B.Sc.ApparelProduction Technology

Syllabus

AFFILIATEDCOLLEGES

ProgramCode:26S

2025–2026onwards

BHARATHIARUNIVERSITY

(AStateUniversity,Accreditedwith"A++"GradebyNAAC, Ranked 21st among Indian Universities by MHRD-NIRF)

Coimbatore-641046,TamilNadu,India

ProgramEducationalObjectives(PEOs)	
The**B.Sc.ApparelProductionTechnology**programdescribeaccomplishmentsthat graduates are expected to attain within five to seven years after graduation	
PEO1	Graduateswillhavesuccessfulprofessionalcareersin Industry&Academiainthe field of Apparel Production
PEO2	Graduateswillbecomesuccessfulentrepreneurin Apparelandrelated fields
PEO3	Graduateswillcontinuetolearnandadvancetheircareersthroughattainmentof Professional certification and seeking higher education.
PEO4	Graduateswillbecompetentthrougheffectivecommunication,softskillsand teamworkskillsandwillbeabletorelategarmentindustryissuestobroadersocial contexts
PEO5	Graduateswillbeprofessional,ethicalanddemonstratespiritofexcellenceand leadership in their successful professional career

ProgramSpecificOutcomes(PSOs)	
AfterthesuccessfulcompletionofB.Sc.**ApparelProductionTechnology**program,the students are expected to	
PSO1	Tobeableto understandthebuyerrequirements andexpectationsintermsof domesticandinternationalmarkettrendsandqualitystandardsprevailinginthe Fashion and apparel industry.
PSO2	Demonstratetheknowledgeandunderstandingoftheindustrialengineeringconcepts related to apparel manufacturing
PSO3	Applydomainknowledgeandproblem-solvingskillstosolverealtimeproblemsin apparel production
PSO4	Designs&developnew methods&proceduresforbetterutilizationofresources
PSO5	HaveEntrepreneurship andLifeSkills tostarttheirownbusinesses

ProgramOutcomes (POs)	
Onsuccessfulcompletionofthe**B.Sc.Apparel ProductionTechnology**	
PO1	Studentswillbeabletounderstandtheprinciplesandtechniquesofvariousprocesses of apparel manufacturing
PO2	understandtheprinciplesandconceptsofvariousaspectsofindustrialengineering techniques in apparel manufacturing
PO3	Demonstratetheknowledgeandskillsofindustrialengineeringtechniquesfor improved planning & the utilization of resources
PO4	Tostudytheprocess&activitiesanddemonstratetheknowledgefordeveloping Procedures & designing process flow
PO5	Tobeabletoidentify,analyzeandtodesignanoptimalsolutiontotheproblems using the tools & techniques
PO6	Demonstrateknowledgeandunderstandingofthemanagementprinciplesandapply these to one's own work to manage projects
PO7	Recognizethe needfor,andhavethepreparation andabilityto engagein independent and life-long learning in the broadest context of technological change.

BHARATHIARUNIVERSITY:COIMBATORE641046

B.Sc.ApparelProductionTechnology(CBCSPATTERN)

(*Forthestudentsadmittedfromtheacademicyear**2025-2026**andonwards*)

SchemeofExamination

Course Code	TitleoftheCourse	Hours/ Week	Examination				Credits
			Duration inHours	MaximumMarks			
				CIA	ESE	Total	
	SemesterI						
I	LanguageI	6	3	25	75	100	4
II	English I	6	3	25	75	100	4
III	CorePaper I-Basic Textiles	4	3	25	75	100	4
III	Core Paper II - Apparel ManufacturingTechnology	4	3	25	75	100	4
III	CorePaperIII-PracticalI-Yarn and Fabric Analysis Practical	4	3	20	30	50	2
III	Allied Paper I - Fabric ManufacturingTechnology	4	3	25	75	100	4
IV	EnvironmentalStudies	2	3	-	50	50	2
	Total	**30**	**-**	**145**	**455**	**600**	**24**
	SemesterII						
I	LanguageII	6	3	25	75	100	4
II	English II	4	3	25	25	50 @	2
	Naan Mudhalvan Skill Course - Language Proficiency for employability-EffectiveEnglish	2	-	25	25	50 #	2
	http://kb.naanmudhalvan.in/Special:Filepath/Cambridge_Course_Details.pdf						
III	Core Paper IV – Garment MachinesandEquipments	4	3	20	55	75	3
III	CorePaperV-PracticalII-Pattern Making Practical	4	3	40	60	100	4
III	Core Paper VI - Practical III - GarmentConstructionI–Practical	4	3	30	45	75	3

III	AlliedPaperII-Textile Chemical Processing	4	3	25	75	100	4
IV	ValueEducation–Human Rights	2	3	-	50	50	2
	Total	**30**	**-**	**190**	**410**	**600**	**24**

	SemesterIII						
I	LanguageIII	6	3	25	75	100	4
II	English III	4	3	25	75	100	4
III	CorePaperVII–Industrial Engineering – I	4	3	20	55	75	3
III	CorePaperVIII-PracticalIV-Garment Construction II – Practical	4	3	30	45	75	3
III	AlliedPaperIII-ApparelQuality Control and Quality Assurance	4	3	25	75	100	4
III	SkillbasedSubjectI–Garment Accessories and Trims	4	3	20	55	75	3
IV	BasicTamil**/AdvancedTamil (OR) Non-major elective - I (Yoga for Human Excellence) / Women's Rights*	2	3	-	50	50	2
V	Health and Wellness	2	-	100	-	100	1
	Total	**30**	**-**	**245**	**430**	**675**	**24**
	SemesterIV						
I	LanguageIV	6	3	25	75	100	4
II	English IV	4	3	25	75	100	4
IV	NaanMudhalvanSkillCourse–Digitalskills for employability-OfficeFundamentals	2	-	25	25	50 @	2
	http://kb.naanmudhalvan.in/Special:Filepath/Microsoft_Course_Details.xlsx						
III	CorePaper IX-IndustrialEngineering-II	4	3	20	55	75	3
III	CorePaperX-MiniProject–I and viva voce ##	4	-	12	38	50	2
III	AlliedPaperIV - HumanResource Management	4	3	25	75	100	4
III	SkillbasedSubjectII-Production Planning, Control and Inventory Management	4	3	20	55	75	3

IV	BasicTamil**/AdvancedTamil (OR) Non-major elective -II (General Awareness) *	2	3	-	50	50	2
	Total	**30**	**-**	**152**	**448**	**600**	**24**
	SemesterV						
III	CorePaperXI–IndustrialEngineering-III	4	3	25	75	100	4
III	CorePaperXII–QMSinApparel Production	4	3	25	75	100	4
III	Core Paper XIII - PracticalV–Computer Applications Practical	4	3	30	45	75	3
III	CorePaperXIV-MiniProjectII and viva voce ##	10	-	12	38	50	5
III	ElectivePaperI	4	3	25	75	100	4
III	Skill based Subject III – BehavioralInterventionSkills	4	3	20	55	75	3
	GrandTotal	**30**	**-**	**137**	**363**	**500**	**23**
	SemesterVI						
III	Core Paper XV – Technical Textiles	5	3	25	75	100	4
III	CorePaperXVI–ProjectWork and Viva Voce ##	13	-	25	75	100	4
III	ElectivePaperII	4	3	25	75	100	4
III	ElectivePaperIII	4	3	25	75	100	4
III	SkillbasedSubjectIV–Leansix sigma	4	3	20	55	75	3
V	ExtensionActivities**	-	-	50	-	50	2
IV	NaanMudhalvanSkillCourse :EmployabilityReadiness-Naandi /Unmati/Quest/Izapy/IBM Skill Build						
	Total	**30**	**-**	**170**	**355**	**525**	**21**
	GrandTotal	**180**	**-**	**1039**	**2461**	**3500**	**140**

CIA–ContinuousInternalAssessment
CEE–ComprehensiveExternalExamination

*NoContinuousInternalAssessment(CIA).OnlyUniversityExaminations.
**NoUniversityExaminations.OnlyContinuousInternalAssessment (CIA).

@EnglishII-Universitysemesterexaminationwillbeconductedfor50marks(Asperexistingpatternof Examination) and it will be converted for 25 marks.
#NaanMudhalvan–Skillcourses-external25markswillbeassessedbyIndustryandinternalwillbeofferedby respective course teacher.

##MarkDivisionfor InternshipandProject

Paper title	Total Marks	CIA	CEE	
			Evaluation	Viva-Voce
CorePaperX -Mini Project –IandVivaVoce##	50	12	30	08
CorePaperXIV-Mini ProjectIIand VivaVoce##	50	12	30	08
CorePaperXV–ProjectWorkand VivaVoce##	100	25	50	25

AdditionalCredit Course
EarningAdditionalcreditcourseisnotmandatory forProgramme Completion.
PrescribedcoursesunderUGC–SWAYAM/MOOCS/NPTELwillbeavailablefortheaffiliatedcolleges, as an optional.

ListofElectivepapers(Collegescanchooseanyoneofthepapersaselectives)		
Elective–I	A	Technologyadvancementsinapparel production
	B	ERP inApparelIndustry
	C	TQMinApparelIndustry
Elective–II	A	Entrepreneurship
	B	Leadership&EmotionalIntelligence
	C	InterpersonalSkills
Elective- III	A	Training&Development
	B	FactoryCompliance
	C	ValueStream Mapping


First
Semester

Course Code	13A	BasicTextiles	L	T	P	C
Core	PaperI		-	4	-	4
Pre-requisite	Basicknowledgein science		Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Educateabout characteristicsofdifferent typesof textilefibresusedinapparelindustry
2. Instructabout thevarious yarnmanufacturingmethods
3. Teach aboutthefibreandyarnqualityparameters

ExpectedCourseOutcomes:

Onthesuccessfulcompletionofthecourse,studentwill beable to:

CO1	Differentiatethecharacteristicsvariousnaturalfibres	K3
CO2	Differentiatetheproductionofsemisyntheticfibresandtheircharacteristics	K2
CO3	Understandabouttheproductionofsyntheticfibres andtheircharacteristics	K2
CO4	UnderstandtheprincipleofcottonspinningsystemandDifferentiatethe characteristics carded and combed yarns	K3
CO5	Realizeabout theadvancementsinfibresandyarn production methods	K3

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	Natural Fibre	12 hours

Classification of textile fibres - Properties of textile fibres. Cotton: Grading of cotton - Properties. Production&propertiesofFlax&Jutefibres.ProductionandPropertiesofsilk-varietiesofsilk. Woolfibregrading-–Properties–comparisonofWoollen&WorstedYarns.

Unit:2	RegeneratedFibre	12 hours

Manufacturingprocesssequenceofviscosefibre.Propertiesofviscose&Lyocellfibres. Production process & properties of acetate fibres. Brief study about Bamboo, banana & Soyabean fibres.FilamentSpinning Techniques.

Unit:3	SyntheticFibre	12 hours

Polymer & its types. Requirements of fibre forming polymer. Study about manufacturing process of Polyester, Nylon, Acrylic & Spandex fibres & Properties.Brief study about texturization.

Unit:4	YarnFormation	12 hours

Introduction to yarn classification – Staple spinning system – Production sequence for cotton yarn – Comparison of carded and combed yarn – Yarn winding – waxing – Study of yarn quality parameters–Variousyarn&packagedefects.Introductiontoblendedtextiles.Ply yarn production.Yarnnumbering systems.

Unit:5	Advancementsinfibresandyarns	12 hours

Introductiontoorganiccotton.Briefstudy aboutmicro fibre &hollow fibres.Briefstudy about OE&Airjetspinning.StudyaboutFancyyarns.Sewingthreadsmanufacturingprocess. Introductiontosustainable textiles.

	TotalLecturehours	60 hours

TextBook(s)

1	Atextbookoffibrescienceandtechnology,Mishra,S.P.,NewAgeInternationalPublishers, 2005
2	Textileyarns,Technology,StructureandApplications,Goswami.B.C.Martindale.J.G, Scardino.F.L., Wiley India Pvt., Ltd, 2010

ReferenceBooks	
1	Handbookoftextilefibres,VolumeII,fifthedition,GordonCook,J,Woodheadpublishing Ltd., 1984
2	Man-madefibres,MoncrieffRW,Newnes-Butterworths,1975
Relatedonlinecontent	
1.	https://sewguide.com/textile-fibers/
2.	http://textilefashionstudy.com/what-is-textile-fiber-classifications-of-textile-fiber/
3.	https://sites.google.com/site/textileschoolorg/yarn/process-of-yarn-formation
4.	https://www.textileschool.com//448/man-made-regenerated-cellulose-fibres/
CourseDesigned By:Dr.P.P. Gopalakrishnan	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	M	M	L	L	L	M
CO2	S	M	M	L	L	L	M
CO3	S	M	M	L	L	L	M
CO4	S	M	M	L	L	L	M
CO5	S	M	M	L	L	L	M

*S-Strong;M-Medium;L-Low

Course Code	13 B	ApparelManufacturing Technology	L	T	P	C
Core	Paper II		-	4	-	4
Pre-requisite	BasicknowledgeinApparelProductionProcesses		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Instructaboutweavingpreparatoryprocessandweaving
2. Makethestudents tolearnaboutvariouswovenfabricstructuresandmachinemechanism
3. Teachaboutknittingmachineelements andknit fabricstructures

ExpectedCourseOutcomes:

Onthesuccessful completionofthecourse,studentwill beable to:

CO1	Listoutthevariousactivities ofapparel manufacturingprocess	K2
CO2	Differentiatethevarioustypesofcuttingmachinesusedandapplicationsofvarious types of stitches in sewing process	K3
CO3	Analyzethevariousfactors influencingqualityin sewing	K3
CO4	Calculatethread consumptionforvarioustypesof stitches	K3
CO5	Distinguishaboutthetypes oftrims &accessoriesusedin apparels	K2

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	IntroductiontoApparel Manufacture	12 hours

Differentdepartments&theirroleingarmentindustry.Producttypesanditsinfluence.Garment analysisanditsclassification-measurementandsizechartsformen,women,andchildren- requirement and breakdown of garments - flow process - torso and bifurcated garments.

Unit:2	CuttingProcess&TypesofStitches	12 hours

Fabric Receipt & Cutting process: fabric checking for quality – cutting process & its types – Ticketing & bundling – sewing process -Stitches and seams: basic principles of stitch formation – classification of stitches based on federal standards – detailed study of application of all stitches - comparison of stitches.

Unit:3	Seam Finishing	12 hours

Detailedstudyonseamsclassificationasperfederalstandards–seamfinishes–devicesfor introducing fullness. Thread consumption for various types of stitches and garments. Fabric selectiontechniques–Additionaldressmakingtechniques-trimmingdetailsforqualitylook.

Unit:4	DefectsinSewing	12 hours

Detailedstudyonvariousstitching,sewingandassemblydefects-causes&remedies:skipstitch, unbalanced,puckering,gathering,needledefects,threadproblems–qualityofthreadsandits impact on sewing quality – sew ability and its influencing factors – needle cutting index.

Unit:5	Finishing&Packing	12 hours

Fusinganditsrequirements–interlinings–fusibleresintypes.Introductiontotrimsand accessoriesattachments-label,zips,fasteners–Sewingticketnumbering.Packagingtypesand materials.Finishing&Packing- Dispatching.

	TotalLecturehours	60 hours

TextBook(s)

1	ApparelManufacturingHandBook,JacobSolinger,BobbinMediaCorporation,1988
2	TechnologyofClothingManufacture,HeroldCarr&B.Latham,Wiley-Blackwell, 1994

ReferenceBooks

1	KnittedClothingTechnology,T.BrackenBerry, Wiley-Blackwell,1992
Relatedonlinecontent	
1.	https://www.intouch-quality.com/blog/4-sewing-stitches-used-in-manufacturing-and-their-benefits
2.	https://garmentsmerchandising.com/types-of-stitch-used-in-garments/
3.	https://sewguide.com/how-to-sew-seams/
4.	https://ordnur.com/sewing/sewing-defects-solve-with-root-causes/
CourseDesignedBy:MrsArundhati Ghoshal	

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	S	M	M	M	M	L	M
CO2	S	M	M	M	M	L	M
CO3	S	M	M	M	M	L	M
CO4	S	S	S	S	S	L	M
CO5	S	M	M	M	M	L	M

*S-Strong;M-Medium;L-Low

Course Code	13 P	YarnandFabricAnalysisPractical	L	T	P	C
Core		PracticalI	-	-	4	2
Pre-requisite		Basicknowledgeinfibres&yarns	Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:
1. Trainthestudents intestingof yarnforitsvariousparameters
2. Traininvariousphysical&chemicaltestingof fabrics

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Evaluate&identifythefibrecomposition ina given blend	K5
CO2	Evaluatetheyarnqualityparameterssuchascount,strength & twist	K5
CO3	EvaluatethefabricqualityparameterssuchasCRA,drapability&pilling	K5
CO4	Evaluatethefabriccolourfastnesstowashing, rubbing	K5
CO5	Evaluatethefabricdimensional stability	K5

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Ex.No.1	Determinationofcountofyarnusingwrapreel& weighingscale	04 hours
Ex.No.2	Determination ofleastrength &CSPusingleastrengthtester	06 hours
Ex.No.3	Determinationof yarncountfromfabricswatchusingbeesleybalance.	04 hours
Ex.No.4	Determinationoftwistof singleyarnusingelectronictwisttester.	04 hours
Ex.No.5	Analyzethegivenknittedfabricforitsarealdensity,stitchdensity,stitch length and yarn count	05 hours
Ex.No.6	Analyzethe given sampleforits blendcomposition	05 hours
Ex.No.7	DeterminationoffabricpillingusingICIpillbox	05 hours
Ex.No.8	Determinationoffabricburstingstrength	04 hours
Ex.No.9	DeterminationofCRAof fabricusingcreaserecover tester.	04 hours
Ex.No.10	Determinationofcolourfastnessofgivensampletowashingbyusing Launderometer.	05 hours
Ex.No.11	Determinationofcolourfastnessofgivensampletorubbingbyusing crock meter	04 hours
Ex.No.12	Determinationofdimensionalstability%ofagivenfabric/garmentto washing.	05 hours
Ex.No.13	Determinationoffabricdrapeabilityusingdrape meter	05 hours
	TotalLecturehours	**60 hours**

TextBook(s)

1 PrinciplesofTextileTesting,J.E.Booth,Butterworth‟s,1986

ReferenceBook

1 HandbookofTextileTestingandQualityControl.ElliotB.GroverandD.S.Hamby.Textile Book Publishers, 1960

Relatedonlinecontent

1 https://textilefocus.com/textile-testing-methods-based-iso-standard

2 https://www.qima.com/testing/textile-fabric/physical-testing-textiles

CourseDesigned By: Dr.P.P. Gopalakrishnan

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	M	L	L	L	S
CO2	S	S	M	L	L	L	S
CO3	S	S	M	L	L	L	S
CO4	S	S	M	L	L	L	S
CO5	S	S	M	L	L	L	S

*S-Strong;M-Medium;L-Low

Course Code	1AB	FabricManufacturingTechnology	L	T	P	C
Allied	PaperI		-	4	-	4
Pre-requisite	Basicknowledgeinfibres&yarns		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Discusstheprinciples&basicmechanismsofknittingandWeavingprocess
2. Clarifyabouttheformationofvariouswovenandknittedfabric structures
3. Illustratethedefectsinwoven&knittedfabricsandthe remedies

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Listoutthevarious preparatoryprocessesfor weaving	K2
CO2	Learnthebasicmechanismsofweavinganddifferentiatethemeritsanddemerits the types of looms used	K3
CO3	Learntheprincipleofknittingprocessandvariouselementsofweftknitting machine	K2
CO4	Differentiatethecharacteristics ofbasicknitfabric structures	K3
CO5	Learnaboutflat knittingandwarpknittingtechnologies	K2

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	Weavingpreparatory processes	12 hours

Different fabric forming methods. Introduction to weaving - Weaving preparatory processes andits objectives (Winding, Warping, Sizing & drawing in).

Unit:2	Weaving Machines	12 hours

Passageofmaterialthroughaplainpowerloom–Basicmechanismsofaweaving–Primary, secondary & auxiliary motions – Fabric defects, causes & remedies. Brief study about shuttle less looms. Study Basic weaves (Plain weave, Twill & Satin) and its derivatives

Unit:3	KnittingMachineElements	12 hours

Comparisonofweavingandknittingprocesses.Principlesofweftandwarpknitting.Knitting machine elements and description. Classification of knitting machines. Yarn passage diagram of a circular knitting machine. Knitting cycle of latch needle with sinker.

Unit:4	WeftKnitStructures	12 hours

Termsanddefinitionsinknitting.Principalweftknitstitches -Knit,tuckandmissstitchformation andproperties-Representationofweftknitstitches–StudyofBasicweftknitstructures-Needle gating-– Characteristicsof basic weftknitstructures.Brief study aboutderivativesof weftknit Structures.

Unit:5	WarpKnitting	12 hours

Knitted fabric faults – Causes and Remedies. Comparison of circular and Flat Knitting – Yarn passage diagram of a flat knitting machine. Warp knitting terminologies– Open lap and closedlap. Basic lapping variations - Study of knitting elements of Tricot and Raschel machines. Comparisonofweftandwarpknitting.

	TotalLecturehours	60 hours

TextBook(s)

1	KnittingTechnology, D.B.Ajgaonkar,UniversalPublishingCorporation,Mumbai, 2006
2	Handbookofweaving, Sabit Adanur,SRCPress,2009

ReferenceBooks

1	KnittingTechnologySecondEdition, DavidSpencer,WoodHeadPublishing Ltd.England

	1989
2	FlatKnitting,SamuelRaz,MeisenbachBamberg,1993
3	PrinciplesofWeaving,R. Marks,A.T.C.Robinson,TheTextileInstitute,Manchester,1976
Relatedonlinecontent	
1.	https://nptel.ac.in/courses/116/102/116102005/
2.	https://textilestudycenter.com/classification-of-loom/
3.	https://www.textileschool.com/246/basics-weaving-woven-fabrics/
4.	https://textilestudycenter.com/fundamentals-warp-knitting/
CourseDesigned By:Dr.P.P. Gopalakrishnan	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	L	L	L	L	L	M
CO2	S	L	L	L	L	L	M
CO3	S	L	L	L	L	L	M
CO4	S	L	L	L	L	L	M
CO5	S	L	L	L	L	L	M

*S-Strong;M-Medium;L-Low


Second
Semester

Course Code	23 A	GarmentMachinesandEquipment	L	T	P	C
Core	Paper III		-	4	-	3
Pre-requisite	Basicknowledgeingarmentproductionprocesses		Syllabus Version	2025-2026		

CourseObjectives:

Themain objectivesof thiscourse areto:

1. Teachaboutmethods ofpatternmakingandmarker making
2. Impartlearningabout choiceofcutting&sewingmachinesforapparelproduction
3. Educatetheprinciplesof fusing&pressingof garments

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Listoutthepattermakingmethods &spreadingtypes	K2
CO2	Differentiatetheapplications ofvarioustypesofcutting machines	K3
CO3	Evaluatethesignificanceofvariouselements ofsewing machines	K3
CO4	Differentiatetheapplicationsof varioustypesofsewingmachines	K2
CO5	Gainknowledgeofaboutthefusing &pressingmachines	K3

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	PatternMaking& Spreading	12 hours

Apparel Production: - Definition- fundamentals- basic types of process. -Pattern making- Drafting –Draping – Grading & Marker planning - Marker Efficiency-Factors affecting marker efficiency. - Markerduplicatingmethods–Computeraidedmarkermaking.Spreading-Introduction- Requirements of the process- Methods of spreading- Spreading quality specification - Equipments and tools.

Unit:2	Cutting Machines	12 hours

Fabric cutting – Objective- method. - Cutting equipment and tool analysis- Fabric cutting machineries- Vertical reciprocity cutting machine - rotary cutting machine- band knife cutting machine-die-cuttingmachine-clickers&pressers-cuttingdrills-lasercutting,plasmacutting-waterjetcutting-ultrasoniccutting-cuttingmethodanalysis-computerizedcuttingmachine,shade ticketing machine.

Unit:3	SewingMachineElements	12 hours

ConceptofSewing.Sewingmachine–Partsandfunctions,identificationandclassification,bed types, classification of stitching mechanism, presser feet, feed mechanism, rotary feed, platformfeed, other types prime feed and auxiliary feed. Special attachments in sewing machines

Unit:4	SewingMachine Types	12 hours

Sewing machinery & Equipments- Tables& auxiliary equipment – Types, basic sewing machine-generalsewing,–SNLS,DNLS,overlock, blindstitching,buttonholes, bar tacking,buttonsewing, labelsewing,specialsewingmachine,Embroiderysewingmachines,mechanizedworkplace, work aids and its types. Latest developments in sewing machines. Sewing machine maintenance.

Unit:5	Finishing Machines	12hours

Fusingequipment,methodsoffusing.Pressing-Introduction,meansofpressing,pressing equipment and methods:iron, steam press, steam air finisher, steam tunnel, pleating, permanentpress. Garment folding-types Packaging- method and equipments.

	TotalLecturehours	60 hours

TextBook(s)

1	TheTechnologyofClothingManufacture,HaroldCarrandBarbaraLatham,Blackwell ScienceLtd,England,1994

2	IntroductiontoClothingManufacture,GerryCooklin,Blackwell Science Ltd,England,1991
ReferenceBooks	
1	ApparelManufacturing Handbook,JacobSolinger,Van NostrandReinhold Company,1980
2	ApparelManufacturingSewnProductAnalysis,RuthE.GlockandGraceI.KunzPearson, Prentice Hall, 2005.
Relatedonlinecontent	
1.	https://garmentsmerchandising.com/fabric-cutting-machines-apparel/
2.	https://www.onlineclothingstudy.com/2017/03/different-types-of-industrial-sewing.html
3.	https://textilecourse.blogspot.com/2018/04/different-types-sewing-machines.html
4.	https://sewguide.com/types-of-sewing-machines/
CourseDesignedBy: Mrs.V.N.Narmadha Devi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	S	M	M	M	L	M
CO2	S	S	M	M	M	L	M
CO3	S	S	S	S	S	L	M
CO4	S	S	M	M	M	L	M
CO5	S	S	M	M	M	L	M

*S-Strong;M-Medium;L-Low

Course Code	23 P	PatternMaking Practical	L	T	P	C
Core		PracticalII	-	-	4	4
Pre-requisite	Basicknowledgeingarmentmeasuringpoints&useof computers		Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Trainthestudentsinpreparingpatternsforvariousstyles
2. Enablethestudentstogradethepreparedpatternforvarious sizes

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Understandthemeasurementchartandspecifications&gainknowledgeabout allowances at various points	K2
CO2	Applytheknowledge anddraftthepatternmanuallyaswellas usingCADsoftware	K2
CO3	Createpatternanygiven measurementmanuallyaswellasusingCADsoftware	K3
CO4	Gradethepatternforanysizefrombasicsizemanuallyas wellasusingCAD software	K5
CO5	Calculatethemakerefficiencyandapplywaystoreducewastage	K5

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

PartA		30 hours
Styles		
Ex.No.1	Men'sBasicTShirt	2 hours
Ex.No.2	Raglanwith Pocket	3 hours
Ex.No.3	Men'sPoloTShirt	3 hours
Ex.No.4	Men'sTrouser	3 hours
Ex.No.5	Men'sT-Shirtwithhood	3 hours
Ex.No.6	Men'sInnerGarment–VestsRN/RNS	2 hours
Ex.No.7	Brief	2 hours
Ex.No.8	LadiesSkirt	2 hours
Ex.No.9	Women'sNightwear	2 hours
Ex.No.10	Kid'sWear–Romber	2 hours
Ex.No.11	Kid'sWear–ALine frock	3 hours
Ex.No.12	Children'sSuitsandPyjama	3 hours

PartB — **30 hours**

1. CreatePatternoncomputerscreen,addingdetailstopatterns.
2. Saving,extracting&editingpatternsfromstocklibraryof Patterns.
3. Gradingpatternsondifferentsizescale.
4. MakingMarkerplanforcutting fabrics.
5. Estimatinglaylengthandcalculatingmarkerefficiency.
6. Fitanalysisofthegivenpattern.

TotalLecturehours — **60 hours**

TextBook(s)

1	Professionalpatternmakingfordesigners–women'swearmen'scasualwear,JackHandford, FairchildPublications, 2003
2	Patternmakingforfashiondesign,HelenJosephArmstrong,PearsonPublications, 2003

ReferenceBook

1	PatterncuttingforclothingusingCAD,Lectra&Modaris,M.Stott,WoodheadPublishing, 2012
Relatedonlinecontent	
1	https://www.textileschool.com/293/pattern-making
2	https://www.thecreativecurator.com/pattern-making
CourseDesignedBy: Mrs.V.N.Narmadha Devi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	M	M	M	M	L	M
CO2	S	M	M	M	M	L	M
CO3	S	M	M	M	M	L	M
CO4	S	M	M	M	M	L	M
CO5	S	M	M	M	M	L	M

*S-Strong;M-Medium;L-Low

Course Code	23 Q	GarmentConstructionI-Practical	L	T	P	C
Core	Practical-III		-	-	4	3
Pre-requisite	Basicknowledgeintypesofsewingmachines&stitches		Syllabus Version		2025-2026	

CourseObjectives:

Themain objectives of this courseareto:

1. Makethe studentsto Practiceand learnsewingvarious shapes
2. Makethemto draftpatterns forvariouscomponents
3. Impartlearningaboutsewingofvariouscomponents

ExpectedCourseOutcomes:

Onthesuccessfulcompletionofthecourse,studentwill beable to:

CO1	Threadingthemachinesandpreparesamples forsewing	K5
CO2	Prepareofsamples ofdifferenttypesofseams& fullness	K5
CO3	Prepareofsamples ofdifferenttypessleeves	K5
CO4	Prepareofsamplesofdifferenttypescollars	K5
CO5	Prepareofsamplesofdifferenttypesplackets&pockets	K5

K1-Remember;**K2** -Understand;**K3** -Apply;**K4**-Analyze;**K5** -Evaluate;**K6** -Create

Ex.No.1	ThreadingpracticeforSNLSmachineOverLockmachine,FlatLock machine	8 hours
Ex.No.2	Sample preparationsforSNLSmachineOverLockmachine,FlatLockMachine.	8 hours
Ex.No.3	Preparationofsamplesforseam(any5)-plain,TopStitched,Flatfell,piped seam	8 hours
Ex.No.4	Preparation ofsamplesforseamfinishes(any3)-overcast,Hem,Edge Stitched, bound.	4 hours
Ex.No.5	Preparation ofsamplesforfullness-darts,tucks(any3)-pin,cross,group Tuckingwithscallopedeffect,Pleats(any3)-knife,box,kick,gathering bymachine,elastic.Ruffles-single,double.	4 hours
Ex.No.6	Preparationofsamplesforfacingandbinding-biasfacing,shapedfacing, Binding.	4 hours
Ex.No.7	Preparationofsamplesforplackets-continuous,bound,facedandzipper Plackets,Tailored Placket,buttonandbuttonhole,press, button,hookandeye.	4 hours
Ex.No.8	Preparation ofsamplesforsleeves-plainsleeve,puffsleeve,raglanandkimono sleeve	4 hours
Ex.No.9	Preparationsofsampleswithyoke–simpleyoke,yokesupportingfullness.	4 hours
Ex.No.10	Preparationofsamplesforcollar-peterpancollar,shirtcollar	4 hours
Ex.No.11	Preparationofsamplesforpocket-patch Pocket	4 hours
Ex.No.12	Safetypractices while working on sewing machine. Care and maintenance on Sewing machine.	4 hours
	TotalLecture hours	**60 hours**

TextBook(s)

1	TheTechnologyofClothing Manufacture, HaroldCarr&BarbaraLathamBlackwell Sciences, 1996
2	ApparelManufacturingHandbook:Analysis,PrinciplesandPractice,JacobSolinger,Bobbin

	MediaCorporation,1988
3	ApparelManufacturingSewnProductAnalysis,RuthE.GlockandGraceI.Kunz,Pearson PrenticeHall,2005.
ReferenceBooks	
1	SewingfortheApparel Industry, ShaefferClaire,PrenticeHall,NewJersey,2001.
2	ANewLookatApparelMechanization,TechnicalAdvisoryCommitteeofAAMA, 1978.
Relatedonlinecontent	
1	https://ncert.nic.in/vocational/pdf/ivsm103.pdf
2	https://www.textileschool.com/258/garment-construction-techniques
CourseDesignedBy:Mrs.R.Sneha	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	S	S	S	S	L	M
CO2	L	S	S	S	S	L	M
CO3	L	S	S	S	S	L	M
CO4	L	S	S	S	S	L	M
CO5	L	S	S	S	S	L	M

*S-Strong;M-Medium;L-Low

Course Code	2AB	TextileChemical Processing	L	T	P	C
Allied	Paper II		-	4	-	4
Pre-requisite	Basicknowledgeinfibrechemistry&basicscience		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Describethebasicsof preparatoryprocesses fortextile colouration
2. Describetheselectionof dyes&machines fordyeing &printingofvarious fibres
3. Elaborateabout thevarioustypesoffinishingavailableforweftknittedstructures

ExpectedCourseOutcomes:

Onthesuccessful completionofthecourse,studentwillbeable to:

CO1	Definetheprocessroute forvarioustextilematerials	K2
CO2	Definetheselection ofmachine&dyesfordyeingprocess	K3
CO3	Selecttherightmethodandtechniquefor printing	K3
CO4	Identifythefabrics withvariousfinishedeffects	K4
CO5	UnderstandtheimportanceofETPandmeritsof enzymes	K5

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	Preparatoryprocesses	12 hours

Water:waterhardness–types-softeningprocess.Preparatoryprocesssequenceforwoven& knittedfabricsanditsobjectives (Singeing,Desizing,scouring, Bleaching&Mercerization)–Role of Textile auxiliaries used in processing industry

Unit:2	Dyeingprocess	12 hours

Conceptofcolour-classificationofdyes–Dyeingofcottonwithreactivedyes.Dyeingof polyesterwithdispersedyes–Dyeingofblendedtextilematerials–Principlesofdifferentdyeing machines:softflow–CheeseandHTHPbeammachines–merits&demerits.Briefstudyof Garment dyeing

Unit:3	Printingprocess	12 hours

Introductiontoprinting-Variousmethodsofprinting–ScreenPreparationprocess–Digital printing concept. Styles of printing. After treatment of printed materials.

Unit:4	Finishing	12 hours

Objectives–Types. Mechanicalfinish:Calendaring–Compacting–Raising–Shearing& Cropping–Sueding–Stentering–Sandblasting -Noveltrendsin finishing:Acid,Stone,Enzyme, Peach finish, & Aroma finish. Brief study about chemical finishing

Unit:5	Latesttechniques,Ecoprocess&Qualitycontrol	12 hours

ComputerColourMatching–Airflowdyeingtechniques–EffluentTreatmentProcess– Application of enzymes in processing industry.

	TotalLecturehours	60 hours

TextBook(s)

1	Technologyof Bleaching andDyeingofTextileFibresVol.1,PartI,ChakravarthyRR And TrivediS.S,MahajanBookPublishers,1979
2	TheBleachingandDyeingofCottonMaterial,PrayagR.S,Weaver‟sServiceCent, 1983

ReferenceBooks

1	Dyeingandchemicaltechnologyoftextilefibres,E.R.Trotman,CharlesGriffin&Co.,1970
2	TextileColourationandFinishing,Warren.S.Perkins,CarolinaAcademicPress,Durham,

	NorthCarolina,1996
Relatedonlinecontent	
1.	http://textilefashionstudy.com/process-flow-chart-of-dyeing-textile-materials-basic-structure-of-wet-processing-technology/
2.	https://www.creative-enzymes.com/resource/Application-Of-Enzymes-In-Textile-Industry_62.html
3.	https://www.contrado.co.uk/blog/printing-methods-differences/
4.	http://neoakruthi.com/blog/etp-for-textile-industry.html
CourseDesigned By:Dr.P.P. Gopalakrishnan	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	L	L	L	L	L	M
CO2	S	L	L	L	L	L	M
CO3	S	L	L	L	L	L	M
CO4	S	L	L	L	L	L	M
CO5	S	L	L	L	L	L	M

*S-Strong;M-Medium;L-Low


Third
Semester

Course Code	33A	IndustrialEngineering–I	L	T	P	C
Core	Paper VII		-	4	-	3
Pre-requisite	Basicknowledgeinsewing process		Syllabus Version	2025-2026		

CourseObjectives:

Themain objectives of this courseareto:

1. Impartthesignificanceofprocessstandardization,
2. Teach aboutmethod studyandtimestudyprocedures
3. Discussaboutthe importanceof operatorytrainingand methodology

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Learnandimplementmethods forIndividual and groupprocessstandardization	K2
CO2	Domethodstudyfor anactivityanddesignsuitable layout	K3
CO3	Derivestandardtimeforan operation	K4
CO4	Docapacitycalculation foragiven information	K4
CO5	Understandtheimportanceofoperator trainingandits impacton productivity	K3

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	Individualprocessandgroupprocessstandardization	12hours

Introduction to Industrial Engineering – Need of IE – Different production measurementtechniques–Individualprocessstandardizationprocedure–Itsimpactinfactorycostingand performanceimprovement. Introduction to group process and its importance – Need of group processimprovement– Itsimpactinfactorycostingandperformance improvement

Unit:2	MethodStudy	12hours

Movements–Rulesofrightandwrongmovements–Stages–SkillAnalysis–Attentionpoints–Workstationlayout–Howtodrawworkstationlayout,PrinciplesofWorkstationlayout– Method study procedure – Method improvements tools.

Unit:3	TimeStudyprocedure	12hours

Introduction to work measurement – Time study procedure – GSD (General Sewing Data) – How totakeobservetiming–Performancerating–Performanceratingusingcardsandwalking– Normal Time – Allowances and its different types – Deriving Standard Time (Standard AllowedMinute/ Standard Minute Value)

Unit:4	Productioncalculations	12hours

StandardTimecalculationpractice–Timestudysheet–Capacitycalculationprocedureandthe practice – Efficiencycalculation and the practice – Potential production pieces calculation and the Practice.

Unit:5	Operatortrainingmethodology	12hours

Newtraineestraining–Stepsinvolved–Induction–MachineknowledgeandMaintenance–Foundationskills–Loopexerciseandsteps–Operationskillstraining–Operationskills identification – Training exercise development – Effective instruction – Sequence of Instruction – Trainability assessment – Low performer improvement steps

	TotalLecturehours	60hours

TextBook(s)

1	IndustrialEngineeringinApparelProduction:V.RameshBabu,WoodheadPublishingIndia, 2011
2	IndustrialEngineeringManualfortheTextileIndustry,Enrick,NorbertLloyd,R.E.Krieger Pub. Co., 1978

ReferenceBooks

1	Maynard`sindustrial engineeringhandbook5th Edition,KjellB.Zandin,McGrawHill,2001
2	Industrialengineeringandmanagement,Khanna, O.P,DhanpatRaiPublications,2018
Relatedonlinecontent	
1.	https://garmentsmerchandising.com/process-flow-chart-of-industrial-engineering-ie/
2.	http://work-study.info/time-study-in-apparel-industry/
3.	https://texeducation.wordpress.com/2014/04/12/time-study-in-industrial-engineering-rmg/
4.	https://apparelresources.com/business-news/manufacturing/operator-training-apparel-manufacturing/
CourseDesigned By:Dr.P.P. Gopalakrishnan	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	S	S	S	S	S	M
CO2	L	S	S	S	S	S	M
CO3	L	S	S	S	S	S	M
CO4	L	S	S	S	S	S	M
CO5	L	S	S	S	S	S	M

*S-Strong;M-Medium;L-Low

Course Code	33P	GarmentConstructionII-Practical	L	T	P	C
Core	PracticalIV		-	-	4	3
Pre-requisite	Basicknowledgeinpattern making&sewing		Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Makethestudentstogetpracticeonuseofvarioustypes ofsewing machines
2. Impartknowledgetocutfabricas perpattern&construction ofgarment

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Workon varioustypesofsewingmachines	K4
CO2	Decide&choosesuitablesewingmachinesforconstruction	K4
CO3	Setthemachineas perqualityrequirements	K5
CO4	Sewthepartsasper specification	K6
CO5	Identifycausesfordefects andabletorectifyit	K5

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** –Create

IMen'sStyle		
Ex.No.1	Men'sBasicTShirt	06 hours
Ex.No.2	Raglanwith Pocket	07 hours
Ex.No.3	Men'sPoloTShirt	07 hours
Ex.No.4	Men'sTrouser	06 hours
Ex.No.5	Men'sT-Shirtwithhood	07 hours
Ex.No.6	Men'sInnerGarment–VestsRN/RNS	06 hours
Ex.No.7	Brief	06 ours
II.Women'sStyle		
Ex.No.1	LadiesSkirt	06 hours
Ex.No.2	Women'sNightwear	06 hours
III.Kid'sStyle		
Ex.No.1	Kid'sWear–Romber	06 hours
Ex.No.2	Kid'sWear–ALine frock	06 hours
Ex.No.3	Children'sSuitsandPyjama	06 hours
	TotalLecture hours	**75 hours**

TextBook(s)

1	IllustratedGuidetoSewing:GarmentConstruction:ACompleteCourseonMakingClothing for Fit and Fashion Paperback, Colleen Dorsey,Fox Chapel Publishing, 2011

ReferenceBooks

1	ClothingConstruction,ClaraM,Brown,OwensPress,2011
2	Garmentconstructionskills,PremlataMullick,2017

Relatedonlinecontent

1	https://www.textileschool.com/258/garment-construction-techniques
2	https://www.youtube.com/watch?v=n0c2TY5JKI4

CourseDesignedBy: Mrs.R. Sneha

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	S	S	S	S	L	M
CO2	M	S	S	S	S	L	M
CO3	M	S	S	S	S	L	M
CO4	M	S	S	S	S	L	M
CO5	M	S	S	S	S	L	M

*S-Strong;M-Medium;L-Low

Course Code	3AA	ApparelQualityControlandQuality Assurance	L	T	P	C
Allied	PaperIII		-	4	-	4
Pre-requisite	Basicknowledgeaboutdefectsin products		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Instructabout varioustestforyarns,fabrics&garments
2. Describeaboutvariouslevelsofinspection&itsprocedureinapparelproduction
3. Describeabout variousnorms&standardsfollowedintestingandinspection

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	UnderstandtheInspectionprocess,itstypes&itsimportance	K2
CO2	Evaluatethequalityofrawmaterialthroughinspection&testing	K2
CO3	Identifyvariousdefects occurduringapparelproductionand itscauses	K3
CO4	Betrainedabout thefinalinspectionprocedure	K2
CO5	Learnaboutcareinstructions&assessthestandardsusedinapparel production	K4

K1-Remember;**K2**-Understand; **K3**-Apply;**K4** -Analyze; **K5**-Evaluate;**K6**-Create

Unit:1	Quality&Inspection	15 hours

ImportanceofQuality.Qualityterminologies.ObjectivesofTesting-atmosphericconditionsfor testing lab. Quality problems in fabric, sewing threads & other accessories. Introduction to inspection - Definition - Types of Inspection

Unit:2	RawMaterial Testing	12 hours

FabricinspectionsystemsTestingofSewingthread,zippers,Buttons,elasticwaistbandsand Fusible interlinings**.** In process inspection and its significance in apparel quality.

Unit:3	Inprocess Inspection	12 hours

Defectsinpatternmaking,spreading,Sewing,Ironing& Packing.Assembly defectsinsewing. Testing of Seam strength & seam slippage, needle cutting / yarn severance, sewability of fabrics.

Unit:4	Final Inspection	12 hours

ConceptofAQL.Finalinspectionprocedures&MILSTDstandards. Categoriesofdefects. Package quality testing.

Unit:5	Standards	12 hours

Toolsof quality control.IntroductiontoCare labels.BriefstudyaboutTesting Standards.Brief study about Oeko-Tex Standards.

	TotalLecturehours	60hours

TextBook(s)

1	PhysicalTestingofTextiles,BPSaville,Woodhead Publishing,1999
2	ManagingQualityinApparelIndustries,PradeepVMetha&SatishK.Bhardwaj,NIFT, 1998

ReferenceBooks

1	Evaluatingapparelquality,SueHumphriesSharp, LindaBDonnell&AnithaAStamper, Fairchild Books, 1991
2	TextileTesting,Arindam Basu,SouthIndiaTextileResearchAssociation,2006

Relatedonlinecontent

1.	http://textilemerchandising.com/quality-assurance-and-quality-control/
2.	https://insight-quality.com/garment-quality-control-procedures/

3.	https://garmentsmerchandising.com/acceptable-quality-level-apparel-industry/
4.	http://texhour.com/aql-and-type-of-defects
CourseDesigned By:Dr.P.P. Gopalakrishnan	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	M	M	M	M	L	S
CO2	S	M	M	M	M	L	S
CO3	S	M	M	M	M	L	S
CO4	S	M	M	M	M	L	S
CO5	S	M	M	M	M	L	S

*S-Strong;M-Medium;L-Low

Course Code	3ZA	GarmentAccessoriesand Trims	L	T	P	C
SkillBasedSubject	SkillBasedSubjectI		-	4	-	3
Pre-requisite	Knowledgeaboutthetypesofaccessories&trims used in garment		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Educateabout varioustypesoftrims &accessoriesusedin apparels
2. Teach aboutthequalityrequirements

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Distinguishthetypesofaccessoriesusedingarment	K2
CO2	Differentiatethetypesof fibresusedinmakingsewing& embroiderythreads	K3
CO3	Assessthevarious typesofclosures usedinapparels	K3
CO4	Learnaboutthevarious typesoftrimsused	K3
CO5	Listoutthequalityrequirementsforpolybag&carton box	K2

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	GarmentAccessories	09 hours

Introduction to garment accessories - Selecting garment accessories - Types of garment accessories: Basic accessories - Decorative accessories - Finishing accessories –Accessories for children'swear-Designdevelopmentfordifferentaccessories-Safetyissuesfordifferent accessories in children's garment - Small parts: choking hazards - Decorative trims and Embellishments.

Unit:2	Sewingandembroidery threads:	09 hours

Sewing threads–Textile fibresusedfor makingsewing threads–Thread Construction–Ticket Number–Qualityparametersapplicabletosewingthreadsandtesting–Threadpackages-
Embroidery threads – Quality requirements – Fibres used for embroidery threads - Quality evaluation of embroidery threads

Unit:3	Closures	09 hours

Zippers – Component parts - Types – Application techniques - Quality parameters and testing - Buttons – types – Quality requirements & testing procedures –Elastic – Application techniques – Types – Quality requirements and testing procedures. Draw strings – Method of application - Qualityparameters–Velcro-Methodofapplicationtechniques–Qualityparameters–Snap fastness –Types – Method of application - Quality parameters- Hooks – types – Methods of application –Quality Norms

Unit:4	Supporting&Decorative Trims	09 hours

Lining : Importance - Method of application – Quality requirements – Interlining : Importance - Types - Method of application – Quality requirements - Fusing foam : importance – Types – Method of application – Quality requirements – Label and its types – Method application on garment – Quality requirements – Lace – Importance and its types – Quality parameters – Method ofapplication–Appliqué:Importance–Typesofmaterials–Appliquecuttingtechniques–
Application methods – Quality requirements . Sequins: Introduction about various sequins and their types – Application techniques – Quality requirements.

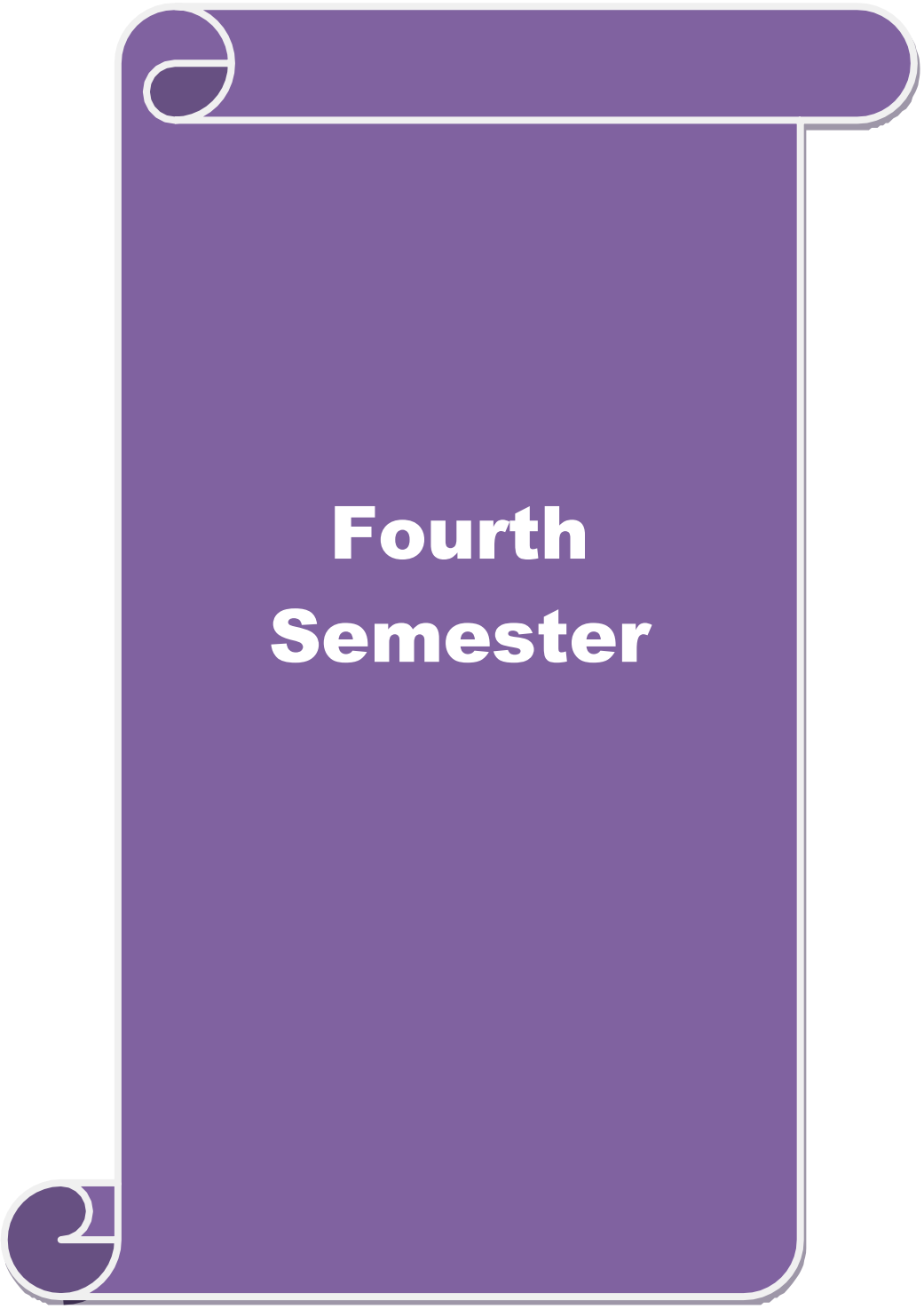
Unit:5	PackingAccessories	09 hours

Tagsanditstypes–Qualityrequirements–Polybagsanditstypes-Qualitynormspertainingto polybags–Hangersanditstypes–Cartonsanditstypes–Testingrequiredforapparelexport Cartons–Factorstobeconsideredforexportcartons-WrappersandTissues–Pouchesfor

innerwear–Latest innovation inpacking accessories		
	TotalLecturehours	**45 hours**
TextBook(s)		
1	Fashionapparelaccessories&homefinishing‟s,DiamondProfessorEmeritus,Jay;Diamond Ajunct Faculty, Ellen., Prentice Hall, 2006	
2	KnowYourFashionAccessories,CeliaStall-Meadows,TanaStufflebean, FairchildBooks& Visuals, 2003	
ReferenceBooks		
1	CarrandLatham‟sTechnologyofClothingManufacture,EditedbyDavidJ.Tyler,2009	
2	ApparelManufacturingHandbook,Analysis,PrinciplesandPractice,JacobSolinger,Bobbin Media Corporation, 1988	
Relatedonlinecontent		
1.	https://ordnur.com/textile/list-of-trimmings-and-accessories-use-in-garments/	
2.	https://www.onlineclothingstudy.com/2018/10/the-fusing-technology-fusing-parameters.html	
3.	https://apparelresources.com/fashion-news/trends/trims-and-accessories-from-being-functional-to-giving-an-innovative-edge-to-garments/	
4.	https://medium.com/@stitchdiary/importance-of-decorative-trims-in-the-garment-industry-3b306e4b59ef	
CourseDesigned By:Ms.B.Jeyanthi		

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	S	M	S	M	M	L	M
CO2	S	M	S	M	M	L	M
CO3	S	M	S	M	M	L	M
O4	S	M	S	M	M	L	M
CO5	S	M	S	M	M	L	M

*S-Strong;M-Medium;L-Low


Fourth
Semester

Course Code	43A	IndustrialEngineering–II	L	T	P	C
Core	PaperIX		-	4	-	3
Pre-requisite	Basicknowledgeaboutsewing&conceptsofIE		Syllabus Version			2025-2026

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Instructabouttypesofproductionsystemsinapparelmanufacturing
2. Make the students to learn about takt time concept, bottle neck management,NPTand MMR and itsimpact on cost

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwill beableto:

CO1	Differentiatethemeritsanddemeritsofvarioustypesofproductionsystems	K3
CO2	CalculatetakttimeanddrawYamazumichart	K4
CO3	SuggestwaysforBottleneckmanagement	K4
CO4	LearnaboutNPTcapturing	K3
CO5	Learnaboutthesignificanceofmanmachineratioonprocesscost	K2

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	Productionsystems	12 hours

Different production systems – Its advantages and disadvantages – Line production system – Progressivebundlesystemand Singlepieceflow–Modularproductionsystem–Batchproduction system – Unit production system – Eton system

Unit:2	Takttime concept	12 hours

Takttimeintroduction –Importanceoftakttimein leanmethodology–HowtoderiveTakt time– YamazumichartwithFTT(FirstTimeThrough)–PlottingsequenceofoperationusingTakttime cart – Initial line balancing – Operation bulletin development

Unit:3	Bottleneck management	12 hours

Importanceofbottleneck management–Impactofun-balanced/balancedline–Differentbottle neckmanagementtechniquesanditscostimpact–Hourlyproductioncapturing–Dynamicline balancing and frequency of dynamic line balancing

Unit:4	Factorsaffectingproduction efficiency	12 hours

IntroductiontoNon-productiveTime(NPT)–CapturingNon-productivetime–Machinebreaktime – Feeding delays – Style changeover time – Rework impact in production efficiency – Methods of operatorand theskilllevel

Unit:5	ManMachine Ratio	12 hours

Procedure to derive actual Man – Machine Ratio – Importance of Man – Machine Ratio – Internationalstandard– HowtoreduceMMR–Selfchecking–Selftrimmingconcept–Staff allocation using MMR Concept

	TotalLecturehours	60 hours

TextBook(s)

1	IndustrialEngineeringinApparelProduction:V.RameshBabu,WoodheadPublishingIndia, 2011
2	IndustrialEngineeringManualfortheTextileIndustry,Enrick,NorbertLloyd,R.E.Krieger Pub. Co., 1978

ReferenceBooks

1	Maynard`sindustrial engineeringhandbook5th Edition,KjellB.Zandin,McGrawHill,2001
2	Industrialengineeringandmanagement,Khanna, O.P,DhanpatRaiPublications,2018

Relatedonlinecontent	
1.	https://www.onlineclothingstudy.com/2011/09/garment-production-systems.html
2.	https://textilestudycenter.com/garment-production-system/
3.	https://tulip.co/blog/lean-manufacturing/what-is-takt-time/#:~:text=Takt%20time%20is%20the%20rate,measure%20of%20output%20against%20demand.
4.	https://www.jjsmanufacturing.com/blog/what-is-takt-time-why-is-it-important-and-how-to-calculate-it
CourseDesignedBy:Mrs.V.N.Narmadha Devi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	S	S	S	S	L	M
CO2	M	S	S	S	S	L	M
CO3	M	S	S	S	S	L	M
CO4	M	S	S	S	S	L	M
CO5	M	S	S	S	S	L	M

*S-Strong;M-Medium;L-Low

Course Code	47V	MiniProject–IandVivaVoce	L	T	P	C
Core	PaperX-Viva Voce		-	-	4	2
Pre-requisite	Basicknowledgeaboutconceptsofmethodstudy.Time study , takt time & OB		Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Enablethestudentstounderstandthe right method ofdoing thesewing process.
2. Enablethestudentstounderstandandderivethestandardtimeforeachoperationofgarment assembly and estimation total garment SAM
3. Enablethestudentstounderstandthetakttimeconceptand developoperationbulletinfora product.

ExpectedCourseOutcomes:

Onthesuccessfulcompletionofthecourse,studentwillbeableto:

CO1	Studysewing method,identifying wrong movements and stages	K5
CO2	Developimprovedmethodby eliminatingwrong movementsandstages	K6
CO3	Measuringthework andestablishingstandardstime	K3
CO4	Calculatetakt timeforaproduct	K3
CO5	DevelopOBforgiven style	K4

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Developnewmethodofsewingbyeliminatingunnecessarystagesandmovementsandtoestimate the productivity improvement and quality.
Derivingstandardtimeforeachoperationandfor totalgarmentforanyonestyle
Development of Takt time Operation Bulletin (OB) for one product in apparel factorywith proper establishmentofmethodstudyandtimestudyprocedure. Studentshavetopreparereportand assessmentisdonebyvivavoceexamination.

	TotalLecture hours	**75 hours**

TextBook(s)

1	IndustrialEngineeringinApparelProduction:V.RameshBabu,WoodheadPublishingIndia in Textiles, 2011

ReferenceBook

1	WilliamKHodson,“Maynard‟sIndustrialEngineeringHandbook”,McGraw-Hill,Inc.,New York,1992
2	IndustrialEngineeringinApparelManufacturing, Dr.PrabirJana,Dr.ManojTiwari,ApparelResources Pvt. Ltd., 2020

Relatedonlinecontent

1	https://www.projectengineer.net/takt-time-the-rhythm-of-manufacturing
2	https://www.onlineclothingstudy.com/2018/02/smaller-production-lines

CourseDesigned By:Mr.K.Balamurugan

MappingwithProgrammeOutcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	M	M	S	S	S	S	M
CO2	M	M	S	S	S	S	M
CO3	M	M	S	S	S	S	M
CO4	M	M	S	S	S	S	M
CO5	M	M	S	S	S	S	M

*S-Strong;M-Medium;L-Low

CourseCode	4AA	HumanResourceManagement	L	T	P	C
Allied	PaperIV		-	4	-	4
Pre-requisite	Basicknowledgeaboutroleofoperatorsinproductivity improvement		Syllabus version		2025-2026	

Course Objectives:

Themain objectives ofthis courseareto:

1. Enablethestudents tolearn onthe fundamentalsof HumanResourceManagement
2. Makethemtounderstandaboutthevariouspoliciesandpracticesusedinmanaginghuman resources.

ExpectedCourseOutcomes:

Onthesuccessful completionofthe course,studentwill beable to:

CO1	Understandthebasicconcepts ofHumanResourceManagement	K2
CO2	LearnaboutHumanResource Planning	K2
CO3	AssessthevariousmethodsofdevelopingHumanResourcesskills	K3
CO4	Analyzetheperformance ofHumanResourcesintheorganisation	K5
CO5	Understandthegrievancesofemployeesandsolvetheirgrievances	K1

K1-Remember;**K2**-Understand; **K3**-Apply;**K4** -Analyze; **K5** -Evaluate;**K6** – Create

Unit:1	IntroductiontoHRM	12 hours

HumanResourceManagement–concept-evolution–scopeandobjectives-functions.Roleof Human Resource manager – Qualities of human resource manager - human Resource policies.

Unit:2	HumanResourcePlanning	12 hours

HumanResourcePlanning–importance–forecastingHRrequirements –matchingdemandand supply of Human Resources – Recruitment – sources and methods of recruitment – employee Selection– stepsinselectionprocess–selectiontestsanditstypes–inductionandsocialization.

Unit:3	DevelopingHumanResources	12hours

Employeetraining–need,typesandbenefitsoftraining–Executivedevelopment–Career Planning and development.

Unit:4	MonitoringHumanResources	12 hours

Performanceappraisal–needforappraisal–stepsandmethodsinvolvedinappraisal-Employee compensation – methods of compensation – factors determining compensation. Impact of Absenteeism&Labourturnover–ScientificwayofCapturingandanalyzingAbsenteeismand Labour turnover – Control measures

Unit:5	EmployeeGrievanceand redress	12 hours

Employee grievance – forms of grievance – causes – steps in grievance handling. Grievance handlingmechanism–Procedureinrecordingandhandlinggrievances–Roleofwelfareofficerin grievance handling – model grievance procedure. Employee Discipline – its approaches – causes ofindiscipline–steps indisciplinaryaction.

	TotalLecturehours	60 hours

TextBook(s)

1	HumanResourceManagement,Dr.Tripathi,WisdomPublications,Delhi,2009.

ReferenceBooks	
1	HumanResourceManagement,3rdEdition, RaoV.S.P,ExcelBooks, 2010
2	HumanResourceManagement,6thEdition,Ashwathappa,K., TataMcGrawHill,2010
3	HumanResourceManagement,1thEdition,DeCenzo,D.A.andRobbins,S.P.,WileyIndia, 2011
4	HumanResourceManagement,12thEdition,Dessler,G.,Pearson,2011
5	PersonnelManagement,Mamoria,C.BandGaonkar,S.V,HimalayaPublishingHouse,2011
Relatedonline content	
1	https://www.iare.ac.in/sites/default/files/lecture_notes/IARE_HRM_NOTES.pdf
2	https://brauss.in/hrm-basic-notes.pdf
CourseDesigned By:Dr.N. Velmathi	

MappingwithProgramme Outcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	L	M	M	M	S	M
CO2	L	L	M	M	M	S	M
CO3	L	L	M	M	M	S	M
CO4	L	L	M	M	M	S	M
CO5	L	L	M	M	M	S	M

S-Strong;M-Medium;L-Low

Course Code	4ZB	ProductionPlanning,Controland Inventory Management	L	T	P	C
SkillBasedSubject		SkillBasedSubjectII	-	4	-	3
Pre-requisite	Basicknowledgeaboutproduction & productivity		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Enablethestudents tounderstandabout T&A
2. Educatethemtodocapacityplanning&thread requirements
3. Instructaboutthe importanceofinventorymanagement

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	InterpretT&A&itsinfluenceonproduction efficiency	K2
CO2	Docriticalpath analysis	K4
CO3	Docapacityplanning	K4
CO4	Calculatethreadconsumption&requirementplanning	K4
CO5	Analyzeinventorymanagement scientifically	K4

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	Pre-productionactivityanditstimeline	09 hours

Differentstagesofpre-production–CompleteorderT&AunderstandingwithFabric,trimsand accessories in-house timelines – Role of T&A in influencing production efficiency

Unit:2	ProductionT&A	09 hours

T&Aincutting,productionandfinishing–T&Aforprintingandembroidery–Standardsand issues faced in industry in meeting timelines – Critical path analysis

Unit:3	CapacityPlanning	09 hours

Introductiontocapacityplanning–PlanningofcapacityusingminutesinIndustrialEngineering – Learningcurveinproductiondevelopment–Calculationofmonthlycapacityplanningchart – Requirement vs. actuals – How to allot capacity and do style allocation in lines

Unit:4	Threadconsumption	09 hours

Differentsewingthread consumptionmeasuringtechniques –Sewingthreadconsumptionfor differenttypesofstitchesandseams–Standard– Howtocalculatethreadconsumptionforknit and woven garments and its procedures

Unit:5	InventoryManagement	09 hours

Importance of inventory management in production floor – Allowed Work In Progress for the departmentandinsidetheworkstationofdifferentproductiondepartments –Scientificinventory managementtechniques –Kanbansystem–Supermarketmodel–WIPmonitoringtemplatein floor and steps to ensure the WIP

	TotalLecture hours	45 hours

TextBook(s)

1	IntroductiontoClothingManufacture,GerryCooklin,Wiley,1991
2	IntroductiontoProductionManagement,A.J.Chuter,Wiley,1995

ReferenceBooks

1	Industrialengineeringandmanagement,Khanna, O.P,DhanpatRaiPublications,2018
2	IndustrialRelations&LabourLaws,P.C.Tripathi,C.B.Gupta,N.D.Kapoor,SultanChand& sons, 2020

Relatedonlinecontent

1.	https://www.textiletoday.com.bd/fashion-merchandising-time-and-action-calendar/

2.	https://www.onlineclothingstudy.com/2015/09/kanban-system-in-lean-manufacturing.html
3.	https://leanmanufacturingtools.org/kanban/
4.	https://ordnur.com/apparel/what-is-wip-wip-calculation-reducing-reporting-in-garments-manufacturing/
CourseDesignedBy: Mrs.V.N.Narmadha Devi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	S	S	S	S	L	M
CO2	M	S	S	S	S	L	M
CO3	M	S	S	S	S	L	M
CO4	M	S	S	S	S	L	M
CO5	M	S	S	S	S	L	M

*S-Strong;M-Medium;L-Low


Fifth
Semester

Course Code	53A	IndustrialEngineeringIII	L	T	P	C
Core		PaperXI	-	4	-	4
Pre-requisite	Knowledge inbasics ofIE		Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Instructtheskilllevelsrequiredtoperformvariousactivities
2. Educateaboutfloaterconceptanditssignificance
3. Discussaboutthe significanceofCPM onprocesscost

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Captureskill levelofoperatorsandprepareskillmatrix	K4
CO2	Setthelineforanewstyleandfollowzerohourstrategy	K4
CO3	Understandthe floaterconcept&developmentof floaters	K2
CO4	Understandthe advancements inmachinesanditsimpact	K3
CO5	Understandthesignificanceofcostper minute	K2

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	OperatorSkill Matrix	12 hours

Capturingskilllevelof theoperators –CapacityVs.Actualproductiondifference–Plotof skill levelinskillmatrix –Skilldemandanalysis–Potentialskillgapidentification –Trainingof workers using skill gap analysis

Unit:2	Linesetting – Stylechangeover	12 hours

Line setting checklist – Allotment of staff of line setting – Style changeover techniques using SMEDconcept–ProcedureinSMEDconcept–Internalandexternaltiming–Timeallocationfor eachoperation–Capturingoflinesettingtime,throughputtimeanditsanalysis–Zero-hour output strategy

Unit:3	Multiskilling–Floaterstrategy	12 hours

Need of floaters – Absenteeism and Labour turnover – Skill requirement during style change – Calculatingfloatersrequirement–Floatersdevelopmentstrategy–Deploymentoffloatersinthe factory floor

Unit:4	Advancements	12 hours

Folders/Aidavailability–Developments–Poka-yoke(Errorproofingtechniques)–De-skilling aids – Engineering work station layout.

Unit:5	FactoryCostPer Minuteestimation	12 hours

Cost per Minute concept — Actual CPM – Different categories in calculating CPM and its importance. Direct and indirect Salary – Wages and salaries – Minimum wages act – ProvidentFund and ESI – bonus. Staff requirement estimation, Other expenses – Rent, Electricity, boiler wood,Phone–stationeries-transportation-depreciation-maintenance–interestonworkingcapital-welfare.

	TotalLecture hours	60 hours

TextBook(s)

1	MaterialsManagementinClothing Production,DavidJTyler,“PrenticeHall,NewJersey, 1991.
2	Fashion design and Product development, Harold Carr John Wiley and Sons Inc., New York, 1991.

ReferenceBooks

1	IndustrialEngineeringinApparelProduction:V.RameshBabu,WoodheadPublishingIndia, 2011
2	IndustrialManufacturing,Dr.PrabirJana,Dr.ManojTiwari,Apparel
	ResourcesPvt.Ltd.,2020
Relatedonlinecontent	
1.	https://vasantkothari.com/content/view_presentation/118/Man-Machine-Ratio
2.	http://iegarments.blogspot.com/2017/08/quick-changeover.html
3.	http://www.iitg.ac.in/aimtdr2014/PROCEEDINGS/papers/61.pdf
4.	https://www.leanproduction.com/smed.html
5.	https://www.rnaautomation.com/blog/poka-yoke-in-manufacturing/
CourseDesigned By:Mr.V.Rajendran	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	S	S	S	S	L	M
CO2	M	S	S	S	S	L	M
CO3	M	S	S	S	S	L	M
CO4	M	S	S	S	S	L	M
CO5	M	S	S	S	S	L	M

*S-Strong;M-Medium;L-Low

Course Code	53B	QMSin ApparelProduction	L	T	P	C
Core		PaperXII	-	4	-	4
Pre-requisite	Knowledgeaboutthefunctionsofemployeesin organization		Syllabus Version	2025 - 2026		

CourseObjectives:

Themainobjectivesofthis courseareto:

1. Instructthestudentsaboutimportanceof QMS inan organization
2. Educatethem to developJDs & SOPs
3. InculcatetheImportanceoftraining&development

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeable to:

CO1	UnderstandaboutQMS	K2
CO2	DevelopJDforanygiven job	K4
CO3	Understandthe conceptofprocessflow&Designprocess flow	K4
CO4	DevelopSOforanyactivity	K4
CO5	Analyzethetypes oftrainingto begiven for operators	K4

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	QMS structure	12 hours

IntroductiontoQualityManagementSystem(QMS)–ImportanceandNeed–FlowinQMS– Vision & Mission – Short term goals – Organization Hierarchy – Job description – Process flow–SOP–PerformanceManagementSystem

Unit:2	DevelopmentofJD	12 hours

UnderstandingofJobdescriptiontemplate–Understandingofrolesand responsibilities –Job alternatives – Key performance indicators for Staff – Reports/ MIS to be followed

Unit:3	ProcessFlow designing	12 hours

Understandingofprocess flow– Importance–Symbolsinprocessflowanditsuses–Processflow sequence – Plotting of checklist, sub processes, files, decision making with corrective actions

Unit:4	SOPdevelopment	12 hours

ImportanceofStandard OperatingProcedure–LinkingprocessflowwithSOP–Basics points inSOP–Who,When,Where,How–DesigningandcommunicationofSOPtorespective– Implementation of SOP

Unit:5	TrainingandDevelopmentplan	12 hours

Trainingimportanceand needs–SkillsanalysisusingJD–Developmentoftraining calendar–Typesoftraining–ClassroomtrainingandOnthejobtraining–Training methodology –Monitoring of training impact using PMS

	TotalLecture hours	60 hours

TextBook(s)

IndustrialEngineeringinApparelProduction:V.RameshBabu,WoodheadPublishingIndia, 2011

IndustrialEngineeringManualfortheTextileIndustry,Enrick,NorbertLloyd,R.E.Krieger Pub. Co., 1978

ReferenceBooks

Maynard`sindustrial engineeringhandbook5th Edition,Kjell B.Zandin, McGrawHill,2001

Industrialengineeringandmanagement,Khanna, O.P,DhanpatRaiPublications,2018

Relatedonlinecontent	
1.	https://www.edrawmax.com/flowchart/
2.	https://ordnur.com/standard-operating-procedure/apparel-industry-sop/
3.	https://www.yourretailcoach.in/how-to-write-standard-operating-procedures-for-an-apparel-brand/
4.	https://targetjobs.co.uk/careers-advice/job-descriptions/278991-clothing-and-textile-technologist-job-description
CourseDesigned By:Dr. D. AnitaRachel	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	M	S	S	S	L	M
CO2	M	M	S	S	S	L	M
CO3	M	M	S	S	S	L	M
CO4	M	M	S	S	S	L	M
CO5	M	M	S	S	S	L	M

*S-Strong;M-Medium;L-Low

CourseCode	53P	ComputerApplication-Practical	L	T	P	C
Core		PracticalV	-	-	5	3
Pre-requisite		Basicknowledgeincomputerscience	Syllabus Version			2025-2026

Course Objectives:

Themain objectives ofthis courseareto:

1. Teachthebasics ofword,power point,excel and preparethe sheetdatasheet
2. Trainthestudents inthe basics ofdesigning usingCoreldraw
3. Trainthestudentsin thebasicsof layout preparation

ExpectedCourseOutcomes:

Onthesuccessful completionofthe course, studentwill beable to:

CO1	Createadocumentusing MSWordandmail merging	K5
CO2	Createadocumentusing MS Excel	K3
CO3	Createadocumentusing MS Excel	K2
CO4	Createadesignusing CorelDraw	K6
CO5	Designalayout	K6

K1-Remember;**K2**-Understand; **K3**-Apply;**K4** -Analyze; **K5** -Evaluate;**K6** -Create

1.	Createline, barand pie charts for thegiven datausing MS Excel	06 hours
2.	Prepareapowerpoint presentation aboutaproduct. Applyanimation andslide timing.	06 hours
3.	TolearnthetoolsanditsapplicationsinCorel draw	12hours
4.	Todesign thelayout for Cutting section	09 hours
5.	Todesignthelayoutfor Sewing section	09 hours
6.	Todesignthelayoutfor Ironingsectionroom	09 hours
7	Todesignthelayoutfor Garmentfactory	12 hours

K1-Remember;**K2**-Understand; **K3**-Apply;**K4** -Analyze; **K5** -Evaluate;**K6** -Create

	TotalLecturehours	**75 hours**

TextBook(s)

1	MSoffice2000for everyone, Sanjaysaxena,SangambooksLtd, 2000

ReferenceBooks

1	Fundamentalsof computers,RajaramanV,Prentice-HallofIndia,1985
2	PracticaltechniquesinMSWord,Neibauer,AlanR,1986

Relatedonline content	
1	https://www.coreldraw.com/en/pages/tutorials/coreldraw
2	https://www.computer-pdf.com

CourseDesigned By: Dr.P.P. Gopalakrishnan

MappingwithProgramme Outcomes										
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**			
CO1	L	L	L	L	M	L	S			
CO2	L	L	L	L	M	L	S			
CO3	L	L	L	L	M	L	S			
CO4	L	L	L	L	M	L	S			
CO5	L	L	L	L	M	L	S			

*S-Strong;M-Medium;L-Low

Course Code	57V	MiniProject –II andVivaVoce	L	T	P	C
Core		VivaVoce	-	-	5	5
Pre-requisite	Basicknowledgeaboutcosts		Syllabus Version		2025 - 2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:
1. Enablethestudentstorecordtheexpensesandarrive CPMofafactoryandtocomparethe CPM of standard factory and suggest ways and means to reduce it.
2. Enablethestudentsto identify theproblems inproduction and findingthewaysto solveit.
3. To study theKPIfor each designation in factory.

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Estimatethe CPM of a factory	K2
CO2	Identifythemajorissuesina factory	K3
CO3	Solveproblemsin afactoryand byfindingroot causesforan issueand eliminatingrootcausesusingvarioustoolsand techniques	K5
CO4	DevelopPMStool	K6
CO5	Implement andanalyzetheimpactofthetool	K4

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

CalculatingCostperMinute(CPM)ofafactorywithgiveinferencetothefactoryontheexpenses and efficiency part.Identify 2 problems in factory and take necessary actions and show the impact. Consolidated report preparation of the above Development of one PMS tools for factory performance improvement – Implementation of the tool in the factory and analyze the impact. Studentshavetopreparereportandassessmentisdonebyvivavoceexamination.

TotalLecture hours **150 hours**

TextBook(s)

1	IndustrialEngineeringinApparelManufacturing, Dr.PrabirJana,Dr.ManojTiwari,Apparel Resources Pvt. Ltd., 2020.
2	Maynard‟sIndustrialEngineeringHandbook,WilliamKHodsonMcGraw-Hill,Inc.,New York, 1992.

ReferenceBooks

1	IndustrialEngineeringinApparelManufacturing, Dr.PrabirJana,Dr.ManojTiwari,ApparelResources Pvt. Ltd.,2020

Relatedonlinecontent

1	https://ordnur.com/apparel/costing-sheet-of-garments-manufacturing
2	https://www.onlineclothingstudy.com/2014/02/how-to.

CourseDesigned By:Dr.P.P. Gopalakrishnan

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	M	S	S	S	L	M
CO2	M	M	S	S	S	L	M
CO3	M	M	S	S	S	L	M
CO4	M	M	S	S	S	L	M
CO5	M	M	S	S	S	L	M

*S-Strong;M-Medium;L-Low

Course Code	5ZC	BehavioralInterventionSkills	L	T	P	C
SkillbasedSubject		SkillbasedSubjectIII	-	3	-	3
Pre-requisite	Basicknowledgeaboutorganization&employee contribution to productivity		Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:
1. Educateaboutthemodelsoforganizational behaviors
2. Instructaboutlearningtheoriesandimportanceof motivation
3. Teachthedifferencebetweengroupandteam

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwill beableto:

CO1	RealizethescopeofOrganizational behaviour	K2
CO2	Gainknowledgeabout thepersonalitydeterminants	K3
CO3	Understandtheimportanceof motivation	K3
CO4	Differentiategroupsand teams	K4
CO5	Understandandimplementthestressreductiontechniques	K5

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	IntroductiontoOB	9 hours

Organizational behaviour–definition, nature andscope –contributing disciplines to Organizationalbehaviour – models of Organizational behaviour.

Unit:2	Personality	9hours

Learning – definition – theories of learning – classical conditioning, operant conditioning, social learningandcognitivetheory. Attitude– typesandcomponentsofattitude. Personality –determinants – personality traits- MBTI & Big five model– theories of personality – factors influencingpersonality. Perception – process – factors influencing perception.

Unit:3	Motivation	9 hours

Motivation – earlyand contemporarytheories of motivation – motivation at work place. Leadership – theories of leadership. Organizational Power and Politics.

Unit:4	TeamDevelopment	9 hours

Group – basic concepts and types of groups- causes for group formation. Work teams- types of teams – stages in team development.

Unit:5	Stress	9 hours

Organizational stress – factors causing stress – stress reduction techniques. Organizational culture – concepts – types of culture – methods of learning culture.

	TotalLecturehours	45 hours

TextBook(s)

1	Organizationalbehavior, 11th edition,FredLuthans,McGrawHill,2001
2	OrganizationalBehavior,4thEdition,Khanka,S.S.,S.Chand,2010

ReferenceBooks

1	Organizationalbehaviour,14th edition,StephenPRobbins,Pearson,2011
2	OrganizationalBehaviour,NewStrom&Davis,McGrawHill,2004
3	UnderstandingOrganisationalBehaviour,2ndEdition,UdaiPareek,OxfordHigherEducation, 2004.

Relatedonlinecontent

1	https://www.slideshare.net/rajasshrie1/chapter-1-ob-38248150
2	https://youtu.be/8iVpF81xrYM
3	https://www.youtube.com/watch?v=O7FASKDY0bQ
4	https://www.researchgate.net/publication/330409437_UNIT_4_STRESS_MANAGEMENT/link/5c3e92bc299bf12be3cb389a/download
CourseDesigned By:Dr.N. Velmathi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	L	M	M	M	S	M
CO2	L	L	M	M	M	S	M
CO3	L	L	M	M	M	S	M
CO4	L	L	M	M	M	S	M
CO5	L	L	M	M	M	S	M

*S-Strong;M-Medium;L-Low


Sixth
Semester

Course code		TECHNICAL TEXTILES	L	T	P	C
Core			-	5	-	4
Pre-requisite		Basic knowledge about Textile science	Syllabus Version	2025-2026		

Course Objectives:

The main objectives of this course are to:

1. Learn to develop a foundational understanding of technical textiles and differentiate them from conventional textiles based on function and end-use
2. Learn to identify and classify the major categories of technical textiles, and illustrate their relevance through representative real-world applications
3. Learn about the commonly used fibers and materials in technical textiles, and explain their key performance characteristics such as strength, durability, and environmental resistance

Expected Course Outcomes:

On the successful completion of the course, student will be able to:

1	**Identify** the basic concepts, key terms, and types of technical textiles, and explain how they differ from regular textiles.	K1
2	**Understand** how technical textiles are classified and what roles they play in different industries.	K2
3	**Apply** knowledge of fibers, materials, and production methods to choose suitable technical textiles for various uses.	K3
4	**Analyse** how different technical textile materials perform based on their purpose and the conditions in which they are used.	K4
5	**Design** simple technical textile products or solutions to meet needs in areas like healthcare, farming, or construction.	K6

K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** - Analyze; **K5** - Evaluate; **K6**– Create

Unit:1	Technical Textiles	10 hours

Definition, Classification, Scope of technical textiles, Differences between conventional and technical textiles, Applications, Market segments and growth trends. Overview of technical textile categories. Fibres Used: Conventional fibres, High strength and high modulus organic fibres, Combustion and chemical resistant fibres, High performance inorganic fibres, Ultra fine novelty fibres

Unit:2	Home Textiles & Indu Tech	12 hours

Home Textiles – **-** Introduction, textiles used in domesti environment, fibers used Types, functions and properties, Characteristics and Applications in home textiles. Latest developments in home Textiles.

Indu Tech - Introduction, fibers used - types, functions and properties and characteristics.

Textiles used for chemical and electrical applications and textiles related to mechanical engineering. Silk-screen printing, filtration, plasma screens, propulsion technology, lifting/conveying equipment, sound-proofing elements, melting processes, roller covers, grinding technology, insulations, seals & gaskets, fuel cell, Conveyor & Abrasive belts, Reinforcements for printed circuit boards etc.

Unit:3	Cloth Tech & Sports Textiles	12 hours

Cloth Tech: Introduction, Fibers used, Properties, Classification- Sewing threads, Interlining, Waddings, Insulation. Recent trends in cloth tech.

Sports Textiles: Introduction, fibers used, Types, functions and properties, Characteristics and Applications of Sports Tech. Applications and latest trends in Sports Tech (artificial turf used in sports surfaces, Advanced carbon fibre composites, Racquet frames, fishing rods, golf clubs and cycle frames, Balloon fabrics, parachute and paraglider's fabrics and sailcloth)

Unit:4	Protective Textiles & Pack Tech	12 hours

Protective Textiles: Introduction, fibers used Types, functions and properties, Characteristics and Applications Fire Protective clothing, Heat – resistant garments, Water proof materials, Ballistic resistant Vests, Biological and chemical Vests, Military Protective clothing. Smart polymers used in

Protective clothing. Recent developments in protective textiles. **Pack Tech:** Introduction, fibres used, properties, packing materials for agricultural, industrial, consumer and other goods. Recent trends in pack tech.		
Unit:5	**Eco Tech or OEKO Textiles**	**12 hours**
Introduction, Classification – Certification, Application, Importance of Eco tech and OEKO tech, Eco friendly fibres, Market segmentation and recent trends,		
Unit:6	**Contemporary Issues**	**02 hours**
1. Learn Industry related terminologies 2. Expert lectures, online seminars – webinars		
	Total Lecture hours	**60 hours**

Text Books	
1	Hand book of Technical textiles, A. R. Horrocks and S. C. Anand, Wood head publishing ltd, England, 2000
2	Technical Textiles and its Application, Dr.S.Grace Annapoorani, LASER Park Publishing House, India, 2017
3	Textiles for Industrial Applications, R Senthil Kumar, CRC Press, 2013
4	Non-Metallic Technical Textiles: Materials and Technologies, Mukesh Kumar Sinha and Ritu Pandey, CRC Press, 2024
Reference Books	
1	Textile Fibers: Developments and Innovations, Kothari, V., New Delhi: IAFL Publications, 2000.
2	Handbook of Industrial Textiles, Sabit Adanur, Wellington Sears CRC Press ,1995
3	Functional and Technical Textiles, The Textile Institute, Elsevier, 2022
Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]	
1	http://ugcmoocs.inflibnet.ac.in/ugcmoocs/view_module_ug.php/130
2	https://www.textile Learner blogspot.con
3	https://textilelearner.blogspot.com/2020/03/nfc-embedded-smart-textiles.html
4	https://www.technical-textiles.net
5	https://www.sciencedirect.com/topics/materials-science/smart-textiles
Course Designed By: Ms.N.Sangeetha	

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	S	S	S	S	S	S	S	S	L	S
CO2	S	S	S	S	M	S	S	S	L	S
CO3	S	S	S	M	S	S	S	S	L	S
CO4	S	M	S	M	M	S	S	S	M	S
CO5	S	M	S	S	S	S	S	S	M	S

*S-Strong; M-Medium; L-Low

Course Code	67V	ProjectWorkandVivavoce	L	T	P	C
Core		VivaVoce	-	-	13	4
Pre-requisite	KnowledgeaboutIEtools&techniquesandits implementation		Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Educateaboutproblemidentification inthefieldofapparelproduction&relatedfield
2. TrainthemtomakeSurveyorcarryoutactivitiesleadingtogenerationofnew knowledge.
3. Enablethemtopreparea reportandmakeapresentation

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Applythe learnedconcepts formanaging production	K3
CO2	Findoutsolution forthevariousissues arisesin dailyproduction	K4
CO3	Improveskillinplanningmanagingresourcesandproduction	K4
CO4	Developinterpersonal skilltoworkasatem	K4
CO5	ConfidentenoughtoworkinproductionasIE	K4

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Production Management of cutting, sewing and finishing – Job description of production manager – KPI of production manager – Skill required for production manager – Team under production management – Daily works management of production manager - Resource requirement and fulfilment–Ontimearrivalofgarmentscutpanels,trimsandaccessories –Workersrequirement – Skills availability and requirement – Line balancing – Bottle neck management – Efficiency improvement – Cost reduction using CPM – Supporting department for effective production management – Team management skills

Application of all concepts for managing production floor in apparel industry and prepare a detailed project report. Students have to manage a sewing floor of 100 machines/ cutting floor/ finishing floor for 3 months time.

	TotalLecture hours	**285 hours**

TextBook(s)

1	ApparelProductionManagementandtheTechnicalPackage,Myers-McDevitt,PaulaJ, United Kingdom, Bloomsbury Academic, 2010.
2	ApparelManufacturingManagementSystems:AComputer-OrientedApproach.United States, McPherson, Edwin M. Elsevier Science, 1987.

ReferenceBook

1	ManagementofTechnologySystemsinGarmentIndustry.India,Colovic,Gordana,WPI India, 2011.

Relatedonlinecontent

1	https://www.onlineclothingstudy.com/2020/07/9-video-tutorials-on

CourseDesigned By:Dr.P.P. Gopalakrishnan

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	M	S	S	S	L	S
CO2	M	M	S	S	S	L	S
CO3	M	M	S	S	S	L	S
CO4	M	M	S	S	S	L	S
CO5	M	M	S	S	S	L	S

*S-Strong;M-Medium;L-Low

Course Code	6ZD	LEANSIXSIGMA	L	T	P	C
SkillBasedSubject		SkillBasedSubjectIV	-	3	-	3
Pre-requisite	Knowledgeaboutwastesinproductionanditssignificance		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Teach aboutprinciplesofsixsigmaandlean
2. Educateabout toolsandtechniquesofsixsigmaand lean

ExpectedCourseOutcomes:

Onthesuccessfulcompletionofthecourse,studentwillbeableto:

CO1	UnderstandPrinciplesofleanandSixSigmaConcepts,theirsimilaritiesand differences	K2
CO2	Applythe LeanSixSigmaMethodologyrealtime situations	K3
CO3	ApplySixSigmatools&techniques in production	K3
CO4	Understandabout theleantoolsand apply	K4
CO5	Implementofleansixsigmaconcept	K5

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** – Create

Unit:1	LeanSixSigma concept	09 hours

Introduction to Lean Principles and Six Sigma Concepts-Similarities and differences – Synergy-Evolution of Lean Six Sigma

Unit:2	Lean SixSigma Approach	09 hours

LeanSixSigmaMethodology-PhasesofLeanSixSigmaMethod,ManagingLeanSixsigma Project, Six sigma Methodologies (DMAIC, DMADV, DFSS)

Unit:3	SixSigmaToolsAndTechniques	09 hours

AdvancedStatisticalTools-StatisticalProcessControl-ProcessCapabilityAnalysisSigma computation-HypothesisTesting-ANOVA-DesignofExperiments-chi-squaretest,Regression analysis –Case studies

Unit:4	Lean Tools	09 hours

ValueStreamMapping–PokaYoke-5S-CycleTimeAnalysis-Push-PullSystems-Waste Elimination- Total Productive Maintenance- Failure Mode Effect Analysis- Standard Work Practices-Control Plans, SMED, Kanban, Visual control, Kaizen – Case studies

Unit:5	LeanSixSigma Implementation	09 hours

IdentifyingLeanSixSigmaProjects,DefineScope,PlanningforImplementation,Selectionof tools and techniques for each phase, Measuring the Benefits

	TotalLecture hours	45 hours

TextBook(s)

1	WhatisLeanSixSigma,MichaelL.George,DavidRowlands,BillKastle,McGraw-Hill, 2003

ReferenceBooks

1	TheSixSigmaHandbook,ThomasPyzdek&PaulKeller,McGraw-Hill,2000
2	LeanThinking,JamesP.Womack,Daniel T.Jones,Freepressbusiness, 2003
3	ImplementingSixSigma:SmarterSolutionsUsingStatisticalMethods,ForrestW.Breyfogle III, Wiley, 2003
4	ToyotaTalent,Liker,Jeffrey;MeierPDavid,TataMcGrawHills, 2007

Relatedonlinecontent

1	https://www.tutorialspoint.com/six_sigma/six_sigma_introduction.htm
2	https://www.sixsigmaonline.org
CourseDesignedBy:Mrs.V.N.Narmadha Devi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	M	S	S	S	L	S
CO2	M	M	S	S	S	L	S
CO3	M	M	S	S	S	L	S
CO4	M	M	S	S	S	L	S
CO5	M	M	S	S	S	L	S

*S-Strong;M-Medium;L-Low


Elective
Courses

Course Code	5EA	TechnologyAdvancementsinApparel Production	L	T	P	C
Elective		PaperI -A	-	4	-	4
Pre-requisite	Knowledgeaboutsewingprocess&machines, equipment used		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1.Educatethestudentsaboutautomationsanditsimpactinvarious sectionsofapparel production

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	UnderstandtheapplicationsofAI	K2
CO2	Learnadvancementsinspreading&cuttingmethods	K3
CO3	Beawareoftheapplications of roboticsin sewing	K3
CO4	Learnaboutautomationinmaterial handling	K2
CO5	BecomeskilledattheautomationinPPC	K2

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	Applicationofartificialintelligence	12 hours

Application of artificial intelligence in fabric production - Predicting fabric properties - Color solutions -Fabricfaultdetection -Computer-aideddesignsystems-Bodydimensionsandgarment sizing-3Dbodyscanners-Virtualfitofgarments-Internationalstandardizationactivitiesof garment sizing - garment manufacturing- Performance of sewn seam - Production planning and control - . Final garment inspection

Unit:2	AutomationforSpreading &Cutting room	12 hours

Introduction - role of automation in textile material spreading and cutting - - Automated lay planning -Automated spreading methods and machines - Automated fabric fault registration - Automatedfabricpatternmatching-Automatedcuttingmethodsandcuttingsystems-Automatic Fusingofcutcomponents-Advancedfusingtechnologiestoavoidfabricshrinkage-Futuretrends in automation of textile material spread

Unit:3	AutomatedMaterialHandling	12 hours

Introduction-Definitionofmaterialhandling-Propertiesofmaterialandprocesses-Gripping technologies for textile handling - Automationin material handling related to high-performancetextiles - New conveyer systems - Digital tracking with radio-frequency identification

Unit:4	Automationandroboticsforsewingroom	12 hours

Introduction -Computer numerical control technologies for sewing process - Sewing automats and sewing units - Robotics for three-dimensional sewing operations - Real-time sewing cell with two lightweight industrial robots - Advantages and disadvantages of automation in sewing - Sewing machines with under bed trimmer - Sewing machine with automatic bobbin changer - Sewingautomatsforgent‟sandlady‟sshirts-Sewingautomatsforcasualbottomwear-Sewing automatsforformalwear -Sewingautomatsforknitwearand intimatewear -Sewingautomatsfor non apparel sewn products - Sewing preparatory machines with automatic control system

Unit:5	Automation in PPC&QualityMonitoring	12 hours

Introduction - Automation in production systems - Reasons for automation and advanced tools-Strategiesforautomationandproductionsystems-Advantagesanddisadvantagesofautomation-Advancementsinproductionplanning-Applicationofdifferentsoftwareandplanningtoolsin productionplanningandcontrol-Computerizedmanufacturingsupportsystems-Quality

monitoring of fabrics - Detection methods - Defect classification methods - Quality monitoring of seams- Two-dimensionalprocess-patternrecognition-Photogrammetry- Laser triangulationand light-sectionmethod-Comparisonofmeasurementmethods-Qualitymonitoringofwelded seams		
	TotalLecture hours	**60 hours**
TextBook(s)		
1	AutomationinGarmentManufacturing,RajKishoreNayak,RajivPadhye,Woodhead Publishing, 2017	
ReferenceBooks		
1	Fundamentalsofartificialintelligencetechniquesforapparelmanagementapplications Z.X. Guo, 2015	
Relatedonlinecontent		
1.	https://emerj.com/ai-sector-overviews/artificial-intelligence-for-clothing-and-apparel/	
2.	https://www.textileworld.com/textile-world/features/2020/03/automated-cutting-sewing-developments/#:~:text=Automation%20In%20Cutting,drastically%20reduced%20the%20human%20workforce.	
3.	https://www.onlineclothingstudy.com/2013/07/automatic-overhead-material-handling.html	
4.	https://fashion2apparel.blogspot.com/2018/03/automation-apparel-manufacturing.html	
CourseDesigned By:Dr.P.P. Gopalakrishnan		

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	L	M	M	M	L	S
CO2	L	L	M	M	M	L	S
CO3	L	L	M	M	M	L	S
CO4	L	L	M	M	M	L	S
CO5	L	L	M	M	M	L	S

*S-Strong;M-Medium;L-Low

Course Code	5EB	ERPinApparel Industry	L	T	P	C
Elective		PaperI -B	-	4	-	4
Pre-requisite	Knowledgeinproductionmonitoringandcontrol		Syllabus rsion		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Teachthestudentsaboutroleand importanceofERP inapparelbusiness
2. Educateabout variousbusinessmodels ofERP packageanditsmanagement
3. Enablethem tolearnabouttheMIS

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Befamiliarwith thebenefitsof ERP	K2
CO2	Beawareoftheimplementationof ERP inapparelindustry	K3
CO3	Becomeskilled atabout themodels of ERP	K3
CO4	AscertaintheMIS inapparelingarmentindustry	K4
CO5	Gainknowledgeofusage ofcomputersinapparelproductionmanagement	K5

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	IntroductiontoERP	12 hours

EnterpriseResourcePlanning-principle,framework,applicationandsuitabilityingarmentproduction - Introduction:ERP:An Overview, enterprise–anoverview,types of Enterprises,need for ERP, benefits of ERP, ERP and related technologies, Business Process Reengineering (BPR), Benefits of BPR

Unit:2	ERPImplementation	12 hours

Client/Server architecture; technology choices; SCM, CRM – concepts, Business Process Re engineering, Data ware Housing, Data mining, ERP system packages - Implementation of ERP: ERPimplementationlifecycle,implementationmethodology,hiddencosts,organizingthe implementation, vendors, consultants and users, contracts with vendors, consultants and employees, project management and monitoring

Unit:3	ModulesinERP	12 hours

ERP implementation strategies – organizational and social issues, data safety & security, ERP implementation in a garment production facility - The Business Modules: Business modules in an ERPpackage-finance,manufacturing,humanresources,plantmaintenance,materials management, quality management, sales and distribution. Significance and advantages of each of the modules

Unit:4	ERPin apparelindustry	12 hours

Management Information System in Garment Industry – management, keyaspectsof management, functions, management as a control system, levels of management. ERP in apparel industry:Productionresourceplanning–principlesandmanagementofanddemandchain analysis– quick response strategy - material management for „Quick Response" – „Just in Time (JIT) Technology"; Production planning, costing and merchandising software

Unit:5	ComputerApplications	12 hours

Information – requirements, properties and scope, information economics, types and characteristics. Computer Applications – EDI in garment technology; Use of Computers in Designing,Patternmaking,computerizedproductionsystems,communicatingwithvendorsand buyers; Telephone, fax, video conferencing, intranet, internet, etc; Exportdocumentation,retailing; Methods of communicating with consumers.

	TotalLecture hours	60 hours

TextBook(s)	
1	ERPDemystified,AlexisLeon,TataMcGrawHill,NewDelhi,2000.
2	EnterpriseResourcePlanning–ConceptsandPractice",GargVinodKumarand Venkitakrishnan N. K PHI, New Delhi, 2003
ReferenceBooks	
1	ConceptsinEnterpriseResourcePlanning,JosephA.Brady,EllenF.Monk,BretWagner, Thompson Course Technology, USA, 2001.
2	EnterpriseResourcePlanning,Leon,Alexis.TataMcGraw-Hill,2008.
3	SupplyChainManagement,RahulV.Altekar,Prentice-HallofIndiaPrivateLtd.2008
4	SupplyChainLogisticsManagement,DonaldJBowersox,DavidJCloss,M.BixbyCooper, McGraw-Hill Companies, 2008.
5	SupplychainManagement,N.Chandrasekaran,OXFORDuniversitypress,2009
6	ERPinApparelIndustry, D.AnitaRachel,KongunaduPublicationsIndiaPvt.Ltd,2016
Relatedonlinecontent	
1	https://garmentmerchendising.com/implementation-of-erp-in-apparel-industry
2	https://www.fibre2fashion.com/industry-article/6151/erp-in-apparel-and
CourseDesignedBy:Dr.D.AnitaRachel	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	M	M	M	M	S	M
CO2	M	M	M	M	M	S	M
CO3	M	M	M	M	M	S	M
CO4	M	M	M	M	M	S	M
CO5	M	M	M	M	M	S	M

*S-Strong;M-Medium;L-Low

Course Code	5EC	TQMinApparel Industry	L	T	P	C
Elective		PaperI -C	-	4	-	4
Pre-requisite	Knowledgeaboutquality concepts		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Enablethestudents to knowaboutconceptsandtechniques inTotal QualityManagement.
2. Developskills touseQualitycontroltoolsandtechniquesin solvingqualityproblems.
3. Makethemunderstandabout variousInternationalstandardssuchasISO, OHSAS,SA8000

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	UnderstandthefundamentalsofTotal QualityManagement	K2
CO2	Applythe variousprinciples ofTQM	K4
CO3	UsetheSQCtoolstomaintainprocess quality	K5
CO4	Usethe Qualitycontroltoolsand techniquesin solvingqualityproblems	K5
CO5	Beawareofvariousinternationalstandards	K2

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** – Create

Unit:1	IntroductionToQualityManagement	12 hours

Definition of Quality– Dimensions of Product Quality– Key elementsof totalquality - QualityPlanning–Qualitycosts—QualityStatements:vision,missionandpolicystatements;–Strategic Planning,QualityGurus-DemingPrinciplesonTQM–JuranTrilogy–CrosbyPrincipleson TQM - Japanese 5S Principles - Kaizen. -Concept of Quality Circles

Unit:2	TQM Principles	12 hours

Principles of TQM, Leadership – Concepts – Quality Trilogy – Four pillars of TQM – PDCAcycle & PDSA cycle. Role of Senior Management – Quality Council, Customer satisfaction – CustomerPerceptionofQuality,CustomerComplaints,EmployeeInvolvement–Motivation, Empowerment, Teams, Recognition and Reward, Performance Appraisal, Benefits, Continuous Process Improvement

Unit:3	StatisticalProcessControlandProcessCapability	12 hours

Meaning and significance of Statistical Process Control (SPC) - construction of control charts for variablesandattributes;ProcessCapability–meaning,significanceandmeasurement-Seven ToolsofQuality–ControlChart,ParetoDiagram,IshikawaDiagram,Histogram,FlowCharts, Scatter Diagram, and Stratification

Unit:4	TQM Tools	12 hours

Benchmarking–ReasonstoBenchmark–BenchmarkingProcess,QualityFunctionDeployment (QFD) – House of Quality, QFD Process, and Benefits – Taguchi Quality Loss Function – TotalProductive Maintenance (TPM) – Concept, Improvement Needs, and FMEA – Stages of FMEA.

Unit:5	QualitySystemsOrganizingand Implementation	12 hours

Elements of ISO – Benefits of ISO 9000 System. ISO 9001:2008: Guidelines andStandard Clauses – Implementation Procedures and requirements– Quality Manual and its contents. AccreditationandCertificationagencies.Qualityaudit:Typesofqualityaudit–Auditprocedure. Environmental Management System (EMS): Elements of EMS – Benefits– Environmental Policies. Studies on SA8000, OHSAS 18000, WRAP.

	TotalLecture hours	60 hours

TextBook(s)

1	TotalQualityManagement,N.SrinivasaGupta,B.Valarmathi,TataMcGrawHillEducation Pvt Ltd.2009
ReferenceBooks	
1	TotalQualityManagement,PoornimaM.Charantimath,Pearson, 2009
2	TotalQualityManagement, B.Janakiraman,R.K.Gopal,PHILearningPvt.Ltd., 2009.
3	TotalQualityManagement,S.Bhaskar,Anuradha Publications, 2011
Relatedonlinecontent	
1	https://www.edunotes.in/ge6757-total-quality-management
2	https://www.youtube.com/watch?v=yWlAOFs04go
3	https://lecturenotes.in/notes/20800-note-for-total-quality-management-tqm-by-engineering-kings?reading=true&continue=2
CourseDesignedBy:Dr.N.Velmathi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	M	M	M	S	S	M
CO2	M	M	M	M	S	S	M
CO3	M	M	M	M	S	S	M
CO4	M	M	M	M	S	S	M
CO5	M	M	M	M	S	S	M

*S-Strong;M-Medium;L-Low

Course Code	6EA	Entrepreneurship	L	T	P	C
Elective		PaperII-A	-	4	-	4
Pre-requisite	Knowledgeaboutthescopeforentrepreneurship		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Enablethestudents to learnaboutthechallenges ofstartingnew ventures
2. Enablethem to investigate,understand andinternalizetheprocess of setting upanew business.

ExpectedCourseOutcomes:

Onthesuccessfulcompletionofthecourse,studentwill beableto:

CO1	Understandthe conceptofentrepreneurshipandtraitsofentrepreneur	K1
CO2	Betrainedabout theidentification ofaprojectandprojectreport preparation	K5
CO3	GainknowledgeofabouttheformalitiesofSSI‟sRegistration	K3
CO4	Learn abouttheroleofsupport institutions	K2
CO5	Findoutabout Incubationcentres andstartupIndia schemes	K4

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	IntroductiontoEntrepreneurship	12 hours

Entrepreneurship:ConceptandDefinitions;EntrepreneurshipandEconomicDevelopment; ClassificationandTypesofEntrepreneurs;EntrepreneurialCompetencies;FactorAffecting Entrepreneurial Growth – Economic, Non-Economic Factors; EDP Programmes; Entrepreneurial Training; Entrepreneur; Manager Vs. Entrepreneur.

Unit:2	Startingtheventure	12 hours

ProjectIdentification–Projectformulation–Projectdesign-preparingprojectreport-Project PlanningandSchedulingusingNetworkingTechniquesofPERT/CPM;MethodsofProject Appraisal.

Unit:3	SSIandRegistration	12 hours

SmallEnterprisesandEnterpriseLaunchingproceduresandFormalities. RoleofSSIin EconomicDevelopmentofIndia;SSI;Registration;NOCfromPollutionBoard;projectreport presentation guidelines

Unit:4	SourcesofFinanceand Institutional Assistance	12 hours

RoleofSupportInstitutionsandManagementofSmallBusiness:DirectorofIndustries;DIC; SIDO;SIDBI;SmallIndustriesDevelopmentCorporation(SIDC);SISI;NSIC;NISIET, NIESBUD; TANSIDCO; TIIC; State Financial Corporation; KVIC

Unit:5	FinancialincentivesforSSI	12 hours

FinancialincentivesandsubsidiesforSSI‟s,andTaxconcessions;–seedcapitalassistance–Role ofentrepreneurinexportpromotionandimportsubstitution–SocialEntrepreneur,Incubation centre, Start-up India

	TotalLecture hours	60 hours

TextBook(s)

1	EntrepreneurialDevelopment,Dr.C.B.Gupta,SultanChand&Sons,NewDelhi.2009
2	EntrepreneurialDevelopment,Dr.S.SKhanka,SultanChand&Sons,NewDelhi 2009

ReferenceBooks

1	EntrepreneurshipDevelopmentandSmallBusinessEnterprises,Charantimath, Poornima,

	PearsonEducation,NewDelhi,2006
2	EntrepreneurshipNewVentureCreation, DavidH.Holt,PrenticeHallofIndia Private Limited,NewDelhi,2005
Relatedonlinecontent	
1	http://assets.vmou.ac.in/BBA12.pdf
2	https://www.youtube.com/watch?v=-VkoDHCDJ4w
CourseDesignedBy:Dr.N.Velmathi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	L	L	L	L	S	M
CO2	L	L	L	L	L	S	M
CO3	L	L	L	L	L	S	M
CO4	L	L	L	L	L	S	M
CO5	L	L	L	L	L	S	M

*S-Strong;M-Medium;L-Low

Course Code	6EB	LeadershipandEmotionalIntelligence	L	T	P	C
Elective		PaperII-B	-	4	-	4
Pre-requisite	Knowledgeabouttheneedforskillsandqualities required for managerial persons		Syllabus Version	2025-2026		

CourseObjectives:

Themain objectivesofthis courseareto:
1. Taughtaboutthenecessityofmanaging emotions
2. Educatedabouttechniquestoovercomenegative emotions

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Gainknowledgeofmanaging emotions	K2
CO2	Understandimportance ofteamwork	K3
CO3	Assessthetechniquesof managingnegative emotions	K3
CO4	Developpositiveemotion focus	K4
CO5	Knowtheimportanceof goal setting	K2

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	IntroductiontoEmotionalintelligence	12 hours

Emotional Intelligence and Self-awareness-Self-awareness and Mindfulness-Emotional IntelligenceCorecompetencies-Johari‟swindow-EnneagramPersonalityTest. InterpersonalSkills and Communication- Developing polished interpersonal skills with staff and colleagues -Listening Skills-Gettingalongwithmymanager-TransactionalAnalysis-Dealwithtensionandconflict more constructively - Conflict Management techniques - Good interpersonal behaviours - The iceberg model – the Enneagram compulsions

Unit:2	TeamBuilding	12 hours

High Performing Teams - The Glen Parker Team Player Types - Team Roles - Stages of Team Development - Team development model - 5 Squares game - Characteristics of high performing teams - Module 4:Building Trust in Teams - Building Trust and Cooperation - Building trust between team members

Unit:3	StressManagement	12 hours

Self-regulation: managing negative emotions - The skills of self-regulation - The skill of shifting focus and attention - Recognizing negative emotions & their negative impact - Temper negative responses - Techniques for managing and controlling one‟s negative emotions - Managinganger – theAmygdalahijack-Learnhowtoworkmoreeffectivelywithdifficultpeople-Theabilityto heal–thehealingprocess -Findingthegiftindifficulttimes-Managing stress.

Unit:4	PositiveEmotions	12 hours

Developing a positive emotional focus – Gratitude - Counting your blessings- The law of positive attraction-Channelenergyandenthusiasmtomotivate-Developingempathy-Empathyinthe workplace-Emotional Intelligence Test.

Unit:5	GoalSetting	12 hours

MyPurposeandGoalSetting-Aim-LeadershipAttitudes-Identifyingmysoulpurposeorlife purpose– HardWork–SmartWork–SpeedProcess–Non-EmotionalbehaviourinIndustry-Reflectionsonmytalents,giftsandcoregenius-Motivation,passionandenergy-Decision Making with intelligence.

	TotalLecture hours	60 hours

TextBook(s)

1	Learningtolead:Aworkbookonbecomingaleader,3rdedition,Bennis,W.Cambridge: Perseus Books Group, 2003
2	Reframingorganizations:Artistry,choiceandleadership, LeeG.Bolman,TerrenceE.Deal,· Wiley,2013
ReferenceBooks	
1	Emotionalintelligence2.0,TravisBradberry,JeanGreaves,TalentSmart, 2009
2	Leadership2.0.,TravisBradberry,JeanGreaves,TalentSmart,2012
3	Changingways:Apracticaltoolforimplementingchangewithinorganizations,MurrayM. Dalziel, Murray M. Dalziel, Stephen C. Schoonover ,1988
4	Emotionalintelligence:WhyitcanmattermorethanIQ.DanielGoleman,NewYork:Bantam Books, 2012
Relatedonlinecontent	
1	https://www.studocu.com/en-ca/document/ryerson-university/introduction-to-psychology-ii/lecture-notes/lecture-notes-lecture-10-emotion-motivation-stress-health/218490/view
2	https://ncert.nic.in/ncerts/l/kepy109.pdf
3	https://www.researchgate.net/publication/330409437_UNIT_4_STRESS_MANAGEMENT/link/5c3e92bc299bf12be3cb389a/download
4	https://lecturenotes.in/seminar-ppt/32628-seminar-ppt-on-goal-setting?reading=true
CourseDesignedBy:Dr.P.P. Gopalakrishnan	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	L	L	L	L	S	M
CO2	L	L	L	L	L	S	M
CO3	L	L	L	L	L	S	M
CO4	L	L	L	L	L	S	M
CO5	L	L	L	L	L	S	M

*S-Strong;M-Medium;L-Low

Course Code	6EC	InterpersonalSkills	L	T	P	C
Elective		PaperII-C	-	4	-	4
Pre-requisite	Knowledgeabouttheneedforskillsandqualities required for managerial persons		Syllabus Version	2025-2026		

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Equipstudents withtheEnglish languageskills.
2. Provideguidanceandpracticeingeneralconversationandtoimprovegeneralandacademic listening skills
3. Enablethemtomakeeffective presentations.

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Listenandrespondappropriately.	K2
CO2	Speakclearlyonagiventopic	K3
CO3	Makeeffectivepresentations	K3
CO4	Participateingroupdiscussions	K4
CO5	Participateconfidentlyandappropriatelyinconversations bothformalandinformal	K5

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	Pronunciation	12 hours

Listening as a key skill- its importance- speaking – give personalinformation – ask for personalinformation–expressability–enquireaboutability–askforclarification Improving pronunciation–pronunciationbasicstakinglecturenotes–preparingtolistentoalecture– articulate a complete idea as opposed to producing fragmented utterances.

Unit:2	Listening Skills	12 hours

Listen to a process information- give information, as part of a simple explanation – conversationstarters:smalltalk–stressingsyllablesandspeakingclearly–intonationpatterns– compareand contrastinformationandideasfrommultiplesources-conversewithreasonableaccuracyover a wide range of everyday topics.

Unit:3	Fluency	12 hours

Lexicalchunkingforaccuracyandfluency-factorsinfluencefluency,deliverafive-minute informal talk –greet – respond to greetings – describe health and symptoms– invite and offer – accept – decline – take leave – listen for and follow the gist- listen for detail

Unit:4	GroupDiscussion	12 hours

Being anactivelistener:givingverbalandnon-verbalfeedback–participatinginagroup discussion – summarizing academic readings andlecturesconversationalspeechlisteningto andparticipatinginconversations–persuade.

Unit:5	Presentations	12 hours

Formalandinformaltalk –listentofollowandrespondtoexplanations,directionsandinstructions inacademicandbusinesscontexts–strategiesforpresentationsandinteractivecommunication– group/pairpresentations–negotiatedisagreementingroupwork.

	TotalLecture hours	60 hours

TextBook(s)

1	SkillsforSuccess.ListeningandSpeaking.Level4,Brooks,Margret,OxfordUniversity Press, Oxford, 2011.
2	SpeakNowLevel3,Richards,C.Jack.&DavidBholke.OxfordUniversityPress,Oxford, 2010

ReferenceBooks	
1	Communicative English for Engineers and Professionals, Bhatnagar, Nitin and Mamta Bhatnagar, Pearson, New Delhi, 2010.
2	Practical English Classroom, Hughes, Glyn and Josephine Moate. Oxford University Press:Oxford, 2014.
Relatedonlinecontent	
1	https://www.youtube.com/watch?v=-Y-R9hDl7lU&feature=youtu.be
2	https://www.educationcorner.com/listening-skills.html
3	https://www.tutorialspoint.com/interpersonal_skills/interpersonal_skills_tutorial.pdf
CourseDesignedBy:Dr.N.Velmathi	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	L	L	L	M	S	M
CO2	L	L	L	L	M	S	M
CO3	L	L	L	L	M	S	M
CO4	L	L	L	L	M	S	M
CO5	L	L	L	L	M	S	M

*S-Strong;M-Medium;L-Low

Course Code	6ED	Trainingand Development	L	T	P	C
Elective		PaperIII-A	-	4	-	4
Pre-requisite	Knowledgeabouttheneedforskilltraining to employees		Syllabus Version		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Developtheskills,abilities,andpracticalelementsofemployeedevelopmentand performance improvement in organization
2. Enablethem toapplyappropriatemethodsand techniquesforidentifyingtraining needs.

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	Learntheimportanceoftraining&developmentofhuman resources	K2
CO2	Applythemethodologiesoftrainingand development	K3
CO3	Understandtheskills,abilitiesandpracticalelementsofemployeedevelopmentand performance improvement in organizations and will be able to Implement	K2
CO4	learnaboutdesignandconductneedsanalysesandtoplan,implementandevaluate Training programs.	K3
CO5	Implementthenewdevelopmentsintrainingmethods	K2

K1-Remember;**K2** -Understand; **K3**-Apply;**K4** -Analyze;**K5**-Evaluate;**K6** – Create

Unit:1 **IntroductiontoTraining** **12 hours**

ConceptsandRationaleofTrainingandDevelopment;overviewoftraininganddevelopment systems;organizingtrainingdepartment;trainingand developmentpolicies;linkingtrainingand developmenttocompany‟sstrategy;RequisitesofEffectiveTraining;RoleofExternalagenciesin Training and Development. Meaning and purpose of Training need assessment

Unit:2 **TrainingandDevelopmentMethodologies** **12 hours**

Overview of Training Methodologies- Logic and Process of Learning; Principles of Learning; Individual differences in learning, learning process, learning curve, learning management system; CriteriaforMethodSelection;SkillsofanEffectiveTrainer;UseofAudio-VisualAidsintraining;
Computer Aided Instructions- Distance Learning, Open Learning, E- Learning; Technologies Convergence and Multimedia Environment. Development Techniques for enhancing decision–making and interpersonal skills, Case-study, in-basket exercise, special projects, multiple management Programme Learning, Action learning, Syndicate Work, Games, Action Maze, Role Play;DemonstrationandPracticeMonitoring;Coaching;SelfDiagnosticSkills,Experience
Learning, Discovery Learning, Brain Storming, Counselling, Position Rotation, Team Building, and Sensitivity Training.

Unit:3 **DesigningTrainingandDevelopmentPrograms** **12 hours**

Organisation of Training and Development programs, Training design, kinds of training and development programs- competence based and role-based training; orientation and socialization; diversitytraining,choiceof traininganddevelopmentmethods,Preparationof trainers;developing trainingmaterials;E-learningenvironment;Flexiblelearningmodules;Selfdevelopment;Training process outsourcing.

Unit:4 **EvaluationofTrainingand Development** **12 hours**

Reasons for evaluating Training and development programs, Problems in evaluation; Evaluation planning and data collection, different evaluation frameworks, Problems of Measurement and Evaluation; Costing of training, measuring costs and benefits of training program, obtaining feedbackoftrainees;MethodsofevaluatingeffectivenessofTrainingEfforts;KirkpatrickModel
of Training Effectiveness; Training issues resulting from the external environment and internal needs of the company.

Unit:5	**EmergingTrendsinTrainingandDevelopment**	**12 hours**
Gamification, team training and six sigma training; Electronic Enabled Training Systems (EETS)- Concept and types, benefits and challenges in using EETS; concerns in implementation of EETS – availability,incorporation,extension,andlearningrenewalsforEETS;useofEETSanditsup scalability; follow up activities; Training and development initiatives of some selected companies from private and public sectors and MNCs.		
	TotalLecture hours	**60 hours**

TextBook(s)	
1	HandbookofTraining andDevelopment, PriorJohn,Grower,1994
2	HandbookofTrainingandDevelopment,TrveloveSteve,BlackwellBusiness,1994
ReferenceBooks	
1	TrainingandDevelopment Handbook,RobertLCraigMcGrawHill,1987.
2	TrainingInterventions inJob-skillDevelopment,JamesE.Gardner,Addison-Wesley,1981
3	ManagementTraininginOrganisations,IshwarDayal,PrenticeHall,1970
Relatedonlinecontent	
1	http://www.pondiuni.edu.in/sites/default/files/training-development-260214.pdf
2	https://www.youtube.com/watch?v=85RVEas4AXs
3	https://youtu.be/b-JC4JwrSbM
4	https://www.youtube.com/watch?v=a0Q-Ho27vpU&feature=youtu.be
CourseDesignedBy: Dr.D.AnitaRachel	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	L	M	L	M	S	M
CO2	L	L	M	L	M	S	M
CO3	L	L	M	L	M	S	M
CO4	L	L	M	L	M	S	M
CO5	L	L	M	L	M	S	M

*S-Strong;M-Medium;L-Low

Course Code	6EE	FactoryCompliance	L	T	P	C
Elective		PaperIII-B	-	4	-	4
Pre-requisite	Knowledgeabouttheneed forstandards&its significance		Syllabus rsion		2025-2026	

CourseObjectives:

Themainobjectivesof thiscourseareto:

1. Taughtaboutwelfareandbenefitstobeprovidedforemployees
2. Taughtaboutimportanceofemployeesafetyinworkareaandsuitablemeasurestobe followed
3. Taughtabouttrainingandsignalstobefollowedtodealwithemergencysituations

ExpectedCourseOutcomes:

Onthesuccessfulcompletionofthecourse,studentwill beable to:

CO1	Beawareofemployeewelfaremeasures	K2
CO2	KnowabouttheTypesandSchemesavailablefororganizedsectors	K3
CO3	Implementtheaccidentpreventionmethodsinindustry	K3
CO4	InculcateKnowledge&theimportanceofsafetyindealing with chemicals	K2
CO5	Gainknowledgeonemergencyevacuation	K3

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	IntroductiontoEmployeewelfare	12 hours

EmployeeWelfare-Meaning,Objectives,Scope,LimitationsandTypesofEmployeeWelfare- Statutory and Non-statutory Welfare measures, Fringe benefits.

Unit:2	Social Security	12 hours

Social Security - Concept, Need, Types and Schemes for the organized sector in India-Maternity, ESI Scheme, EPF Scheme, Industrial health and Hygiene, Accident and Compensation.

Unit:3	Health &Safety	12 hours

Basic Principles of Accident Prevention – Basic philosophy of industrial accidents – near miss reporting and learning lessons. Safety and Health Policy. Types of hazards – Role of supervisor in promotingsafety&health.PreventionandControlTechniques–HierarchyofControls
Dilution & Substitution, etc. Segregation, Enclosure, Isolation, Barricading, Guarding, Interlocks.

Unit:4	Hazards	12 hours

Chemical Hazards and Specific Control Measures –Storage, handling and transportation of chemicals. Chemical Safety Data Sheets/ MSDS. House Keeping. Personal Protective Equipment. FireandExplosionHazards–FirePrevention andControl; Portableandfixedfirefightingsystems -Hazardsarea classification.

Unit:5	EmergencyPlan	12 hours

TheonsiteEmergencyPlan-Keypersonsandtheirresponsibilities-Alarms-Controlroom-Evacuation-Assemblypoints-EmergencyControlCentre–Rehearsals. Off-siteEmergencyPlan. Safety audit –OHSAS – EMS - Environmental Management System.

	TotalLecture hours	60 hours

TextBook(s)

1	CompliancesUnderLabour Laws,HLKumar,Universal LawPublishing, 2010

ReferenceBooks

1	LabourandIndustrial Laws,4thEditionP.K.Padhi,PHILearningPvt.Ltd.2019

2	LawRelatingtoLeaveHolidaysandAbsenteeisminIndustries,H.L.Kumar,UniversalLaw Publishing, 2009
3	Labourlawcomplianceandhumanresourcemanagementinnovation: Robertson, Raymond. Ang, Debra, Dehejia, Rajeev., Brown, Drusilla, Better Factories Cambodia, Switzerland: ILO, 2011.
Relatedonlinecontent	
1	https://www.youtube.com/watch?v=aD5xAqx7ItM
2	https://www.youtube.com/watch?v=KoDiuL6NqgQ
3	https://blog.ipleaders.in/compliance-checklist-factories-act/
CourseDesignedBy:Dr.D.Anita Rachel	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	M	M	L	L	L	M	S
CO2	M	M	L	L	L	M	S
CO3	M	M	L	L	L	M	S
CO4	M	M	L	L	L	M	S
CO5	M	M	L	L	L	M	S

*S-Strong;M-Medium;L-Low

Course Code	6EF	ValueStreamMapping	L	T	P	C
Elective		PaperIII-C	-	4	-	4
Pre-requisite	Knowledgeabouttheflowofprocessand activities		Syllabus Version		2025-2026	

CourseObjectives:

Themain objectivesofthiscourseareto:
1. Taughtabout theimportanceofdevelopingvaluestreammapping
2. Taughtaboutthevarious symbolsusedinvaluestreammapping

ExpectedCourseOutcomes:

Onthesuccessfulcompletion ofthecourse,studentwillbeableto:

CO1	UnderstandtheprinciplesofVSM	K2
CO2	Knowthesymbolsused indevelopingVSM	K3
CO3	DeveloptheVSM basedonthelearning	K3
CO4	Studythe VSMand identifythescopefor improvement	K4
CO5	DeveloptheimprovedVSM	K4

K1-Remember;**K2** -Understand;**K3**-Apply;**K4**-Analyze;**K5**-Evaluate;**K6** -Create

Unit:1	IntroductiontoVSM	12 hours

PurposeofvaluestreammappingNeedStepsinValueStreamMappingCurrentstateFuturestatemappingPrinciplesofvaluestreammappingLeanconceptsinValuestream mapping

Unit:2	SymbolsinValueStream Mapping	12 hours

Customer/SupplierIcon–Dedicatedprocessflowicon–Sharedprocessflow–Icon–Databox icon–Workcell Icon – Inventoryicons–Shipmentsicon–Pusharrowicon–Supermarketicon – Material pull icon – Production control icon

Unit:3	AdvancedSymbolsinValueStreamMapping	12 hours

ManualInfoIcon–ElectronicInfoIcon–ProductionKanbanIcon–WithdrawalKanbanIcon– Signal Kanban icon – Kanban post icon – Sequenced pull icon – Load levelling icon – MRP/ ERP Icon – Go see Icon – Verbal information icon – Operator icon – Timeline icon

Unit:4	Statingcurrentstate	12hours

Selectingtheproduct(family)tomap–VSMSymbols–Definingtheprocessboundaries–The ProcessSteps– InformationFlows –ProcessData–CalculatingtheTimeLine–Multiple Suppliers and Customers – Interpreting the Data

Unit:5	DevelopingFuture state	12 hours

Reduce Cycle Time–Reduce setups/reduce batches–Improve quality performance–Change delivery schedules – Implement Kanban – Moving from current to future state map.

	TotalLecture hours	60 hours

TextBook(s)

1	ValueStreamMapping,KarenMartin,MikeOsterling,McGraw-HillEducation, 2013
2	ValueStreamMappingforLeanDevelopment,DrewLocher,Taylor&Francis, 2008

ReferenceBooks

1	LeanManufacturingImplementationinGarmentIndustry,SainManojKumar,LapLambert Academic Publishing GmbH KG 2013

Relatedonlinecontent

1	https://apparelresources.com/business-news/manufacturing/value-stream

2	https://www.onlineclothingstudy.com/2016/01/value-stream-mapping-vsm
3	https://leanmanufacturing.online/value-stream-map
CourseDesigned By: Dr.P.P. Gopalakrishnan	

MappingwithProgrammeOutcomes							
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
CO1	L	M	S	M	S	L	M
CO2	L	M	S	M	S	L	M
CO3	L	M	S	M	S	L	M
CO4	L	M	S	M	S	L	M
CO5	L	M	S	M	S	L	M

*S-Strong;M-Medium;L-Low

B.Sc.APPARELPRODUCTIONTECHNOLOGY

Syllabus

3(Witheffectfrom2025-2026onwards)

ProgramCode:26S

BharathiarUniversity

(AStateUniversity,Accreditedwith"A"GradebyNAACand 13th Rank among Indian Universities by MHRD-NIRF)

Coimbatore641046,INDIA

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EarningAdditionalcreditisnotmandatoryforProgramme Completion.