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A BLUE PRINT FOR ACHIEVING PREMIER STATUS

DCET's Turnaround Strategy

1. Preamble:

With a sizeable donation of Rs. 3.5 Crores by Dr. Arun Verma of the 1966 batch in November, 2023, to uplift the standing of DCET amongst its peers in India, there is a renewed enthusiasm and awareness amongst the alumni, faculty in general and the Chairperson, Dr. Anupama Sharma in particular along with the Vice Chancellor of the University to join hands in accomplishing this lofty goal. However, the difficulty and challenges of achieving such an ambitious goal is not lost on anyone.

In conjunction with a celebration to congratulate Dr. Verma and his family during the annual alumni meet in December 2023 for his generous donation, several meetings were held with the faculty and other 1966 batch members to outline a series of initiatives that would help DCET in this new goal. This timing coincided with the appointment of Dr. Anupama Sharma as the new Chairperson of DCET, for the customary 3-year period. Dr. Sharma, apart from being a full-time professor at the department was also the Dean of the Panjab University alumni and was actively involved in getting DCET accredited by the NDA. While she is not new to the issues and challenges faced by the department, she bears a disproportionately higher burden of responsibility, as a chairperson, in accomplishment of this new goal. This document outlines the issues, constraints, the economic challenge, policy boundaries, foundations of the Strategy, builds out the Strategies, and defines the peripheral changes needed to successfully achieve a Premier Status along with Critical Success Factors.

2. Introduction

DCET is a public institution and as a department of the University faces a variety of constraints:

- a) It receives an allocated share of the funds received from the Central Government to pay salaries and maintain buildings, equipment and facilities. *These funds are not enough to meet DCET's current needs. This is the case when DCET is operating at only 50% of the required staffing level*
- b) It must follow the policies and procedures of the University when it comes to hiring, retaining, training, or incentivizing faculty members. *Over the years, both the faculty and the staff levels have declined, and DCET has been constrained by the system to replenish it*
- c) Fees charged to each student for a 4-year engineering degree program have not increased very much over the past 50+ years while the number of students enrolled in the programs have nearly doubled. *This has adversely impacted the student/teacher ratio thereby threatening the accreditation status of DCET and negatively impacting its NIRF ranking*
- d) For many years now the Chairperson of DCET has been appointed from within the ranks of the department thereby forsaking the opportunity to bring fresh ideas to improve the overall program. In addition, the tenure for the Chairperson has now been limited to three years. This policy has severely limited the ability for DCET to develop and implement a long-term strategic plan for the

- department and to hold someone accountable for it. Additionally, it has introduced lack of continuity from one Chairperson to the next.
- e) The process for approval of funds to get any work done is bureaucratic, inefficient and time consuming
 - f) There is a knock-on effect of a lowered NIRF ranking on the quality of students and the faculty that DCET can attract, and on the employment opportunities for the graduating students as well as their starting salaries, and also on the funding the DCET can get from the industry; be it for CSR funds or for joint research projects. *Unfortunately, this is a slippery slope from which it is easy to go down but very difficult to climb-up.*

This list is not complete by any means, but it highlights the enormity of the challenge faced by DCET.

3. The Economic Conundrum

Perhaps another way to characterize the problem is to look at it from an economic perspective. The fees paid by a student for a 4-year engineering degree from DCET is roughly Rs 80,000 and if one were to ask how much does it cost the University to impart this education, a rough estimate would be somewhere between 4 to 5 times that amount. Apart from the student fees, the University gets funding from the Central Government and DCET gets its allocated share of those funds. It has also been able to raise funds through various grants. Adding them up still leads to a significant shortfall relative to DCET's requirements. This shortfall has been there for a number of years. In this scenario, only two outcomes are possible; 1) DCET finds an alternate to bridge the gap between the cost and the revenue, or 2) It gradually loses its stature, over time, by not being able to hire the faculty, maintain its buildings, equipment and facility, attract the quality of students or offer the graduating students good employment opportunities. This gradual decline continues until it reaches a point where it is difficult to even maintain accreditation. This is precisely where DCET finds itself today. So, how does one turn it around from a path of steady decline to a path of progress and pre-eminence. That is the statement of the problem and the focus of this document.

4. Foundations of the Strategy

It is a complex problem which needs to be attacked from several fronts. The obvious solution would be to suggest the following:

- a) Identify critical needs of the Department
- b) Request more funding from the Central Government
- c) Get more faculty positions approved.
- d) Hire additional faculty on a fast-track basis
- e) Increase student fees
- f) Increase the tenure of the Chairperson from 3 to at least 5 years
- g) Bring an outsider with excellent academic credentials who is an expert in his/her field and well respected both nationally and internationally to take the

Chairmanship of the Department and lead the effort of restoring it to its previous glory

- h) Streamline the process for receiving and approving funds to maintain existing buildings and facilities, maintain existing equipment, and order new equipment

However, this is easier said than done. To assume that people who are responsible for the overall management of DCET within the Panjab University System are either not aware of the rapid decline in its national ranking, or have made no efforts to rectify the problem would not only be naïve, but also disrespectful towards them. Therefore, for this analysis it has been assumed that some of these obvious solutions are difficult to implement for reasons best known to them and our attempt should be to find a solution by treating them as Policy limitations or boundaries.

5. Policy Boundaries

The assumed boundaries are:

- a) Current practice of a 3-year term for the Chairperson remains
- b) Student fees cannot be increased dramatically
- c) Chairperson's authority limitations will remain as they are
- d) DCET has to operate within the University's System and Processes
- e) DCET has to follow University's system for approval and hiring of faculty's positions
- f) DCET can request additional funds but will be limited to its allocated share of the funds from the Central Government

6. Exploring Strategic Options

Research here in the U.S. and elsewhere suggests that on a long-term basis, a sustainable financial model for organizations like DCET would be where one third funding comes from the Government, one third from the industry, and one third from the Alumni. Comparing that with where we are today, there is insignificant contribution from the alumni, with the exception of the latest one-off contribution made by Dr. Arun Verma, and the contribution from the industry is also far from what it can be. Therefore, our approach should be to develop strategies that use this financial model as a basis.

In the light of this discussion, following four Strategic Options emerge:

Strategy 1: Actively engage with the Vice Chancellor and Chancellor of Panjab University to secure additional funding for hiring additional faculty and to maintain existing equipment and the buildings

Strategy 2: Secure research grants from the Central Government and its agencies, and from International Organizations like the World Bank etc. to build competencies in targeted areas of excellence defined by DCET, and marketing those services to whosoever needs them.

In order to leap frog the competition, DCET will have to distinguish itself. It cannot do that by focusing attention on too many areas of research. Hence the use of the term *Areas of Excellence, sometimes also referred to as Core Competencies*. DCET will obviously need to be very thoughtful and calculating in deciding them. It may involve considerations like current faculty strengths, regional or national needs, assessment of gap between the current and required strength, and time and resources required to bridge the gap etc.

Strategy 3: Actively engage with the industry to: a) inform them about DCET's areas of excellence and competencies, b) to ensure that DCET's areas of research are aligned with the industry and the society's needs, c) to secure joint industry projects, d) to secure CSR funds, and e) to build DCET's brand image.

Strategy 4: Actively engage with DCET Alumni in India and abroad to: a) stay connected and informed and, b) to seek guidance, cooperation and support in helping DCET to achieve a premier status

In the following paragraphs, a goal has been defined for each of these four strategies along with a brief description of the current state and a definition of the next steps.

7. Building out the Strategies

Strategy 1 Goal: To achieve a full-time faculty staffing level of 41 as soon as possible (preferably, in the next 2-3 years) and maintain it going forward.

The current Chairperson of DCET is working closely with the Vice Chancellor and Dr. Arun Verma of the 1966 batch to pursue this Strategy. It is worth mentioning that 5 Faculty Positions were recently approved, although the process of hiring and filling these positions is taking a lot longer than initially thought. Given that DCET is short by 15 – 20* (*to be confirmed, TBC) faculty positions which will increase if we take into account the faculty that will be retiring in the next 2-3 years, the process of hiring and filling the vacancies needs to be dramatically improved on an urgent basis. Although Dr. Verma has written to the Chancellor to make him aware of DCET's critical faculty shortage – this needs to be done formally by the DCET Chairperson and the Vice Chancellor, and regularly followed-up on, such that DCET achieves the minimum faculty staffing level of 41 full time faculty, where it was back in 1966 (*TBC) within the next 2 – 3 years.

Strategy 2: Goal of this Strategy is to fund research in DCET's critical areas of Excellence

This is a continuation of the strategy that DCET has been following for some years. In hindsight, perhaps one could include TEQUIP 1, 2 and 3 as a part of this strategy although these projects came about because of a critical need to modernize the laboratories in DCET and to order much needed new equipment, rather than a deliberate strategy at the

time. Today, however, DCET is short of funds to: a) maintain this equipment, b) order additional equipment, c) carry out research in newer areas in Chemical Engineering and allied Fields, all of which is needed to raise its NIRF ranking. DCET, under the leadership of the current Chairperson continues to apply for research grants to raise funds as called for by this strategy, with following observations:

- A) It is not clear whether the applications for grants are opportunity driven or strategy driven. On the surface it appears that they are opportunity driven whereas they should be strategy driven. Today, DCET's advertised areas of research include: Polymers, Environment, Nano-Technology, Energy, Food Technology, Petroleum, Agrochemicals etc. For purposes of achieving excellence, this list appears to be too long. Looking at major problems requiring technological solutions at the national and regional level both currently, as well as in the foreseeable future, it will be useful to evaluate whether or not DCET's currently advertised areas of research are aligned with these needs and if they are, whether all of them should be pursued with equal vigor given the current constraints in financial and human resources. From such an analysis DCET should choose few research areas of greatest interest to the industry and the Government and pursue a strategy of achieving excellence in those areas.
- B) Building competencies in these areas may take a while but it needs to be a part of a deliberate strategy

With the above clarification, DCET will need to develop a short- and long-term plan for the funding level it needs, identify the sources, define the steps and resources required and a time line for reaching the desired target.

Strategy 3: Goal of this Strategy is to meet 33% of DCET's expenditure in a 2–3-year time frame from JIPs (Joint Industry Projects) and from CSR funds

Under this strategy there are two separate ideas. First is to get CSR Funding from the industry. Government of India has mandated that 2% of a Company's profit must be given back to the society to provide education, training, and development opportunities for the citizens. DCET is very familiar with this funding mechanism and is currently using it. The question remains how much of DCET's funding comes from this source today and how much additional funds could be raised? This requires an assessment of resources, defining a target, and a plan to achieve that target. The second idea is to identify and exploit opportunities for Joint Industry Projects. This too is not a new idea and DCET is both aware of it and in fact in the midst of pursuing arrangements with a couple of Companies (Petronet and a Pharmaceutical Company based on the last input received from the current Chairperson). As in the case of CSR funding, the question remains one of evaluating the size of the opportunity and developing short- and long-term plans for harnessing the same.

As a part of this strategy, a small group of 1966 batchmates met with the DCET faculty in December, 2023 and identified the need to set-up an Industry Advisory Board consisting of the DCET Alumni holding prominent positions in the industry. The purpose of the advisory board will be to hear about DCET's progress and challenges and to guide and support it in its mission to regain a premier status. The advisory board has been set-up and is expected to have its first meeting later this month. This is a critical first step in achieving this strategy. Other steps will follow from the discussions and recommendations by the advisory board.

Note: *Please also keep International Foundations such as Bill Gates Foundation in mind which fund University Research in specific fields. There could be such foundations in India as well. This may require hiring one or two faculty members with special competencies to take advantage of such opportunities.*

Other ideas along these lines also follow, such as DCET becoming a Center for Contract Research for the Chemical Industry e.g. Dow Chemicals

Strategy 4: Goal of this Strategy is to meet 33% of DCET's expenditure in a 2-3 year time frame from DCET Alumni in India and abroad and to build a sizeable endowment over time which will fund DCET in perpetuity (on a long-term basis).

Perhaps this is the most critical part of helping DCET in achieving a premier status going forward. Although DCET has been holding an annual alumni meet for the past few years, it was more of a social gathering until about 4 years ago when DCET realized that it had to formally get accreditation from the NBA. DCET approached the alumni association, called PUCETA, for help and PUCETA helped out by raising funds from the alumni to carry out several, small but necessary, capital improvement projects. DCET was successful in getting accredited for a 3-year period which ends in 2025. While this was an important step, it failed to fully grasp the enormous potential that lay in building a meaningful relationship between DCET and its alumni.

PUCETA had a database of roughly 700 members out of an estimated alumni base exceeding 4000 – 5000. In the December, 2023 meeting between DCET faculty and a small group of the 1966 batch classmates, several initiatives were identified to capture the full potential of a robust DCET and Alumni relationship:

1. DCET decided to build its own alumni database and hired a person to maintain the database and communicate with the Alumni on a regular basis. *This step is ongoing and currently the database has in excess of 2500 members.*
2. DCET was asked to prepare a quarterly report to not only inform the alumni about significant activities of the department but also profile key alumni members from time to time to recognize their accomplishments and celebrate their successes. *Two quarterly reports have been issued and the third one should be coming out soon*
3. To improve interaction between the DCET and the alumni, DCET decided to form a new association. *A new organization, named DCET Alumni has been formed and*

registered. A set of byelaws for this association were created. A separate bank account has been opened which will receive donations from the members, for use by the department, to fund projects authorized by the association. The new organization has applied for 80-G approval from the Government to receive donations from the overseas members and to provide receipts to the members in India for income tax purposes. *80-G approval is pending.*

4. DCET was requested to form an alumni advisory board. *This action is pending.*
5. To ease communication, fund collection, issue tax exemption certificates etc., a North American branch of the DCET Alumni has been formed and registered in Houston. An application for 501(c) status has been filed with the Federal Government and an account will be opened shortly to start receiving funds from the members based in the US and Canada. Mr. Ravi Goel of the 1966 batch has been named President of this organization. With the help of Dr. Anupama Sharma, contact details of some 400 DCET alumni based in North America have been obtained and the process of establishing contacts with them has been started. A 2-3 days meeting of the DCET North America alumni is planned tentatively in the summer of 2025 in Houston.
6. A few members of the 1966 batch have taken the initiative to draft this Strategy document and to offer assistance in building Systems and work processes which will make it easier for future Chairpersons to continue on the journey of pre-eminence uninterrupted, as the leadership changes every three years.

Note: *A couple of additional thoughts: a) focus on student chapter activities to encourage students to actively participate in Conferences showcasing unique design ideas for addressing national needs. Awards won by the students will obviously provide a big boost to DCET's image while encouraging the faculty to engage in research areas of national importance, and b) planting the seed of an Alumni family in the students from day 1 by informing them about alumni activities and introducing them to the role alumni plays in terms of networking, financial and technical support.*

8. Peripheral Changes needed to successfully achieve a Premier Status

1. While listing Policy boundaries earlier in this document, it was mentioned that the Chairperson of DCET has a tenure of 3 years. Regardless of how this policy came into being, what is important is that the new goal of DCET to regain premier status can neither be achieved in three years, nor can it sustain major changes in either the Strategy or DCET's work plans with changes in leadership every three years. A critical first step, therefore is to develop a well-thought-out Long-Term Plan to achieve the premier status. Such a Plan will only be successful if it has the buy-in of the senior faculty members of DCET. It should therefore be developed jointly with their help and should have their commitment, ownership and support on an ongoing basis. The group in charge of developing the Long-Term Plan (LTP) must include the past Chairperson, the current Chairperson and the future Chairperson as well as the key faculty members of DCET. (Dr. Sharma would be the best judge,

but some names that come to mind are: Professor Sushil Kansal, Dr. Sanjeev Gautam, Dr. Gargi Ghosal, Dr. Gaurav Verma, and Professor Seema Kapoor). Once the LTP has been developed, an equally important task for the group will be to seek agreement on Strategy, Systems, Work Processes and Work Plans. Such an approach will ensure two major things;

- a. A smooth transition from the current Chairperson to the new Chairperson at the end of their 3-year term since the Strategy, Systems, Work Processes and Work Plans will remain the same, and
 - b. As a result of shared ownership, the current Chairperson or the next Chairperson should no longer feel overburdened with the responsibility of achieving the premier status goal since it will now be a team goal. The team concept will provide continuity during transitions from one Chairperson to the next. Each Chairperson, however, will need to make sure that the team deliverables are being completed in a timely manner.
2. As the change in DCET's leadership happened earlier this year, it is a perfect opportunity to prioritize the development of a long-term Plan along the lines mentioned in item 1 above incorporating the Strategies discussed earlier and developing the Systems and Work Processes that will be needed to achieve the premier status.
 3. Dr. Sharma should be commended for a series of initiatives that she has already taken (Quarterly Progress Reports, setting up an Industry Advisory Board, building an alumni database, Approaching the industry for grants and for Joint Industry partnerships, profiling past alumni members who have become successful leaders in the industry etc.).
 4. Apart from developing a long-term plan, it is equally important to ensure that DCET is able to maintain its accreditation status. Dr. Sharma has mentioned following ideas in our private conversations:
 - a. Hiring Professors of Practice
 - b. Getting approval from the Vice Chancellor to transfer the Nano technology course to DCET along with two faculty members
 - c. An impressive new DCET website even though it will only be accessed through the Panjab University website

In addition to the above, Dr. Sharma has talked about setting-up a Petronet LNG Plant and visiting ICT (Institute of Chemical Technology) Mumbai and a pharmaceutical Company to formulate plans for building a pilot plant**. She has also mentioned visiting IIT Delhi, IIT Ropar and IIT Mumbai to get a better idea about setting-up an incubation center in DCET. All of these are great ideas and we wholeheartedly support her plans. We offer following suggestions in this regard:

- A) DCET should form a Leadership Team, if one does not exist already, as suggested under Item 8, Step 1 above
- B) Assign them the task of developing a Long-Term Plan
- C) Brainstorm ideas about of Centers of Excellence (or DCET Core Competencies) along with the Strategies mentioned above

D) Develop Systems, Work Processes and Work Plans as a subset of the LRP (Long Range Plan)

This systematic approach will help DCET on a path of progress that will be transparent, measurable and exciting to the whole Team as they take on this challenge. It would address the issue of motivating the faculty as well, since they will all now be a part of a much bigger goal. Also, in this way, the work plan will be a subset of the LRP rather than LRP becoming a subset of the Work Plan.

9. Critical Success Factors

Here is a list of Critical Success Factors for DCET to achieve the goal of regaining its Premier Status:

- a) Assess, hire and maintain full faculty and staffing level
- b) Maintain accreditation status
- c) Develop a Long-Term Plan (LTP)
- d) Develop Systems, Work Processes and Work Plans
- e) Build a Leadership Team in DCET which takes the ownership of building and implementing the LTP and the Strategies
- f) Carefully monitor the financial model and take corrective steps when the contributions fail to meet the stated targets
- g) Ensure that the Strategies, Systems, Work Processes and Goals do not change when there is a change in the leadership of DCET, every three years
- h) Celebrate successes, big and small, with all the key players who are a part of the plan, to keep them motivated and excited
- i) Every 6 months or so, take a critical look to check if the Plan and Strategies are working as designed. If not, take corrective actions as and when appropriate
- j) Stay focused on the overall goal
- k) Build a feeling of Pride, Commitment to the Goal, Teamwork, and above all Patience

** The term pilot plant has a very specific meaning in the industry. Pilot plants are set-up to establish process details, product recovery rates, commercial feasibility and a whole bunch of other things. Getting into the details of pilot plants is beyond the scope of this paper