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Final year students can take a note on how challenges are codified and attempts are made to solve them for larger impact

Engineering students of degree and Diploma at GTU have to complete a Final Year project. (Please see the syllabi of the Final Year on the web. Please also see http://www.gtu.ac.in/circulars/14Jul/07072014_01.pdf for Guidelines 2014 for the degree engineering projects – as an example.) Final year students can derive inspiration from the following example of how **Mahatma Gandhiji** codified the challenge for a project (On page3, the lessons, that are relevant for Final Year projects, are given according to Hiranmay Mahanta.):

Mahatma Gandhi's Announcement of a Design Competition

Mahatma Gandhi's Announcement of a Design Competition, 24th July 1929 One Lakh Rupees or 7700 Pounds Prize! (Present value about Rs. 10 crore.)

Problem definition:

Akhila Bharatiya Charkhaa Sangh Workers' Samiti has decided to organize this contest for inventors and engineers all over the world that if they could come up with a Charkha or a Samyukta Yantra which - for making the thread and cloth that satisfies the following criterion - shall be awarded prize money of 1 Lakh Rupees or 7700 pounds.

The Criteria/Bechmark/Desired deliverables

- Charkha must be light-weighted, easy to move, and it should be in such a way so as to be operated using either hand or one's leg in a natural way in the rural cottages of India.
- It must be in such a way that a lady shall be able to work with it for eight hours at a stretch without great effort put in.
- Either Charkhas must have a build to accommodate the use of a puni (used to make handspun cloth) or along with the charkha there must be a way to handspun cloth.
- On working with the charkha for eight hours at a continuous stretch - it should result in 12 to 20 numbers of 16000 feet yarn.

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- The machine should be so designed such that it costs no more than Rs. 150 in producing it in India only.
- The machine should be strong and well-made and with time-to-time servicing it should be capable of running for at least 20 years without any stopping. Servicing of the machine should not cost much and every year not more than 5% of the cost of the machine that year shall be needed for servicing.
- All those taking part in this contest may, with their own input costs and expenses, send their machines to Sabarmati Ashram before or not later than 30th October, 1930. In case the machines satisfy the criterion mentioned - then the inventor/designer can patent it on his name to protect their rights on them. But, if they wish to become eligible to win the prize money of the contest, then the designer shall have to transfer the rights of the patent to Indian Charkha Sangh Council.
- The Judges for the Contest shall be Khadi Pratishtan's Sri Satish Chandra Das Gupta, Bardoli Swarajya Ashram's Technical Director Sri Lakshmidas Purushottam and Tiruchengonduu Gandhi Ashram's Director Sri Chakravarthy Rajagopalachari. In case there is no consensus amongst the judges on the winner - Gandhiji's decision shall be the final one. In case of Gandhiji's absence Akhil Bharat Charkha Sangh Mantri Sri Shankar Laal Banker shall be the final decision-maker.

All questions and queries may be addressed to Mantri, Akhil Bharat Charkha Sangh, Mirzapur, and Ahmedabad.”

.....*Please see the next page for the lessons from Gandhiji that we can apply to Final Year projects of today.*

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Notable points from the above declaration:

- The problem definition was thoroughly defined with clear benchmarks and exact deliverables
- The evaluation parameters and criteria were done with absolute perfection.
- The solution must be user friendly, cost effective and efficient.
- Pricing of the solution was thoroughly calculated so that affordability to general users will be possible.
- The life cycle analysis and maintenance cost was taken into consideration well before the problem definition was shaped and shared with engineers across the globe.
- Gandhiji had mentioned about patentability of the possible innovation way back in 1930 when Indian IP system had hardly any base! The knowledge and IPR aspect of the innovation was well envisaged way back in 1930s and clarified on who will get the IP for larger good.
- The concept of technology transfer and then making the technology open source for open access and larger public good concept shared in the declaration shows the kind of farsightedness they had during that time.
- The evaluation criteria and jury was absolutely defined right from the day of declaration of the problem definition. It shows the clarity and various options they had while trying to evaluate the innovations sourced from across the globe.

GTU Innovation Council wishes that every one of the 14,000 teams, who are doing final year project during this academic year, should take a note of the above declaration by Gandhiji and attempt to solve real life challenges so that the solutions can have far reaching impact and create either value for money or value for many.

Reference: <http://www.techpedia.in/award/announcement.php> (Gandhiji's declaration note about the innovation challenge)