CRITERION I: CURRICULAR ASPECTS

1.1 Curriculum Design and Development

1.1.1 How is the institutional vision and mission reflected in the academic programmes of the university?

The University had formally published the vision, mission and quality policy in 1999 and these are reviewed periodically for their continued suitably and effectiveness. All the programs offered by the University reflect this vision and mission. A brief description of how the vision and mission are reflected in the various academic programs is provided below:

<u>Undergraduate programs</u>
Undergraduate engineering students are taught a series of courses in basic sciences to develop understanding of scientific principles and methods, analytical ability and rigour. These courses are followed by courses in engineering sciences to provide a smooth transition from basic sciences to professional engineering courses. A series of courses in technical arts are designed to develop engineering skills through training in engineering drawing, measurements, computing skills, manufacturing technology and effective communication. The professional courses in the chosen field of specialization are meant to develop creative abilities for the application of basic and engineering sciences to engineering problems involving planning, design, manufacturing, maintenance and research and development. In addition, courses in humanities and social sciences are incorporated to develop appreciation of the impact of science and technology on society. The undergraduate curriculum consists of two main components i.e. core courses and professional courses. The core courses lay emphasis on concepts and principles. It involves teaching of subjects in Basic Sciences, Humanities and Social Sciences and Engineering Science. Attention is also paid to develop communication skills in English language - the medium of instructions. The Professional courses lay emphasis on system analysis, design, manufacturing and professional practice. There is an in-built flexibility to encourage students to specialize in streams of their choice through a system of professional and free electives. The University strives to foster among its students a strong desire and capacity for continuous learning as well as self appraisal to develop sterling human & professional qualities and a strong sense of service to society through designed, curricular, co-curricular activities and congenial campus environment.

Thapar University (TU) has entered into an historic academic agreement to contemporize its academic systems and processes with Trinity College Dublin, the University of Dublin (TCD). As a result has harmonized the curriculum of the undergraduate engineering programs in line with TCD. TU understands that in the existing curriculum, the students spend much time in the class room and have limited involvement in project based and research led teaching. The course scheme has been finalized to completely sync with TCD. The idea is that an average student is able to experience the contemporisation program.
TU has adopted the learning outcomes approach to switch the focus from content based education and has shifted towards greater reliance on self-directed learning, mini-project within the modules, research-led teaching, use of project work and assignments. TU offers design or application-based engineering projects. Research led teaching has been evolved in terms of course content. All academic staff are encouraged and trained to develop modules associated with their research area and bring in cutting edge research ideas from their own research and of other eminent researchers. This is being achieved by involving the students in research activities which in many cases may mean re-exploring research

findings which are already known. The students are introduced to the whole ethos of research in terms of what is called as "State of Art" and how research is conducted. The students are imparted skills to use information sources and also equip them to design and conduct experiments. The students are trained for research based (engineering) problem solving.

Post-graduate programmes

MASTER OF ENGINEERING/TECHNOLOGY (M.E./M.Tech.)

The University in offering various M.E./M.Tech. programmes has uniformly maintained the basic structure and philosophy of the post-graduate education in engineering in the country. All these programmes, regular or part-time, have their course work classified into two major categories: Core Courses and Elective Courses. The core courses are aimed at imparting knowledge of the relevant basics analytical-tools & techniques necessary to build-up on them elective (professional) courses. Core courses of a particular programme are compulsory for all the students registered in that programme. Elective courses are of professional nature. To be eligible for a degree, a student must complete requisite number of core and elective courses. However, to bring in flexibility a wide choice of electives is offered to the students in order to make their training broad based. Presentation of a Seminar and a project in addition to the course work and further carrying out a thesis/dissertation are necessary components of post-graduate degree. The seminar and project should be on a topic relevant to the area of study, presenting the state-of-art work done on the subject. The literature survey conducted during the preparation of the seminar should highlight the areas for further research work on the subject. The problem taken up for the thesis/dissertation should be as far as possible on the work done for the seminar. Both the seminar and thesis/dissertation are submitted in bound form and are presented during their respective evaluation. In case a student fails to undertake, complete & clear thesis work and completes seminar only he will be eligible for award of Post-graduate diploma only.

MASTER OF COMPUTER APPLICATIONS (M.C.A.)

The MCA programme aims to train and produce much needed human resource for software industry as increasing applications of computers in almost all areas of human endeavour has lead to a vibrant software industry with concurrent rapid technological changes. The programme is spread over a period of three years consisting of six semesters. The students study courses for five semesters in the University and carryout a Software Development Project (SDP) in the sixth semester in reputed national/multinational companies. The graduates of this programme are absorbed as software professionals, solution developers and system analysts in leading national/multinational companies and other industrial/service organisations working in the area of Information Technology (IT).

MASTER OF SCIENCE (M.Sc.)

M.Sc. programmes aims to impart application oriented education in the respective area with an integrated approach so as to turn out professionals who will have easy absorbability in industry as well as self employment skills. The course curriculum has been structured to impart education in the areas desired by the industry as well as local needs. The programme is spread over four semesters which include teaching of both core courses as well as elective courses for first two semesters, a project in the third semester and a dissertation in the final semester.

DOCTORAL DEGREE PROGRAMME

High calibre students with demonstrated capability can register themselves for Ph.D. degrees. There is a laid down course work requirement for the Doctoral Degree Programme for candidates registering after obtaining M.E. degree. The provisions in the rules and regulations governing the programme, aim at ensuring high quality of research leading to Ph.D./D.Sc. degree. Ph.D. /D.Sc. programme are offered on both regular and part-time basis. Ph.D./D.Sc. thesis is evaluated by a panel of examiners drawn from the peer group on the topic, both from India and abroad.

1.1.2   Does the university follow a systematic process in the design and development of the curriculum? If yes, give details of the process (need assessment, feedback, etc.).

The statutory bodies of the University, the Senate or the Planning and Monitoring Board oversee the design and development process so that the activity is carried out in a planned manner. The detailed planning for this activity is the responsibility of the Department Head. The systematic process of design and development includes the activities & sub activities including techniques & organizational interfaces and the time frame for completion of various activities. The plans are updated, as the instructional design evolves. The design and development process generally begins with a need analysis report which comprises of (i) Stated customer needs (ii) Implied needs (iii) Overall goals of Instructions (iv) Relevant standards i.e. AICTE and UGC guidelines and Curricula of Entrance Tests like Indian Engineering Services (IES) and Graduate Aptitude Test for Engineers (GATE), etc. and (v) General characteristics of target population.

Organizational and Technical interfaces between different faculty and external expert groups providing input to the instructional design are defined, committees are constituted and their reports are documented. Faculty members from different disciplines connected with the design & development activity are associated with the process. The updation/restructuring is carried out as the design process progresses. Clear responsibilities are assigned and effective communication is ensured.

The requirements of instructional design are determined and recorded. For instructional design, the input is taken from various sources. Input requirements are clearly understood and reconciled. The design input may come from:
- **Need analysis & Reviews.**
- **Recommendations from alumni, senior management, industry etc.**
- **Success/failure reports of similar courses & programs.**
- **Published literature relevant to programs.**
- **Boundary condition w.r.t GATE, IES, IAS curricula etc.**

The process of determining solutions to satisfy the identified needs is laid down and documented. Instructions are designed by incorporating these solutions. The analysis and mappings are recorded. The design output at this stage is taken as the initial design for subsequent reviews. The output of instructional design & development is documented in the form of a report named "Curriculum and Scheme of Courses". Through various reviews and verifications, it is ensured that the design output meets the design input requirements.

The design output report includes:
- **The types and levels of skill and knowledge to be imparted**
- **Details of need analysis and mappings at various stages**

- **Scheme of courses and the detailed syllabi**
- **Instructional strategies.**
- **Selection of instructional aids for delivery.**
- **Assessment and evaluation.**

The output documents like curriculum and instructional strategies are reviewed and approved before release at various levels and stages.

Reviews are conducted at defined stages of the curriculum Design, in which faculty members from the concerned area as well as experts from amongst the peer group from within and/or outside the University are associated. Records of the reviews are maintained. Based on the reviews, the design is updated and brought into document control for revision. The design reviews are carried out at the end of each of the following stages using prescribed check lists:

- **Need analysis**
- **Design and review by Board of Studies (BOS)**
- **Review by Senate Postgraduate Committee (SPGC)**
- **Review by Senate**
- **Review by Board of Governors (BOG)**

Verification of design is conducted by comparison of the design with similar courses run by prestigious Universities. Evolved designs are also verified by taking independent opinion of the experts from amongst the peer group from within or outside the University. The new curriculum is introduced only after adequate verification.

New/revised curriculum and instructional design is made applicable to the prospective students. The curriculum is validated in the initial stages of its introduction by taking a feedback from students and faculty members regarding the effectiveness and applicability of the curriculum, with regard to the documented needs. Necessary changes, if required, are made to ensure that the design conforms to defined needs of the students. Wherever required, additional instructional sessions and allied inputs are arranged for students/participants.
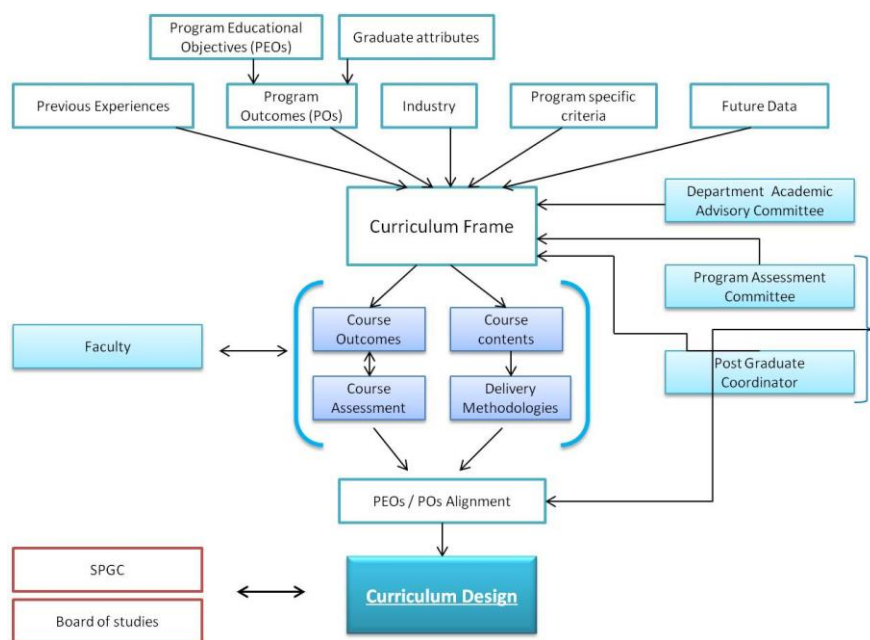
The general steps followed in curriculum development are as under:

- **The need for starting a new programme or course(s) may arise from interaction with Industry, Faculty, Students, Alumni or PMB/Senate/BOG , UGC/AICTE etc.**
- **The idea of proposed programme is discussed in the HODs' meeting and if found appropriate, the Head of concerned deptt is asked to put up a proper proposal. A sub-committe of internal/external member(s) may sometimes be formed for making the feasibility and viability analysis.**
- **The DAAC (on the basis of recommendations of sub-committee, wherever required) does the need analysis and prepares the proposal for approval from BOS.**
- **The BOS after deliberating on the proposal may make the desired modifications and then send the proposal to DOAA for consideration in SUGC/SPGC, alongwith the duly filled checklists.**
- **The proposal is put up for consideration to SUGC/SPGC and upon its approval the recommendations may be sent to the Senate and PMB.**
- **After the Senate approval, the proposal may be sent to concerned Department/School through academic section for allocation of appropriate course codes OR if required it is sent to AICTE/UGC for approval and the status is put up in the forthcoming meeting of BOG.**
- **In case AICTE/UGC approves the proposal, it is implemented by the concerned Department/School after allocation of proper course code by the academic section.**

1.1.3 How are the following aspects ensured through curriculum design and development?

 * Employability

 * Innovation

 * Research

The employability, innovation and research in curriculum design and development is ensured by:

- **Involvement of industry professionals in curriculum development**
- **Benchmarking exercises to extract customers (employer's) requirements**
- **Mandatory project semester in Industry for all UG and some PG students**
- **Synergizing curriculum with industry practices and needs**

The curriculum design and development for all programs is done at least once every four years to ensure continuing suitability, adequacy and effectiveness in satisfying the requirements and the vision, mission and quality policy of the University. The design process includes assessing opportunities for improvement and the need for ensuring suitable employability, innovation and research (more applicable to postgraduate programs). The process invites formal inputs from all stake holders and generally includes the following sources:

- **Action taken report on the previous reviews and external accreditation reports (NAAC, NBA-AICTE).**
- **Results of student's performance in various examinations.**

- **Result of Students Reaction Survey**
- **Feedback from**
  - ✓ **Industry,**
  - ✓ **Alumni,**
  - ✓ **participating organizations in campus placement and other concerned sources**
- **Details of corrective/preventive actions**
- **Improvement programs suggested/recommended**
- **Training programs launched**
- **Review of mission and quality policy**

The most recent formal review was done in 2013-14. The Institutional mission and quality policy was last published in 2013 after a comprehensive review of the previous mission statement published in the year 2006-07. This mission statement has remained the guiding spirit in writing this document. This document is reviewed formally in deans and heads meetings with the Director to check its continued suitability and effectiveness.

1.1.4   To what extent does the university use the guidelines of the regulatory bodies for developing and/or restructuring the curricula? Has the university been instrumental in leading any curricular reform which has created a national impact?

The University uses the guidelines received from time to time from the statutory regulatory bodies like UGC, AICTE for developing and/or restructuring the curricula. Such guidelines are used by various bodies (DAAC, BOS, SPGC/SUGC, SENATE AND BOG) while designing and developing new programs as well as review of existing programs. These guidelines are often included as it is in the course scheme and curriculum. The senate bodies deliberate on all such guidelines received from time to time.

The university has been instrumental in leading the following curricular reform which will be applicable from 2014-15.

To enrich the current BE/BTech programs and to improve the placements, a committee was constituted and proposed the following innovations and reforms in the existing programs which are proposed to start from academic session 2014-15.

The undergraduate engineering students will be encouraged to take additional courses during the course of the engineering education (from second to fourth year + summer), and thus can graduate with a Bachelor's degree in Engineering/Technology and additionally a Minor in any chosen field (with 5 additional courses) or a Master in Advanced Studies (MASt) in any chosen field (with 5 + 3 additional courses only) or an M.S. degree in any chosen field (after successfully passing 8 additional courses spends another year and studies additionally six more courses and completes a thesis as well). For this purpose no change in the scheme and syllabi of the existing engineering curriculum is required and the admission shall be made at the start of second year. The following are the Minor/MASt./MS programs proposed to be offered to all entering BE/B.Tech student's w.e.f. Session 2014-15.

Minor/MASt./MS Program open to all students (Intake)	Department/school offering the program
GENERAL MANAGEMENT(60)	LMTSOM
FINANCE (60)	LMTSOM
ENTREPRENEURSHIP (60)	LMTSOM
ECONOMICS (60)	SBSBS
PSYCHOLOGY (60)	SBSBS
CYBER SECURITY (60)	CSED
FINANCIAL MATHEMATICS(60)	SMCA
SOFTWARE TECHNOLOGY(60)	SMCA
INDUSTRIAL CATALYSIS(30)	SCBC
INSTRUMENTAL ANALYSIS(30)	SCBC
ENGINEERING PHYSICS (30)	SPMS
BIO-ENGINEERING(30)	BTESD

1.1.5 Does the university interact with industry, research bodies and the civil society in the curriculum revision process? If so, how has the university benefitted through interactions with the stakeholders?

Yes, the university interacts with all stake holders during the curriculum revision process. The academic and industry experts are formally invited for seeking their expertise and formally record their feedback. They also serve on the academic bodies like Department Board of Studies and the Senate/BOG.
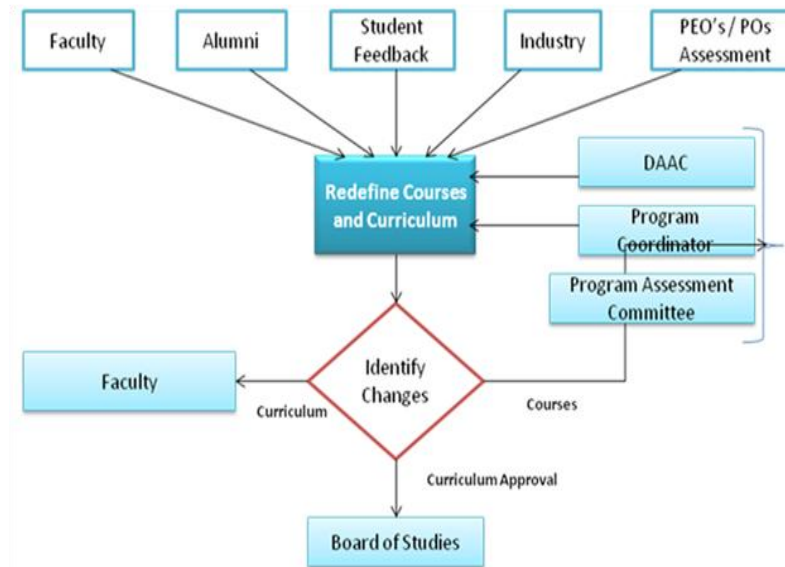
1.1.6 Give details of how the university facilitates the introduction of new programmes of studies in its affiliated colleges.

Not Applicable

1.1.7 Does the university encourage its colleges to provide additional skill-oriented programmes relevant to regional needs? Cite instances (not applicable for unitary universities).

Not Applicable

1.2 Academic Flexibility

1.2.1 Furnish the inventory for the following:

Programmes taught on campus

Name of the Course
B.Tech
Biochemical Engineering
Biotechnology
Metallurgical and Materials Engineering
BE Programme (4 year Programme)
Chemical Engineering
Civil Engineering
Computer Engineering
Computer Engineering (Honours in Machine Learning and Data Analytics)
Computer Engineering (Honours in Computer Animation and Gaming)
Electrical Engineering
Electronics & Communication Engineering
Electronics and Computer Engineering
Electronics (Instrumentation & Control) Engineering
Mechanical Engineering
Mechatronics
Mechanical Engineering (Production)
Software Engineering & Management
PG
MCA
M.Sc. Programs
M.Sc. Biotechnology
M.Sc. Physics
M.Sc. Chemistry
M.Sc. Mathematics & Computing
M.Sc. Biochemistry
M.E.
CAD/CAM Engineering
Structural Engineering
Electronics & Comm. Engineering
Production Engineering
Software Engineering
Electronics Instrumentation & Control Engineering
Computer Science & Engineering

Name of the Course
Power Systems
Thermal Engineering
Civil Infrastructure Engineering
Wireless Communications
Information Security
Power Electronics & Devices
M.Tech
Materials & Metallurgical Engineering
Environmental Science & Tech.
VLSI Design
Chemical Engineering
Computer Applications
Biotechnology
Energy Technology
M.A.
M.A. in Psychology with specialization in Clinical/Counselling Psychology
M.A. in Economics
MASTERS IN BUSINESS ADMINISTRATION
MBA
Ph.D. Programs

Overseas programmes offered on campus –

- Credit Transfer program with TCD
- The University offers a dual degree program in Structural Engineering (presented by Thapar University, Patiala) and a M.S. degree in Structures & Geotechnical Engineering (presented by Trinity College, Dublin).

Programmes available for colleges to choose from

Not Applicable

1.2.2   Give details on the following provisions with reference to academic flexibility

Core / Elective options

The undergraduate curriculum consists of two main components i.e. core courses and professional courses. The core courses lay emphasis on concepts and principles. It involves teaching of subjects in Basic Sciences, Humanities and Social Sciences and Engineering Science. Attention is also paid to develop communication skills in English language - the medium of instructions.   The Professional courses lay emphasis on system analysis, design, manufacturing and professional practice.   There is an in-built flexibility to encourage students to specialize in streams of their choice through a system of professional and free electives. The University strives to foster among its students a strong desire and capacity for continuous learning as well as self   appraisal to develop sterling human &

professional qualities and a strong sense of service to society through designed, curricular, co-curricular activities and congenial campus environment.

Enrichment courses

Courses in humanities and social sciences are incorporated to develop appreciation of the impact of science and technology on society. Some of these courses are Environmental studies, Communication Skills, Organizational Behaviour, Human Values, Ethics and IPR. These are aimed at promoting value education and citizenship roles.

Courses offered in modular form

Several courses are offered in modular forms. For details, please refer the department/school's evaluative report.

Credit accumulation and transfer facility

TU incentivizes by paying 50% of the tuition fee to top eight TU students to undertake their further studies (3rd and 4th year) at Trinity from 2015. Trinity accepts the credits earned by the students during the first two years of their study at Thapar University subject to their meeting the minimum academic standards. TU will also specifically enrol 40 students from the current year particularly to do the last two or three years (in case of integrated BE/ME program) of their education at TCD from 2017. TU and TCD are also encouraging bright students to be part of an exchange program for a semester at each other's campus.

Regarding credit accumulation, a student must study all the courses given in the scheme and meet the credit requirements as approved by the Senate. A student will be allowed to continue in the program of his study only if he/she secures a minimum CGPA or earns a minimum of some percentage of the total number of credits offered in the approved scheme of courses. Only credits of those courses are considered as earned credits in which the student has earned A or B or C or D grade. A student who fails to satisfy these conditions is required to leave the University. A student is allowed to register in a program for a maximum of 30 credits per semester.

Thapar University does not accept transfer students from any other institution. Each student admitted to a program must complete the course work requirement as per the scheme of courses of the department before he/she becomes eligible for admission. However, internal transfer of students from other disciplines is possible in the following situation:

✓ A candidate appears in the December Test conducted by the University and based on his ranking gets a new discipline of his/her choice. The credit for the courses completed by the student during his first year (if these courses are also part of the course scheme of his new discipline) will be transferred to become eligible for award of degree in the new discipline.

- ✓ **A candidate appears in the All India Engineering Entrance Examination (AIEEE) in the subsequent year of his admission and gets a new discipline based on his new rank in the entrance test as per merit. If such a candidate has already completed some of the courses during the first year of his study, the credits are transferred for the award of the new degree based on the changed discipline.**
- ✓ **However, no credit transfer is possible if the student comes from a different institution.**

Lateral and vertical mobility within and across programmes, courses and disciplines

Lateral entry is allowed to the 2nd year of the UG programs and the MCA program as per the guidelines issued in the prospectus.

1.2.3 Does the university have an explicit policy and strategy for attracting international students?

Yes, the University has an explicit policy of attracting international students. 15% over and above the sanctioned seats in each program/discipline are reserved for the Foreign National/ Non Resident Indian (FN/NRI) candidates. Such candidates are not required to appear in the Entrance Test (except for PhD program). 'NRI' candidates are those who have passed the qualifying examination as mentioned in the eligibility from abroad. They are required to produce Passport at the time of admission. 'FN' candidates are those who are citizen of a country other than India. Persons of Indian origin (PIO) and wards of persons working in Gulf and South Asia also come under this category. 5% seats are reserved for wards of person working in Gulf and South Asia. The candidate must have passed the qualifying exam on or before the last date of registration and the admission is made on the merit of the aggregate marks in the qualifying exam. The candidates seeking admission under this category having foreign qualification are required to furnish equivalence certificate of qualifying examination from AIU.

1.2.4 Have any courses been developed targeting international students? If so, how successful have they been? If 'no', explain the impediments.

In line with its mission to provide world class educational experience by incorporating global best practices in its format, Thapar University has embarked on a Contemporarization Program under academic mentorship of Trinity College Dublin, the University of Dublin, Ireland. Under this program Thapar University is offering a credit transfer International Engineering programme with Trinity College Dublin, University of Dublin. This program focuses on delivering a research inspired; outcome based educational experience to the students in partnership with Trinity, an international university of repute. The academic agreement between Thapar University and Trinity will give students admitted to undergraduate engineering programs at Thapar University (TU) the opportunity to study at Trinity, Ireland's leading university. Eligible students will

pursue the first two years of their course in India before transferring to Ireland in years 3 and 4 of the degree program, subject to meeting the required academic requirements. On completion of the degree, qualified students can apply to pursue a Masters qualification at Trinity by completing one additional year at Trinity.

This unique program is designed to give students international experience, prepare them for professional careers, and expose them to state of the art facilities and cutting edge research in the fields of engineering.

The program provides an opportunity for engineering undergraduates to secure a degree from Trinity, consistently ranked in the top 100 world universities by the QS World University Rankings. Students who meet the academic entry requirements for the program will be able to apply for a Trinity-Thapar scholarship award which would reduce their Trinity tuition fee.

Departments of Civil Engineering at, both, Thapar University, Patiala and Trinity College, Dublin has proposed to start a double degree program leading to a M.E. degree in Structural Engineering (to be presented by Thapar University, Patiala) and a M.S. degree in Structures & Geotechnical Engineering (to be presented by Trinity College, Dublin). The program has been approved by the University senate.

The details are as under:

For students admitted in	Thapar University, Patiala	Trinity College, Dublin
Year 1	10 courses + seminar as per the existing curriculum for M.E. (Structural Engineering) students to be taken at the parent institution	10 courses (2 compulsory and 8 electives) + Dissertation as per the existing curriculum for M. Sc students to be taken at the parent institution
Year 2	4 courses to be taken up at TCD, which includes two compulsory courses M1 and M2 and two electives from S1, S3, S6, S7, S8 and C3 + A major research project (M3)	4 courses to taken at TU to be selected from PCE102, PCE103, PCE201, PCE202 and PCE203 + A major research project (PCE091)
Period of study	July of the admitted year to June of the next year at TU September of the same year to September of the second year at TCD	September of the admitted year to August of the next year at TCD August of the same year to July of the second year at TU
For students admitted in	Thapar University, Patiala	Trinity College, Dublin
Fee to be charged	First year at TU: same as TU fees Second year at TCD: same as TCD non-EU fees with scholarship	First year at TCD: same as TCD fees Second year at TU: same as TU fee for foreign nationals
Intake	05 (specifically for the program)	05 (specifically for the program)

1.2.5　Does the university facilitate dual degree and twinning programmes? If yes, give details.

Till 2013-14 date the University offered;

- **5 year dual degree program with Bachelor of Engineering in Industrial Engineering and MBA. Discontinued from July 2014-15.**
- **M.E. Structures is running in collaboration with Trinity College Dublin.**

New Programmes in 2015-16

- **2+2 Credit Transfer Program with TCD**
- **Integrated BE-MBA in five disciplines**

1.2.6　Does the university offer self-financing programmes? If yes, list them and indicate if policies regarding admission, fee structure, teacher qualification and salary are at par with the aided programmes?

All the programs offered by the University are self financing programs and all policies regarding admission, fee structure, teacher qualification and salary are as per the directives of the Board of Governors issued from time to time. The teacher qualification for regular faculty is PhD and salary and other compensation is higher than aided programmes.

1.2.7　Does the university provide the flexibility of bringing together the conventional face-to-face mode and the distance mode of education and allow students to choose and combine the courses they are interested in? If 'yes,' give operational details.

The University does not offer any distance education program as on date except the MCA program.

1.2.8　Has the university adopted the Choice Based Credit System (CBCS)? If yes, for how many programmes? What efforts have been made by the university to encourage the introduction of CBCS in its affiliated colleges?

A student must study all the courses given in the scheme and meet the credit requirements as approved by the Senate for that program. Additionally, the University has recently approved a scheme by which a student can take more number of credits by taking up courses in his area of interest. The undergraduate engineering students will be encouraged to take additional courses during the course of the engineering education (from second to fourth year + summer), and thus can graduate with a Bachelor's degree in Engineering/Technology and additionally a Minor in any chosen field (with 5 additional courses) or a Master in Advanced Studies (MASt) in any chosen field (with 5 + 3 additional courses only) or an M.S. degree in any chosen field (after successfully passing 8 additional courses spends another year and studies additionally six more courses and completes a thesis as well). For this purpose no change in the scheme and syllabi of the existing engineering curriculum is required and the admission shall be made at the start of second year.

1.2.9   What percentage of programmes offered by the university follow:

- Annual system
- Semester system
- Trimester system

All the programs other than MBA program are offered in the semester system of education. The MBA program was offered in the trimester mode till 2014-15. From 2015-16, it has been shifted to semester mode.

1.2.10   How does the university promote inter- disciplinary programmes? Name a few programmes and comment on their outcome.

For the University to be vibrant intellectually, with timely and innovative research and teaching programs, its culture of interdisciplinary is fostered and energized. Toward this end, existing interdisciplinary initiatives are to be assessed, and strong programs that actively serve faculty, students and the community are promoted. Promising new interdisciplinary ventures, from degree programs to research projects, are encouraged. By providing a forum for dialogue and serving as an incubator for new collaborations, this university provides the institutional impetus to a more vigorous and creative interdisciplinary culture.

The following inter-disciplinary programs are being offered by the University:

- **Credit Transfer Program with TCD**
- **B.E. in Mechatronics Engineering**
- **B.E. in Electronics & Computers**
- **B.E. in Instrumentation & Control**
- **B.E. in Software Engineering & Management**
- **B.Tech (Metallurgical and Materials Engineering)**
- **Integrated BE-MBA in five disciplines**
- **M.Sc. in Mathematics & Computing**
- **M.Tech. in Materials & Metallurgical Engineering**

1.3   Curriculum Enrichment

1.3.1   How often is the curriculum of the university reviewed and upgraded for making it socially relevant and/or job oriented / knowledge intensive and meeting the emerging needs of students and other stakeholders?

The University follows a continuous review system of the curriculum. Periodic Reviews of the curriculum is carried out every four years however, minor reviews also take place every year. While framing the curriculum, feedback from industry, alumni and other stake holders are taken into account. As such, the system has an in-built flexibility for the changes. A formal major review of all the programs is

completed once in every four years. The minor changes in the curriculum, based on the feed-back from the stakeholders, can be implemented at any point of time with the approval of the senate. The inputs from all the stake holders (from industry regarding the course contents to be taught is considered in this revision process. One person from industry is always there in the Board of Studies of each Department/School.

1.3.2   During the last four years, how many new programmes at UG and PG levels were introduced? Give details.

   *Inter-disciplinary

   *programmes in emerging areas

The following new programs have been introduced during the last 4 years.

UG Programmes

Name of the Course
Mechatronics Engineering
Biochemical Engineering
Software Engineering & Management
Mechanical Engineering (Production)
Computer Engineering (Honours in Computer Animation and Gaming)
Computer Engineering (Honours in Machine Learning and Data Analytics)
Biotechnology
Metallurgical & Materials Engineering
Electronics & Computer Engineering
PG Programmes
ME in Power Electronics and Drives
MSc in Bio Chemistry
M.A. in Psychology with specialization in Clinical/Counselling Psychology
M.A. in Economics

1.3.3   What are the strategies adopted for the revision of the existing programmes? What percentage of courses underwent a syllabus revision?

The existing programs are revised both reactively as well as proactively. The need is identified from the feedback from the students and/or analysis of data of their performance. Periodic design changes are also effected to offset the obsolescence of the design or if a need for change is realized. All the steps as required for initial design & development are followed for effecting and incorporating changes. Review is carried out and changes are documented. Records of the results of the review are maintained.

All the UG and PG programs were revised in 2013 and prior to that in 2009. Minor changes are affected as and when needed with the approval of the senate. The revision process follows the same approval process as described for new programs.

1.3.4   What are the value-added courses offered by the university and how does the university ensure that all students have access to them?

The University has introduced value added courses such as Human Values, Ethics and IPR. Considering the need for further career training and opportunities, Environmental Studies, Organization Behaviour etc. have also been introduced. We have also started new UG and PG programs including specialized MBA programs for the development of skills, for the promotion of community orientation and for career training.

1.3.5   Has the university introduced any higher order skill development programmes in consonance with the national requirements as outlined by the National Skills Development Corporation and other agencies?

All the courses offered are professional in nature and are designed to impart certain skill sets to the students. We have a project semester in our curriculum in which the students go to industries for their training for six months. The industry persons are involved in the evaluation of the students also. We also provide community orientation by offering courses specifically for community orientation. These include Environmental Studies, Organisational Behaviour, Human Values Ethics and IPR.

1.4   Feedback System

1.4.1   Does the university have a formal mechanism to obtain feedback from students regarding the curriculum and how is it made use of?

Student Reaction Survey is completed for every course in each semester to get a formal feedback from students for the courses offered in a semester and provide objective information to the faculty for self-appraisal, self-improvement & development. Formal student feedback is obtained online through semester-by-semester mandatory course evaluation using course reaction survey form and also through discussions with individual students as well as student representatives on the Student Consultative Committee (SCC) and also through meetings with student societies. The student reaction survey results are made available to the individual faculty member for his/her feedback.

1.4.2   Does the university elicit feedback on the curriculum from national and international faculty? If yes, specify a few methods such as conducting webinars, workshops, online discussions, etc. and its impact.

An Academic Review of the engineering programs was undertaken by a 15 member high level academic team from Trinity College Dublin during the first week of November 2014. A detailed report about the findings of the review was received later that month. The objective of the review was to identify the gaps between the current performance levels of TU and those levels which would be needed to bring the University into the top ten for the university rankings of India resulting in TU rising to a university of significance on the

global stage. The academic review covered review of curriculum, research, staffing, infrastructure, governance, academic and administrative decision making, strategic and implementation planning encompassing much of the entire academic culture of the University. The findings report sets out a path, by means of a set of recommendations, to achieve a closing of the performance gap. There are also some observations and recommendations which are core to the contemporisation process. A substantial overall plan for change has been prepared. In order to kick start this process of developing an overall plan, an operational document as a first step listing a broad implementation plan for effecting the necessary changes has been developed. The operational document has 91 action points and would require a sustained effort from all of us to achieve the goals of the contemporization programme.

The department faculty members and outside subject experts are members of various academic bodies such as Department Academic Affairs Committee, Board of Studies, Senate Undergraduate Committee and the Senate. The members provide feedback on academic and curriculum matters as members of these committees. Faculty members also routinely provide feedback and suggest improvements to the academic program at formally scheduled faculty meetings as well as other discussions forums with the department head and other meetings convened by the Dean/Director. Faculty members also write their self-appraisal forms for the year and provide suggestions for improvement of the program. The faculty members participate in Program Risk Assessment group to carry out SWOT (Strengths, weaknesses, opportunities and threats) assessment. Based on this assessment, a risk management program is currently underway. The faculty are encourages to set targets for themselves for the year and their progress is periodically monitored and rewarded thorough a performance incentive scheme. The scheme is a unique methodology developed especially for educational institutions to objectively measure an individual's performance. Faculty members review the objectives and the conduct of the academic programs, possible changes, and the progress of the department in many areas during monthly meetings.

1.4.3   Specify the mechanism through which affiliated institutions give feedback on curriculum enrichment and the extent to which it is made use of.

Not Applicable as Thapar University is a deemed university.

1.4.4   What is the quality sustenance and quality enhancement measure undertaken by the university in ensuring the effective development of the curricula?

TU has adopted the learning outcomes approach to switch the focus from content based education and has shifted towards greater reliance on self-directed learning, mini-project within the modules, research-led teaching, use of project work and assignments. TU offers design or application-based engineering projects. Research led teaching has been evolved in terms of course content. All academic staff are encouraged and trained to develop modules associated with their research area and bring in cutting edge research ideas from their own research and of other eminent researchers. This is being achieved by involving the students in research activities which in many cases may mean re-exploring research findings which are already known. The students are introduced to the whole ethos of research in terms of what is called as "State of Art" and how research is conducted. The students are imparted skills to use information sources and also equip them to design and

conduct experiments. The students are trained for research based (engineering) problem solving.

The University has established, documented and implemented quality sustenance and quality enhancement measures for continuous improvement and effective development of the curricula by implementing continuous reviews and internal audits. The University has implemented the planned arrangements along with their control mechanism for the achievement of planned results and for continual improvement of the processes. ISO Certification is there in the University; and as such, ISO review/audit is also undertaken every year. IQAC reviews are also conducted from time to time.

Any other information regarding Curricular Aspects which the university would like to include.