

DIPLOMA IN TEXTILE ENGINEERING
COURSE STRUCTURE
PROBIDHAN-2022
YARN MANUFACTURING (11)

Yarn Manufacturing (11)

4th Semester

SL. No.	Subject		Period Per Week		Credit	Marks Distribution						
						Theory Assessment			Practical Assessment			Grand Total
	Code	Name	Theory	Practical		Continuous	Final	Total	Continuous	Final	Total	
1	21141	Man Made Fibre & Filament	2	0	2	40	60	100	-	-	-	100
2	21142	Yarn Manufacturing-II	3	3	4	60	90	150	25	25	50	200
3	21241	Fabric Manufacturing-II	3	3	4	60	90	150	25	25	50	200
4	21341	Wet Processing-I	3	3	4	60	90	150	25	25	50	200
5	21342	Sustainability in Textile Industry	2	0	2	40	60	100	-	-	-	100
6	21441	Apparel Manufacturing-I	3	3	4	60	90	150	25	25	50	200
7	26811	Basic Electronics	2	3	3	40	60	100	25	25	50	150
Total			18	15	23	360	540	900	125	125	250	1,150

DIPLOMA IN TEXTILE ENGINEERING
SYLLABUS
PROBIDHAN-2022
YARN MANUFACTURING (11)
4th SEMESTER

Subject Code	Subject Name	Period Per Week		Credit
21141	Man Made Fibre and Filament	T	P	C
		2	-	2

Rationale	Textile fabrics and clothing represent social civilizations and culture. Man Made fibre have revolutionized in this sector. Man Made Fibre are the basic elements of textile processing. The use of Man-Made Fibre has been increasing day by day due to its different distinct characteristics. Students of diploma in textile engineering need to achieve the basic knowledge, skill and attitude on overall manufacturing process of Man-Made Fibre and Filament. Fundamental idea about the properties of Man-Made Fibre and Filament are prerequisite in practical field. To fulfill these purposes, this course has been included in this program. By attaining this knowledge, skill and attitudes the students will be able to face the present and future challenges which need to be handled in this field.
Learning Outcome (Theoretical)	After undergoing the subject, students will be able to: - Explain Man-Made Fibre manufacturing process. - Explain Regenerated Cellulosic Fiber manufacturing process. - Identify problem during production. - Provide effective solution during production. - Explain High-performance Man-Made Fibre. - Illustrate recycling process and sustainability of Man-Made Fibre.

Detailed Syllabus (Theory)

SL No.	Topics with Contents	Class (1 Period)	Final Marks
1	Introduction to Man Made Fibres & Filament 1.1 Define Man Made Fibre 1.2 Discuss the history of Man-Made Fibre 1.3 Classify Man Made Fibre 1.4 Differentiate between Man-Made Fibre & Natural Fibre 1.5 Define Filament and Polyester Staple Fibre (PSF) 1.6 Differentiate between fibres and filament 1.7 List the brand name of different filament 1.8 Define monomer, polymer and degree of polymerization 1.9 Classify polymerization 1.10 State the properties of fibre forming polymer.	2	4
2	Manufacturing Process of Man-Made Fibre 2.1 Illustrate the manufacturing flow chart of Man-Made Fibre production 2.2 Mention different spinning methods of Man-Made Fibre 2.3 Illustrate Melt, Dry and Wet Spinning process 2.4 Define extruder 2.5 Classify different types of extruder 2.6 Discuss principle of extruder 2.7 Differentiate among Melt, Dry and Wet spinning methods 2.8 Define spinneret and spin pack 2.9 Describe the features and functions of spinneret 2.10 Define down thermal boiler and quenching 2.11 Interpret the functions and importance of quenching 2.12 Illustrate the working principle of down thermal boiler.	6	6
3	Regenerated Cellulosic Fibre 3.1 Define Regenerated fibre 3.2 Mention different types of Regenerated Cellulosic fibre 3.3 Describe the manufacturing process of Viscose, Tencel, Modal & Cuprammonium 3.4 List the trade names of Viscose, Tencel, Modal & Cuprammonium. 3.5 Discuss physical properties of Viscose, Tencel, Modal & Cuprammonium 3.6 Illustrate chemical properties of Viscose, Tencel, Modal & Cuprammonium 3.7 Mention the end uses of Viscose, Tencel, Modal & Cuprammonium.	3	8

4	Polyester Fibre 4.1 Define Ester, Polyester, Partial Oriented Yarn (POY), Draw Textured Yarn (DTY) and Fully Drawn Yarn (FDY) 4.2 List the chemicals of polyester production 4.3 Describe the production process of polyester 4.4 Mention trade names of polyester 4.5 Discuss Physical and chemical properties of polyester 4.6 Define Mono ethylene Glycol (MEG) and Poly Terephthalic Acid (PTA) 4.7 Illustrate Mono ethylene Glycol (MEG) and Poly Terephthalic Acid (PTA) manufacturing process 4.8 Mention the end uses of Polyester 4.9 Define Intrinsic Viscosity (IV) 4.10 Compute Intrinsic Viscosity and control yarn quality.	4	6
5	Polyamide Fibre 5.1 Define Polyamide Fibre 5.2 Mention different types of Polyamide Fibre 5.3 Discuss the raw materials for Nylon 6 and Nylon 6.6 5.4 Mention the nomenclature of Nylon 6 and Nylon 6.6 5.5 Illustrate the process flowchart of Nylon 6 and Nylon preparation 5.6 Describe the manufacturing process of Nylon 6 and Nylon 6.6 5.7 Discuss physical properties of Nylon 6.6 5.8 Discuss chemical properties of Nylon 6 and Nylon 6.6 5.9 Mention the end uses of Nylon 6 and Nylon 6.6 5.10 Distinguish between Nylon 6 and Nylon 6.6.	3	6
6	Polyacrylonitrile 6.1 Define Acrylic fibre 6.2 Mention raw materials of Acrylic fibre 6.3 Illustrate the process flowchart of Acrylic fibre manufacturing 6.4 Discuss the manufacturing process of Acrylic 6.5 Mention physical properties of Acrylic 6.6 Mention chemical properties of Acrylic 6.7 Define Mod-acrylic 6.8 State the characteristics of Mod-acrylic 6.9 Mention the end uses of acrylic and Mod-acrylic.	3	6
7	Polyacetate Rayon 7.1 Define Acetate and Tri-Acetate Rayon 7.2 Illustrate the process flowchart of Acetate manufacturing 7.3 Discuss the manufacturing process of Poly Acetate Rayon 7.4 Mention physical properties of Poly Acetate Rayon 7.5 Mention chemical properties of Poly Acetate Rayon 7.6 Distinguish between acetate and Tri-acetate 7.7 Mention the end uses of Poly Acetate Rayon.	3	6

8	Polyurethane (Spandex) 8.1 Mention the raw materials of Spandex fibre 8.2 Define Polyurethane and Air Covered Yarn (ACY) 8.3 Illustrate the process flowchart for manufacturing Spandex 8.4 Describe the production process of Spandex 8.5 Mention physical properties of Spandex 8.6 Mention chemical properties of Spandex 8.7 Mention the uses of Spandex 8.8 List trade names of Spandex.	3	6
9	High Performance Fibres 9.1 Define High-Performance Fibers 9.2 List the name of High-Performance Fibres 9.3 Mention the end uses of Aramid, Carbon, Glass Fibre, Ultra High Molecular Weight Polyethylene (UHMWPE) and Polytetrafluoroethylene (PTFE) 9.4 Mention the end uses of Metallic and Rubber Fibre 9.5 Define Micro and Nano Fibre 9.6 List the raw materials for manufacturing of Micro and Nano fibre.	3	6
10	Sustainable Man-Made Fibre 10.1 Define Sustainable Man-Made Fibre 10.2 State the objectives of Sustainable Man-Made Fibre 10.3 Express the importance of Sustainable Man-Made Fibre 10.4 Define Recycle Polyester 10.5 Illustrate the manufacturing process of Recycle Polyester 10.6 Mention the end uses of Recycle Polyester 10.7 Define Biodegradable Man-Made Fibre 10.8 List Biodegradable Man-Made Fibres.	2	6
	Total	32	60

Recommended Books:

Sl.	Book Name	Writer Name	Publisher Name & Edition
01	Hand Book of Textile Fibres, Volume: II	J. GORDON COOK	Woodhead Publishing Ltd.2009
02	Synthetic Textile	MEENAKSHI RASTOGI	Sonali Publications, New Delhi, 2009
03	Fibres and Yarn	MEENAKSHI RASTOGI	Sonali Publications, New Delhi, 2009
04	Textile Raw Materials – II	Engr. Md. Abdul Mojid	Prime Publication
05	Polyester Fiber Manufacture	Marshal Sittig	Noyes Dtat Corporation
06	Synthetic Fibers: nylon, polyester, acrylic, polyolefin	J E McIntyre	Wood Head Publications

Website References:

SI	Web Link	Remarks
01	https://www.youtube.com/channel/UCWqYV3o_68pcoAdJadtORrA	
02	https://nptel.ac.in/	
03	https://textilelearner.net/	
04	https://bunon.info/	
05	https://textilefashion.net/	

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