



**Delhi Skill and
Entrepreneurship University**

M.Tech. (Tool Engineering)

Syllabus Document



Effective from Academic Year 2021-22

Program Information

Introduction

Delhi Skill and Entrepreneurship University offers a two-year Master's Degree Program in Technology (Tool Engineering). The program allows students to train in a promising and job creating sector. The students will acquire a wide range of skills such as – understand the technical and functional environment of Tool Engineering; understand emerging technologies; learn industry best practices, thereby helping them develop several skills. Students will be exposed to practical knowledge along with the classroom theoretical and practical sessions. The program intends to make a significant contribution towards the development of skilled technical manpower and aid the progress of the nation.

Program Objectives

Delhi Skill and Entrepreneurship University's post graduate M. Tech (Tool Engineering) program provides the students with an in-depth understanding of key theoretical concepts and intensive practical training to enable them to emerge as proficient engineers in Tool Engineering. The program introduces the students to a number of engineering sciences at the core curriculum level by adopting a theoretical and experimental solution approach to solving real-world problems. During the 2-year program the students will develop several skills, such as

- Selection of materials - metals and plastics.
- General information about GD&T.
- Design press tools for complex sheet metal components.
- Design moulds for plastic components.
- Design dies for pressure - die cast components.
- Design jigs and fixtures, gauge.
- Plan, manufacture and estimate costs of tools, dies and moulds.
- Use of analytical computation techniques in the design and analysis of tools, moulds and dies.
- Try - out tools to eliminate defects and tune the process conditions to achieve quality production.
- Shop floor practice to make simple tools.

Pedagogy and Teaching Methodology

Developed with support of experts from the industry and Subject Matter experts from several renowned academic institutions, this program's effective pedagogy, will aid in skilling young professionals. Focus on real-world examples, activity-based learning, in campus laboratory training, and internships will lead to holistic development of students pursuing this course. This will give them a much needed practical exposure that is currently lacking across most institutions. Classroom training is interspersed with industry visits, guest lectures and project assignments.

Credit scheme

Semester I							
Sl No.	Subject Code	Course Titles	Hours/week				Total Credits
			L	T	P	Total	
1.	MT-TE-ES101	Injection Molding and Mould Design	3	0	4	7	5
2.	MT-TE-ES102	Design of Jigs, Fixture, and Gauges	3	0	4	7	5
3.	MT-TE-ES103	Metal forming and Press Tool Design	3	0	4	7	5
4.	MT-TE-BS101	Research Methodology and Intellectual Property Rights	2	0	0	2	2
Programme Elective-I (Choose anyone from the following subjects)							
5.	MT-TE-ES104	Advanced Metrology and Geometric Dimensioning & Tolerancing	3	0	2	5	4
6.	MT-TE-ES105	Industrial Automation and Control	3	0	2	5	4
7.	MT-TE-ES106	Introduction to Finite Element Methods	3	0	0	5	4
Audit-I*							
8.	MT-TE-AU101	Disaster Management	2	0	0	2	0
Total			16	0	14	30	21

Semester II							
Sl No.	Subject Code	Course Titles	Hours/week				Total Credits
			L	T	P	Total	
1.	MT-TE-ES201	Advanced Press Tool Design and Formability Analysis	3	0	5	8	5.5
2.	MT-TE-ES202	Advanced Injection Molding Processes and Mould Design	3	0	5	8	5.5
3.	MT-TE-ES203	Composite Manufacturing	3	0	0	3	3
Programme Elective-II (Choose anyone from the following subjects)							
4.	MT-TE-ES204	CNC Technology and Programming	3	0	2	5	4
5.	MT-TE-ES205	Computer Aided Design	3	0	2	5	4
6.	MT-TE-ES206	Statistical Quality Control	3	0	0	5	4
Programme Elective-III (Choose anyone from the following subjects)							
7.	MT-TE-ES207	Heat Treatment and Tool Materials	3	0	0	3	3
8.	MT-TE-ES208	Advance in Metal Cutting	3	0	0	3	3
9.	MT-TE-ES209	Project Management	3	0	0	3	3
Audit-II*							
10.	MT-TE-AU201	English for Research Paper Writing	2	0	0	2	0
Total			17	0	12	29	21

Note:

1) Students will undergo Industrial Training/Internship for at least 4 to 6 weeks during semester break. However, Viva-Voce will be conducted in the 3rd semester.

2)*For Audit Course, even though the credits are Zero, it is mandatory for the students to secure 50% in that particular subject.

Semester III							
SI No.	Subject Code	Course Titles	Hours/week				Total Credits
			L	T	P	Total	
Programme Elective-IV (Choose anyone from the following subjects)							
1.	MT-TE-ES301	Surface Modification Processes	3	0	0	3	3
2.	MT-TE-ES302	Die Casting and Die Design	3	0	0	3	3
Open Elective (Choose anyone from the following subjects)							
3.	MT-TE-OE301	Renewable Energy Resources	3	0	0	3	3
4.	MT-TE-OE302	Industrial Safety	3	0	0	3	3
5.	MT-TE-OE303	Industrial Pollution	3	0	0	3	3
6.	MT-TE-OE304	Cost Management of Engineering Projects	3	0	0	3	3
7.	MT-TE-OE305	Internet of Things	3	0	0	3	3
8.	MT-TE-OE306	Managerial Economics	3	0	0	3	3
9.	MT-TE-OE307	Business Analytics	3	0	0	3	3
10.	MT-TE-SI301	Industrial Training	0	0	0	0	1
11.	MT-TE-PR301	Dissertation Phase-I/Industrial Project	0	0	20	20	10
Total			6	0	20	26	17

Note:

Dissertation-I/ Industrial Project

-For doing the Dissertation Phase-I/Industrial Project, the students will select a topic relevant to Tool Engineering extended to perform their dissertation/Industrial project. The dissertation can be design, analytical work, simulation, manufacturing, or a combination of these in the emerging areas of Tool Engineering under the supervision of engineering faculty from the Department. The students will submit a synopsis at the beginning of the semester for approval from the departmental committee in a specified format. The students will have to present the progress of the work through seminars/progress reports. The end semester evaluation shall be on the basis of viva-voce and project report.-Students going for Industrial Project/ Thesis will complete the courses offered in Sem III through MOOC.

Semester IV							
SI No.	Subject Code	Course Titles	Hours/week				Total Credits
			L	T	P	Total	
1.	MT-TE-PR401	Dissertation Phase-II	0	0	32	32	16
Total			0	0	32	32	16

Note:Dissertation-II

Students should complete the work planned in the third semester, attaining all the objectives, and should prepare the project report of the complete work done in the two semesters. They are expected to communicate their innovative ideas and results in reputed conferences and/or journals. The student has to present seminars for the evaluation of the dissertation work during the fourth semester before the Engineering faculty of the concerned institute. The report of the work completed shall be evaluated in the presence of a committee which may have an external examiner.