li> <li>• <b>What are different teaching learning scenario from Teacher's perspective?</b></li> <li>• <b>What are different teaching learning scenario from Student's perspective?</b></li> <li>• <b>How to construct learning Objective?</b></li> </ul>	<p><b>3. Instructional Activities</b></p> <ul style="list-style-type: none"> <li>• Need of Learning Objectives.</li> <li>• Identification of valid learning Objectives.</li> <li>• Writing Learning Objective of the topic from current syllabus.</li> <li>• Mismatch between the Teacher's expectation and students learning level.</li> <li>• Define learning Objective that matches with students learning levels.</li> <li>• Innovative ways of teaching.</li> <li>• Levels of Learning Attainments in Bloom's Taxonomy:             <ol style="list-style-type: none"> <li>1. Recall</li> <li>2. Understand</li> <li>3. Apply</li> <li>4. Analyze</li> <li>5. Evaluate</li> <li>6. Create</li> </ol> </li> <li>• Hierarchy of Cognitive levels.</li> <li>• Example of learning objectives at different levels</li> </ul>
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**8. Activity conducted by all faculty members in their respected domain:**

After lunch all faculty members evaluated each document that they have collected on Day 1 and mapped the learning levels according to Bloom's Taxonomy and found out the total attainment.

**DAY 5 - 23/07/17 (Friday)**

**9. Alignment of Assessment with Course Outcomes**

<p><b>Name of the delegate &amp; topics covered</b></p> <p><b>Dr. Madhuri Mavinkurve, Mr. Sanjeev Ghosh</b></p> <p><b>Alignment of Assessment with Course outcomes</b></p>	<p><b>Highlights of the session</b></p> <ul style="list-style-type: none"> <li>• Effective alignment of assessment and learning objectives.</li> <li>• Designing of assessment questions for all the cognitive levels.</li> <li>• Case study of questions of different cognitive levels.</li> <li>• Group activity for the designing questions of different cognitive levels.</li> <li>• Sample blue print of the Term Test question paper.</li> <li>• Activity to determine the blue print of the Term Test paper of last semester.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>What is meant by assessment?</b></li> <li>• <b>What is the Hierarchy of cognitive levels?</b></li> <li>• <b>How to assess students?</b></li> <li>• <b>How to align assessment with learning objective?</b></li> <li>• <b>How to determine cognitive level of the question?</b></li> <li>• <b>How to construct the blue print of the Term Test paper?</b></li> </ul>	

**10. Activity conducted by all faculty members in their respected domain:**

After lunch all faculty members prepared Question Bank for the current semester subject for all bloom's level of learning attainments. All doubts were are clarified by the expert.



## ➤ Day 6- Day 10 (27/06/17) – Day 10 (1/07/2017)

The objective of second week of STTP was to develop:

1. **Develop domain content:** In this faculty members from all department explored and researched on the various software in their subjects and design Experiments in related subjects.
2. **Develop Design Experiments:** Faculty members design and prepared Design experiments based on the software studied where in students are given open ended question (Application Based) to solve to attain higher order thinking of students.
3. **Scope for research:** Faculty members discussed latest opportunities and work which can be done in their domain and prepared mini/minor/major projects titles for S.E/T.E/B.E Students respectively.
4. **Design of Bridge Course:** Faculty members discussed and identified gap in curriculum and Industry requirement and accordingly design syllabus of bridge course which can be offered to students.
5. Faculty also prepared self study materials for students to enhance teaching learning process.
6. Industrial visit was arranged by each department to get exposure to industry process and new developments.

### 11. Valedictory

The program ended with the valedictory function which was graced with the presence of Dr. B.K Mishra, Principal, TCET, Dr. R.R. Sedamkar, Dean-Academics, Dr. Lochan Jolly, Dean-SSW and Mr. V.N. Dutta, Advisor-TEG.

Mr. V.N. Dutta, Advisor, TEG in his speech appreciated the efforts taken by Dr. B.K Mishra who have taken this step to enhance Research culture in the institute through Project Based Learning and encouraged all faculty members to do Research .

Dr. B.K. Mishra, Principal, TCET, in his valedictory talk, started with congratulating coordinators and organizing committee for the successful conduct of STTP-2017. He also explained the importance of incorporating project based learning to enhance research culture in this institute. He emphasized the need of such programs as they provide a unique opportunity to explore the boundaries of what is currently known in various domains of Engineering and Technology, through a range of research experiences. He also mentioned that such programs provide a common platform to discuss and learn new methodology to upgrade ourselves.

After that, Dr. Lochan Jolly, Course Coordinator, STTP-2017 along with FDP coordinators of each department presented the glimpse of activity report based on the deliberations held during the STTP.

The function ended with a Vote of Thanks presented by Mrs. Archana Deshpande, FDP coordinator EXTC Department. The valedictory function concluded with singing of the National Anthem.

## ➤ Outcomes:

1. The faculty members conducted Research based activities to strengthen the different domains under each department.
2. The faculty members took into consideration the Experiments, Assignments, University papers, Term Test papers of their respective subjects to recognize the gaps in attaining all learning outcomes as per Bloom's Taxonomy.
3. The faculty members designed activities under various domains to study the impact on PSO attainment.

➤ **SWOT Analysis:**

Sr. No.	Strength	Weakness	Opportunity	Threat
1	Arranged the program successfully.  Shows leadership qualities, managerial skills and team work of Dean SSW and FDP team.	--	The videos can be used to conduct institute FDP to understand alignment of Bloom's Taxonomy and Assessment	Due to parallel activity all faculty members couldnot attend the program.
2	Effective Delivery of all sessions.	--	Industrial visit under different domains was an opportunity for the faculty members to understand the practical implementation of various technical aspects in the industry.	Less number of external institute participation.
3	The theme for the program was already conveyed to all resourse persons and they also focus on the same.	--	The course was focused to so very good material is created related to theme which can be used in future.	--
4	Time management was very good. All sessions were conducted as per schedule.	--	--	--
5.	Theme of the program was new and was not covered before.	--	Since the theme was new we can upload the videos of the program on YOUTUBE.	Getting the speakers on the theme was difficult as the topic was new.
6.	All sessions were conducted by internal faculty members.	--	--	--

➤ **Conclusion:**

Sr. No.	Session	Outcome
1	Innovative teaching for effective learning	The various learning models such as Project Based Learning, Technology Based Learning, Research Based Learning Activity have been implemented such that the knowledge could be gained from all and the Research habit would be cultivated in order to design activities that will in turn help develop and enhance the Research Culture in the institute.



2	Challenges in Developing Research Culture in the institute	The challenges faced in developing Research Culture in the institute have been discussed and simultaneously how to overcome them and manage the time effectively, which will help us to build a holistic understanding of how effectually Research becomes embedded in our system.
3	Research Culture Development	New policies relating to research must be enforced with regularity over time such as maintaining research funding, developing partnerships with outside institutions to expand research opportunities and the ways through which the Research Culture could be developed and how much significant resources are available for faculty and students for training and support were discussed. Also, the Research laboratories can be increased keeping in view of relevance to PO's and PSO's.
4	Alignment of Bloom's Taxonomy for effective outcome based education	One of the important layers through which the Research Culture could be enhanced is through OBE that would be aligned with learning objectives mapped to Bloom taxonomy. This will help us attain the outcomes in well defined manner keeping in-tact the Research aspect.
5	Alignment of Assessment with Course Outcomes	Plan for a culture of research should include consideration of student involvement thus giving us a way to align the assessment with learning objectives to achieve desired attainments.

**Learning for the organizing such events in future:**

- This STTP Program has opened new paths for our students and faculty to investigate innovative ways to assess the emerging trends in Technology in dynamic and collaborative setting.
- Organizing such programs is an essential step to achieve new targets & make a mark in the Technological Research at a Global level.
- This STTP Program has shown higher horizons in the field of Research

➤ **Scope for Improvement:**

- A developing culture of research requires open and collaborative personal relationships among faculty members. Congenial relationships among faculty members would support a successful faculty-to-faculty research mentoring initiative. Such mentorships stand to be an important element of culture establishment. Personal ties among faculty are also likely to foster collaborative research efforts, which are a hallmark of research culture success.
- With changing trends these programs give an opportunity to update one's knowledge and understand its advancements with greater level of clarity and help to implement those techniques effectively in respective domains.
- Certain sessions can be conducted in flip classroom mode where coordinator will introduce some points for discussion and make it more inquisitive by introducing questions and motivate faculty members to put forth their view points. This will help us understand the learning levels and measure the outcomes from it.



Laxmi Singh Charitable Trust's (Regd.)

# THAKUR COLLEGE OF ENGINEERING & TECHNOLOGY

(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai\*)

(Accredited Programmes by National Board of Accreditation, New Delhi\*\*)

\*Permanent Affiliated UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology (w.e.f.:A.Y.2015-16 onwards)

\*\*1st time Accredited UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology

\*\*2nd time Accredited UG Programmes : • Computer Engineering • Electronics & Telecommunication Engineering • Information Technology • Electronics Engineering (2 years w.e.f.:01-07-2016)

A - Block, Thakur Educational Campus,  
Shyamnarayan Thakur Marg, Thakur Village,  
Kandivali (East), Mumbai - 400 101.

Tel.: 6730 8000 / 8106 / 8107

Fax : 2846 1890

Email : [tcet@thakureducation.org](mailto:tcet@thakureducation.org)

Website : [www.tcetmumbai.in](http://www.tcetmumbai.in) • [www.thakureducation.org](http://www.thakureducation.org)



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