

# GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: I

## M.E. TEXTILE ENGINEERING

Subject Name: **Advance Spinning Technology (Major Elective-I)**

Sr.No	Course content
1.	<b>Developments in blow-room and carding:</b> Developments in opening and cleaning, mixing and blending and automation.
2.	<b>High production carding:</b> Chute feeding devices e.g. exactafeed, vibrachute, simplafeed etc. advantages and limitations, Developments in carding.
3.	<b>Autolevelling:</b> Importance of autolevelling, types of autolevellers with their significance on yarn quality.
4.	<b>Rotor spinning technology:</b> Mechanism of yarn formation, yarn structure, parameters influencing yarn structure and quality, yarn characteristics.
5.	<b>Twistless spinning:</b> Principle, Tek-ja and Twilo processes, Bobtex process, yarn properties and future prospects.
6.	<b>Self twist spinning:</b> Operating principle, yarn structure, twist relationship, twist distribution and its measurement, factors affecting twist distribution, tensile strength. Alternate spinning systems using self-twisting principle, STT yarns, yarn characteristics.
7.	<b>Friction spinning :</b> Principle of operation, Dref spinning systems-Dref -2, Dref-3, Dref-5,Dref-2000 spinning systems, Fibre feeding unit, yarn feeding unit, yarn quality influencing parameters, merits and demerits, application ,recent advances.
8.	<b>Air-jet spinning:</b> Principle of working, History of developments, Yarn structure, yarn properties, influence of fibre properties and process parameters on yarn quality. further developments e.g. MJS802H, Murata Twin spinner, Murata roller jet spinner, Murata Vortex Spinner etc; Yarn characteristics and end uses.
9.	<b>Siro spinning:</b> Operating principle, Process monitor, Yarn structure, Influence of process parameters on yarn structure and yarn quality, Benefits of siro spun technology with their applications. Solo spun Yarn spinning.
10.	<b>Wrap spinning:</b> Principle of operation, yarn structure, Yarn characteristics, applications.
11.	<b>Core yarn spinning:</b> Method of yarn production- core –spun yarn by ring spinning, rotor spinning, friction

	spinning, air-jet spinning, application.
12.	<b>Condensed yarn spinning:</b> Introduction, DREF compact spinning, Comfor spinning process, Elite spinning system, Air-com-Tex 700 process, Yarn structure, yarn properties, advantages and disadvantages of condensed yarn spinning.
13.	Miscellaneous spinning systems; Electrospinning, Friction-air-jet compound spinning, open-end jet spinning
14.	Comparison of various spinning systems.

### Reference Books:

1. The Textile Institute Publication - Manual of Textile Technology – Short Staple Spinning Series  
Vol.V – New spinning systems by W. Klein.
2. New Spinning Systems-NCUTE Publications by R.V.Mahendra Gowda
3. Rotor Spinning by R. Nield
4. Rotor Spinning by C.A.Lawrence and Chen