



Course Curriculum

UG Program

Department: **Department of Fashion technology (DFT)**

Specialization / Program: **Apparel Production/Bachelor of Fashion Technology**

Year: **2011**

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Bachelor of Fashion Technology

Semester	Sr. No.	Subject Code	Core / Non-Core	Subject type	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credit
						Lecture	Practical / Workshop	Tutorial/ Seminars/ Field Study	Self-Study	Total Hrs / Week		
Sem III	1	BFT201T	NC	TH	Dyeing & Printing	1.5	1.5	-	-	3.0	48	2.5
	2	BFT203T	NC	TH	Human Resource Management	3.0	-	-	-	3.0	48	3.0
	3	BFT205T	NC	TH	MIS	1.5	1.5	-	-	3.0	48	2.5
	4	BFT207P	C	PB	Garment construction – I	-	6.0	-	-	6.0	96	4.0
	5	BFT209P	C	PB	Pattern Making – I	-	6.0	-	-	6.0	96	4.0
	6	BFT211P	C	PB	Sewn Products Machinery & Equipments	-	6.0	-	-	6.0	96	4.0
	7	BFT213P	NC	PB	VB.net	1.5	1.5	-	-	3.0	48	2.5
Sem IV	1	BFT202T	C	TH	Spreading & Cutting of Apparel Products	3.0	1.5	-	-	4.5	72	4.0
	2	BFT204T	C	TH	Apparel Standards, Specifications & Quality Control	1.5	1.5	-	-	3.0	48	2.5
	3	BFT206T	NC	TH	Fabric & Garment Finishing	3	-	-	-	3.0	48	3.0
	4	BFT208P	C	PB	Garment construction – II	-	6.0	-	-	6.0	96	4.0
	5	BFT210P	C	PB	Pattern Making – II	-	6.0	-	-	6.0	96	4.0
	6	BFT212P	C	PB	Sewn Products Machinery & Equipments - II	1.5	3	-	-	4.5	72	3.5
	7	BFT214P	C	PB	Web Technologies	1.5	1.5	-	-	3.0	48	2.5
Sem V	1	BFT301T	C	TH	Production & Operation Management	3	1.5	-	-	4.5	72	4
	2	BFT303T	C	TH	Work Study for Apparel Manufacturing	1.5	3	-	-	4.5	72	3.5
	3	BFT305T	C	TH	Apparel Quality Management	3	1.5	-	-	4.5	72	4
	4	BFT307T	NC	TH	Fashion Merchandising	3	-	-	-	3	48	3
	5	BFT309P	C	PB	Pattern Making - III	-	6	-	-	6	96	4
	6	BFT311P	C	PB	Garment Construction – III	-	6	-	-	6	96	4
	7	-	NC	DE	Department Elective	1	1.5	-	-	2.5	40	2
Sem VI	1	BFT302II	NC	PB	Textile Internship (2 weeks)	-	-	-	-	48	96	1.5
	2	BFT304T	C	TH	Maintenance Management	3	-	-	-	3	48	3.0
	3	BFT306T	C	TH	Apparel Production Planning & Control	1.5	3	-	-	4.5	72	3.5
	4	BFT308P	NC	PB	Entrepreneurship Management	3	-	-	-	3	48	2
	5	BFT310P	C	TH	Costing of Apparel Products	1.5	1.5	-	-	3	48	2.5
	6	BFT312P	NC	PB	Enterprise Resource Planning	1.5	1.5	-	-	3	48	2.5
	7	BFT314P	NC	PB	Computer Aided Production Planning	-	3	-	-	3	48	2.0
	8	BFT316P	NC	PB	Auto CAD	1.5	1.5	-	-	3	48	2.5
	9	-	NC	DE	Department Elective 1	1	1.5	-	-	2.5	40	2
	10	-	NC	DE	Department Elective 2	1	1.5	-	-	2.5	40	2
	11	-	NC	DE	Department Elective 3	1	1.5	-	-	2.5	40	2
Sem VII	1	BFT401II	C	PB	Apparel Internship	-	-	-	-	48	672	12
	2	BFT403P	C	PB	Plant Layout	1.5	3	-	-	4.5	72	3.5
	3	BFT405P	C	PB	Apparel CAD & Grading	-	4.5	-	-	4.5	72	3
	4	BFT407P	C	PB	Product Analysis & Development	-	3	-	-	3	48	2
	5	BFT409P	NC	PB	Ergonomics	1.5	1.5	-	-	3	48	2.5
	6	BFT404P	NC	PB	Lean Manufacturing	3	-	-	-	3	48	3
Sem VIII	1	BFT402P	C	PB	Research Methodology	3	-	-	-	3	48	3
	2	BFT406GP	C	PB	Research Project	-	-	-	-	-	584	18

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NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July – December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-III

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT201T	NC	TH	Dyeing & Printing	1.5	1.5	-	-	3.0	48	2.5
BFT203T	NC	TH	Human Resource Management	3.0	-	-	-	3.0	48	3.0
BFT205T	NC	TH	MIS	1.5	1.5	-	-	3.0	48	2.5
BFT207P	C	PB	Garment construction – I	-	6.0	-	-	6.0	96	4.0
BFT209P	C	PB	Pattern Making – I	-	6.0	-	-	6.0	96	4.0
BFT211P	C	PB	Sewn Products Machinery & Equipments	-	6.0	-	-	6.0	96	4.0
BFT213P	NC	PB	VB.net	1.5	1.5	-	-	3.0	48	2.5
			Total	7.5	22.5	-	-	30	480	22.5

Total Hours for Semester	480
Total Credits for Semester	22.5
Internship total -Hrs /Duration /credit	-

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-IV

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT202T	C	TH	Spreading and Cutting of Apparel Products	3.0	1.5	-	-	4.5	72	4.0
BFT204T	C	TH	Apparel Standards, Specifications & Quality Control	1.5	1.5	-	-	3.0	48	2.5
BFT206T	NC	TH	Fabric & Garment Finishing	3	-	-	-	3.0	48	3.0
BFT208P	C	PB	Garment construction – II	-	6.0	-	-	6.0	96	4.0
BFT210P	C	PB	Pattern Making – II	-	6.0	-	-	6.0	96	4.0
BFT212P	C	PB	Sewn Products Machinery & Equipments - II	1.5	3	-	-	4.5	72	3.5
BFT214P	C	PB	Web Technologies	1.5	1.5	-	-	3.0	48	2.5
			Total	10.5	19.5			30	480	23.5

Total Hours for Semester	480
Total Credits for Semester	23.5
Internship Total -Hrs /Duration /credit	-

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July – December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-V

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT301T	C	TH	Production & Operation Management	3	1.5	-	-	4.5	72	4
BFT303T	C	TH	Work Study for Apparel Manufacturing	1.5	3	-	-	4.5	72	3.5
BFT305T	C	TH	Apparel Quality Management	3	1.5	-	-	4.5	72	4
BFT307T	NC	TH	Fashion Merchandising	3	-	-	-	3	48	3
BFT309P	C	PB	Pattern Making - III	-	6	-	-	6	96	4
BFT311P	C	PB	Garment Construction – III	-	6	-	-	6	96	4
	NC	DE	Department Elective	1	1.5	-	-	2.5	40	2
			Total	11.5	19.5	-	-	31	496	24.5

Total Hours for Semester	496
Total Credits for Semester	24.5
Internship total -Hrs /Duration /credit	-

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July – December

Department: Department of Fashion Technology (DFT)

Programme /Specialization: B.F.Tech- Semester-V

Department Electives:

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT313DE	NC	DE	E Commerce	1	1.5	-	-	2.5	40	2
BFT315DE	NC	DE	Advance Presentation Technique	1	1.5	-	-	2.5	40	2

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-VI

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT304T	NC	TH	Maintenance Management	3	-	-	-	3	48	3.0
BFT306T	C	TH	Apparel Production Planning & Control	1.5	3	-	-	4.5	72	3.5
BFT308P	NC	PB	Entrepreneurship Management	3	-	-	-	3	48	2
BFT310P	C	TH	Costing of Apparel Products	1.5	1.5	-	-	3	48	2.5
BFT312P	NC	PB	Enterprise Resource Planning	1.5	1.5	-	-	3	48	2.5
BFT314P	NC	PB	Computer Aided Production Planning	-	3	-	-	3	48	2.0
BFT316P	NC	PB	Auto CAD	1.5	1.5	-	-	3	48	2.5
	NC	DE	Department Elective 1	1	1.5	-	-	2.5	40	2
	NC	DE	Department Elective 2	1	1.5	-	-	2.5	40	2
	NC	DE	Department Elective 3	1	1.5	-	-	2.5	40	2
			Total	15	15	-	-	30	480	24

BFT302II	NC	PB	Textile Internship (2 weeks)	-	-	-	-	48	96	1.5
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Total Hours for Semester with internship	576 (480 + 96)
Total Credits for Semester with internship	26.5 (24+1.5)
Internship total -Hrs /Duration /credit	48 hours per week for two weeks (Total 96 hrs), Credit =1.5

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July – December

Department: Department of Fashion Technology (DFT)

Programme /Specialization: B.F.Tech- Semester-VI

Department Electives:

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT318DE	NC	DE	Sustainable Production	1	1.5	-	-	2.5	40	2
BFT320DE	NC	DE	Fabric Objective Measurement	1	1.5	-	-	2.5	40	2
BFT322DE	NC	DE	Joint Venture and Acquisition	1	1.5	-	-	2.5	40	2
BFT324DE	NC	DE	Project Management	1	1.5	-	-	2.5	40	2
BFT326DE	NC	DE	Training & Development of Supervisors	1	1.5	-	-	2.5	40	2
BFT328DE	NC	DE	Corporate Social Responsibility (CSR)	1	1.5	-	-	2.5	40	2

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July - December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-VII

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT403P	C	PB	Plant Layout	1.5	3	-	-	4.5	72	3.5
BFT405P	C	PB	Apparel CAD & Grading	-	4.5	-	-	4.5	72	3
BFT407P	C	PB	Product Analysis & Development	-	3	-	-	3	48	2
BFT409P	NC	PB	Ergonomics	1.5	1.5	-	-	3	48	2.5
BFT404P	NC	PB	Lean Manufacturing	3	-	-	-	3	48	3
			Total	6	12	-	-	18	288	14

BFT401II	C	PB	Apparel Internship					48	672	12
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Total Hours for Semester with internship	960 (288 +672)
Total Credits for Semester with internship	26 (14+12)
Internship total -Hrs /Duration /credit	48 hours per week for 14 weeks (Total 672 hours), credit=12

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)

Programme /Specialization: B.F.Tech- Semester-VIII

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT402P	Core C	PB	Research Methodology	3	-	-	-	3	48	3
BFT406GP	C	PB	Research Project	-	-	-	-	-	584	18
			Total	3	-	-	-	3	632	21

Total Hours for Semester	632
Total Credits for Semester	21
Internship total -Hrs /Duration /credit	-

The background features a large, faint watermark of the NIFT logo, which consists of a red circle above a grey triangle, with the letters 'NIFT' in a stylized font behind them.

SEMESTER III

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July - December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-III

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT201T	NC	TH	Dyeing & Printing	1.5	1.5	-	-	3.0	48	2.5
BFT203T	NC	TH	Human Resource Management	3.0	-	-	-	3.0	48	3.0
BFT205T	NC	TH	MIS	1.5	1.5	-	-	3.0	48	2.5
BFT207P	C	PB	Garment construction - I	-	6.0	-	-	6.0	96	4.0
BFT209P	C	PB	Pattern Making - I	-	6.0	-	-	6.0	96	4.0
BFT211P	C	PB	Sewn Products Machinery & Equipments	-	6.0	-	-	6.0	96	4.0
BFT213P	NC	PB	VB.net	1.5	1.5	-	-	3.0	48	2.5
			Total	7.5	22.5	-	-	30	480	22.5

Total Hours for Semester	480
Total Credits for Semester	22.5
Internship total -Hrs /Duration /credit	-

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July - December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-III

Evaluation Matrix

Semester Three	Subject Code	Subject type	Core / Non Core	Subject	Evaluation Matrix								
					Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Benchmark Assignment-6	Mid – Term Exam /Jury	End – Term Exam/ Jury	Total
	BFT201T	TH	NC	Dyeing & Printing	10	10	10	10	NA	NA	20	40	100
	BFT203T	TH	NC	Human Resource Management	10	10	10	10	NA	NA	20	40	100
	BFT205T	TH	NC	MIS	20	20	NA	NA	NA	NA	20	40	100
	BFT207P	PB	C	Garment construction I	20	20	20	NA	NA	NA	NA	40	100
	BFT209P	PB	C	Pattern Making I	20	20	20	NA	NA	NA	NA	40	100
	BFT211P	PB	C	Sewn Products Machinery & Equipments	10	20	30	NA	NA	NA	NA	40	100
	BFT213P	PB	NC	VB.net	20	20	20	NA	NA	NA	NA	40	100

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester III
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT201T	Dyeing & Printing	Lecture	1.5	48	2.5	NC	TH
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Prerequisite: Fabric Science 1 and Fabric Science 2.

Course objective:

- To develop the concept of grey fabric inspection, both technical as well as commercial.
- To develop the concept of preparatory processes before the dyeing, printing & finishing stages.
- To develop an understanding of colours, dyes and the chemicals used for the dyeing & printing processes.
- To provide holistic understanding of fibre, yarn (with special emphasis on the sewing threads) and fabric (both woven & knitted) Dyeing methods and techniques and their end uses.
- To develop the various types of printing techniques for different types of fabrics and their applications in the apparel sector.
- To develop an understanding of the aesthetic & functional features of the various types of dyed as well as printed fabrics and their defects which may be developed during the dyeing and printing processes.
- To make the students understand modern techniques of dyeing & printing in relation to productivity, cost quality and performance.
- To develop the understanding of different types of testing methods and specifications of dyed & printed fabrics (both woven as well as knitted) to be used as garments.

Course structure:

- **Concept domain-** To conceptualize the dyeing and printing processes
- **Knowledge domain-** To know about the chemical processing techniques, parametric conditions, and machineries required for the dyeing and printing processes, the cost factors involved in these processes
- **Skill domain-** To develop the skill of managing and optimizing the processes of dyeing and printing processes

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1-6	9	Grey Fabric Inspection:			4.5	4.5	
1 & 2	3	Theoretical Importance of fabric inspection both for woven as well as knitted fabrics. Technical inspection methods and the commercial methods. Preparatory processes: Concept of a lot for the chemical processing with the lot lengths, weights, etc.	Grey fabric defects (both of woven and knitted), Fabric inspection, Shearing, Singeing, Boiling, Scouring, Degumming, Bleaching, Antichlor.	Technology of printing V.A.Shenai Pages: 63-74 Tortora Pages:366-368 B.P.Corbman Pages:159-162 T.Bramut Pages:139-153 G.H.Hurst Pages:20-34	1.5	1.5	
3 & 4	3	Shearing & Singeing operations: Process, Types, Precautions needed its necessity & importance. <i>Desizing processes, its</i> Importance, types, detailed discussion on the enzymatic process, comparative analysis on cost, effectiveness, etc. Degumming of silk.			1.5	1.5	

5 & 6	3	Scouring & Bleaching Processes: Scouring process, its objective and utility, particularly in case of natural fibres like, cotton, wool, etc., scour loss, scour efficiency. Object of Bleaching, definition, concept and process details. Specifically under different conditions and for the different textile materials. Comparison among different bleaching processes. Continuous bleaching process. Faults and remedies.			1.5	1.5	
Benchmarked assignment 1: Documentation on the textile processing auxiliaries and chemicals suppliers in India for cellulosic, woolen, silk, etc... material. The suppliers may also be compared on the basis of cost, availability of various types of products, delivery time etc....(students may be divided into groups)					10 Marks		
7-16	15	Dyeing			7.5	7.5	
7 & 8	3	Definition of colour, dye & pigment, theory of dyeing, dye-fibre linkage, various bonding between dye & fibre. Classification of dyes according to their chemical constituents and application.	Dye, Pigment, Chromophor, Auxochrome, different types of dyes, like direct, vat, reactive, disperse, etc...., dyeing machines, parametric control in dyeing, dye fibre bond, synthetic dyes, vegetable dyes, eco-friendly Dyeing, effluent treatment.	B.P.Corbman Pages:201-222 Chemistry of dyes & principles of dyeing V.A.Shenai Pages:1-582 Tortora Pages:409-425 Hurst Pages:35-112 NCUTE Progress series Pages:1-25	1.5	1.5	
9 & 10	3	Forms of dyeing , e.g., dope dyeing, yarn dyeing, piece dyeing, top dyeing, etc., factors for selection from these options.			1.5	1.5	
11	1.5	Application with examples of the Reactive, Direct, Vat, Sulphur on cellulose, Disperse on polyester, Acid on wool, silk & nylons, Basic on acrylics.				1.5	

12 & 13	3	Sequence of operations of dyeing of the blends like, Polyester- Viscose, Polyester Cotton, Polyester Wool, Cotton Viscose etc...			1.5	1.5	
14 & 15	3	Methods of dyeing , description on the machines used for dyeing of different fibres, yarns (special mention of sewing thread dyeing), fabrics (woven).			1.5	1.5	
16	1.5	Dyeing of knits: Process and machine details, precautions needed. Concept of eco-friendly dyes.			1.5		
Benchmarked assignment 2 Documentation of the different types of dyeing processes. The machineries, parametric controls, styles of dyeing and their effects, dyed product range, etc... may be documented.(students may be divided into groups)					10 Marks		
17 & 18	Mid Term Exam				3		
19-24	9	Printing			4.5	4.5	
19 & 20	3	Methods of printing: Features of various methods of printing- Block, Screen, Roller, Rotary, Flat bed, Spray, etc.	Printing, print paste ingredients like dyes, thickeners/ thinners, defoaming agents, oxidants, reducing agents, etc...,	R.S.Prayag Pages:1-115 Technology of printing V.A.Shenai Pages:1-26, 74-81	1.5	1.5	
21 & 22	3	Comparison among different methods of printing on the aspects like, cost, performance & application of each method of printing, selection criteria for the right method of printing for a particular end product.	printing styles, rotary print, roller print, embossing, digital		1.5	1.5	

23 & 24	3	Specialized printing techniques like Tie-dye, Batik, Embossing, Digitized printing, etc. Styles of printing: Direct, Resist, Discharge Styles of Printing definition, important features, identification techniques, etc. Print paste formulation, Role of each of the print paste ingredients Pigment printing process & techniques-its important aspects, advantages.	printing, etc...	& 108-520 Hurst Pages:113-175 Joyce pages:27-172 Tortora pages:427-441 B.P.Corbman Pages:223-243	1.5	1.5	
25-30	9	Defects in Dyeing & printing			4.5	4.5	
25 & 26	3	Causes and remedies of major defects in dyed and printed fabrics with appropriate examples. Important physical and chemical test methods which are needed for dyed and printed product evaluation.	Dyeing defects like, shade variation, patchy dyeing, etc..., causes of defects, remedies, printing defects like, erratic repeat, improper boundaries and lines, erroneous colour, erroneous impressions, etc..., their causes, repercussions and remedial measures. Evaluation of dyed and printed materials. Computerized Colour matching, grey scale, shade matching.	P.V.Mehta & S.K.Bhadwaj pages:116-134 R.S.Prayag pages:221-239 S.S.Satsangi Pages:1-46	1.5	1.5	

Benchmarked assignment 3 Documentation on the samples with dyeing and printing defects. The defects and their causes may be highlighted.(students may be divided into groups)					10 Marks		
27 & 28	3	Discussion on the colour fastness properties rubbing, washing, perspiration, light, dry cleaning, etc. Evaluation methods like-grey scale, shade matching Procedures -manual & computerized (colour matching).	Dyeing defects like, shade variation, patchy dyeing, etc..., causes of defects, remedies, printing defects like, erratic repeat, improper boundaries and lines, erroneous colour, erroneous Impressions, etc..., their causes, repercussions and remedial measures. Evaluation of dyed and printed materials. Computerized Colour matching, grey scale, shade matching.	P.V.Mehta & S.K.Bhadwaj pages:116-134 R.S.Prayag pages:221-239 S.S.Satsangi Pages:1-46	1.5	1.5	
29 & 30	3	Different types of dyed and printed fabric features: functional and aesthetic features-Fabric appreciation through demonstration of different types of dyed and printed swatches and their analysis.			1.5	1.5	
Benchmarked assignment 4 Documentation on the different types of evaluation methods for colour fastness properties (students may be divided into groups)					10 Marks		
31 & 32	End term exam				3		

Suggested references Books:

Dyeing & Printing

1. The Thames and Hudson Manual of Textile printing by Joyce Storey, Revised edition, Publishes by Thames and Hudson Ltd, London
2. Silk dyeing, printing & finishing by G.H.Hurst, Abhishek Publishers, Chandigarh-17
3. Dry cleaning, scouring, dyeing of garments furs & rugs by William T. Bramut, Abhishek Publishers, Chandigarh-17
4. Understanding textiles by P.G.Tortora and Collier, 5th edition, Prentice Hall Publications
5. Technology of Textile printing by R.S. Prayag, Published by Ms. L.R.Prayag, 127, Belgaum Rd., Dharwad, Karnataka-580008.
6. NCUTE Progress series of IIT, Delhi, Sept, 2001 By M.L.Gulrajani & Deepti Gupta
7. Textiles fibre to fabrics, By B.P.Corbman 6th Edition, Mcgraw Hill Publishers
8. Fabric Defects by S.S.Satsangi, Usha Publishers, New Delhi
9. Managing quality in the apparel industry by P.V.Mehta & S.K.Bhardwaj, New age international publishers
10. Technology of textile processing (Technology of Printing) By V.A.Shenai, Sevak Publications
11. Technology of textile processing (Chemistry of dyes & principles of dyeing) By V.A.Shenai, Sevak Publications
12. Color Index of The society of dyers and colorists

Reference Magazines, Journals and other sources:

1. Fabric source from Resource centre, NIFT
2. Dyed yarn and dyed & printed fabric swatch samples from Resource centre, NIFT
3. Dyed & printed Garment samples from Resource centre, NIFT
4. Dyed and printed samples from Industry
5. Finished fabric swatch samples at Resource centre, NIFT
6. Finished Garment samples at Resource centre, NIFT
7. Industry resources of the finished fabric & garment samples

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
10	10	10	10	NA	20	40	100

Teaching Tools:

1. Visit to fabric and garment units/Factories, Textile Research Association/Textile Committee/Weaver's service centre, etc..., are advised.
2. Assignments are suggested on the Textile and garment finishing methods and the identifications of the specific finishes, their evaluations and ultimate effects on the garments. This could be guided through demonstrative lectures and the visits.
3. The textile testing practical and the observations on the changes observed in the woven fabric sample (finished) swatches and their documentations are advised

Learning outcome:

1. Understanding the fundamentals of the fibre, yarn and fabric dyeing and fabric printing techniques
2. Exploring the various property and use of the dyed and printed textile materials
3. Ability to explore and construct new designs and implementation through the latest technologies of dyeing and printing
4. Skills to handle new generation dyeing and printing machineries to manufacture the new types of fabrics.
5. Ability to understand the functional and aesthetic need of the human body from apparel point of view and looking to the environmental & climatic conditions.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/description of assignment	Presentation/Documentation on the dye and chemical suppliers in India for cellulosic, woolen, silk, etc... material. The suppliers may also be compared on the basis of cost, availability of various shades of dyes, delivery time etc...
Evaluation parameter	Presentation/ Documentation should be based on the information collected, method of documentation and the analyzing ability of the student.
Type of assignment	Presentation/Documentation
Weight age	10 marks

Assignment 2	
Details/ description of assignment	Presentation/Documentation of the different types of dyeing processes. The machineries, parametric controls, styles of dyeing and their effects, dyed product range, etc... may be documented.(students may be divided into groups)
Evaluation parameter	Presentation/ Documentation should be based on the swatch/garment samples with different types of dyeing. The dyeing process specifications including techniques may be highlighted.
Type of assignment	Presentation/Documentation
Weight age	10 marks
Assignment 3	
Details/ description of assignment	Presentation / Documentation on the samples with dyeing and printing defects. The defects and their causes and remedies may be highlighted. (students may be divided into groups)
Evaluation parameter	Presentation/ Documentation should have analysis of various types of dyed and printed defects, presentation of the swatch/garment samples with different types of defects of dyeing and printing. Defects based on the dyeing and print specifications including techniques may be highlighted.
Type of assignment	Presentation/ Documentation
Weight age	10 marks
Assignment 4	
Details/ description of assignment	Presentation / Documentation on the different types of evaluation methods for colour fastness properties (students may be divided into groups)
Evaluation parameter	Presentation/ Documentation may be evaluated for the skill development on these test methods. Appropriate swatch/garment samples showing the results of different types of colour fastness evaluation method may be used.
Type of assignment	Presentation/ Documentation
Weight age	10 marks

Pattern for mid-term/ final term CEB examination paper

For CEB subject (theory) suggested format of CEB question paper to be mentioned

Paper Pattern

Objective type answers-like Fill in the blanks, Match, etc – 30%

Short Answers – including definitions, Difference between etc. - 40%

Word Limit - 100- 150 words

Long Answers – Detailed descriptive – 30%

Word Limit - 300-500 words

If any sub parts of the detailed questions- each part to carry distinct marking.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester III
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT203T	Human Resource Management	Lecture	3	48	3	NC	TH
		Practical / Workshop	-				
		Tutorial / Seminars / Field Study	-				
		Self Study	-				
		Total	3				

Perquisite: Understanding of Principles of Management

Course objective:

1. To appreciate the importance of effective management of human resources in the overall management of organizations.
2. To internalize the role ,process and interventions in human resource management.
3. To understand the dynamic nature of human resource leading to continuous shift in the way human resources is managed.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1, 2	3	Concept and scope of Human Resource Management(HRM)			3		

	1.5	Introduction of Current Business Realities <ul style="list-style-type: none"> The changing Social context and emerging Issues.* Indian environment : The Changing Scenario* HRM process, Labour unions HRM trends *Refer to in-house developed aid materials			1.5		
	1.5	Overview of HRM			1.5		
		<ul style="list-style-type: none"> Definition and concept of Human Resource Management. Human Relation Approach <ul style="list-style-type: none"> Human Resource Approach Functions of Human Resource Management Managerial functions <ul style="list-style-type: none"> Operative functions 	<ul style="list-style-type: none"> Human resource relationship Manpower planning Organizational development HRIS 	a. The management of Human Resource by N. Ramaswami Chap 2, pg 19 b. Personal Management by Dr. C.B Memoria , Chap 2, pg 34 to 45.			
3, 4	3	Role of HR Professionals			3		
		<ul style="list-style-type: none"> Challenges to HR Professionals <ul style="list-style-type: none"> ✓ Quality Improvement ✓ The changing attitude of workforce ✓ The impact of the Government ✓ Quality of Work Life ✓ Technology and training 	<ul style="list-style-type: none"> HR plan integration Monitor HR plan Attrition Auxiliary service Inter-disciplinary function 	Personal Management by Edwin B.Flippo 6 th Edition, chap 1, pg 10 to 22	3		
5, 6	3	HR Planning			3		
	1.5	<ul style="list-style-type: none"> Definition and Objectives. The process of Human Resource Planning. 	<ul style="list-style-type: none"> Corporate Analysis Demand Forecast 	Personal Management by Dr. C.B Memoria , chap 8	1.5		

		Resource and making an inventory.		pg 169 to 173 pg 173 to 183 Eg: Refer MFSL Case Study – VSP Rao, HRM, Second Edition; Pg. No. 122. Or Any Other relevant Case Study			
	1.5	<ul style="list-style-type: none"> Forecasting Matching the Inventory with future requirements Managing the forecasted Demand /Surplus Dealing with surplus manpower. Current trends * 	<ul style="list-style-type: none"> Supply Forecast Managerial Judgment: Ratio-Trend Analysis: 		1.5		
7, 8	3	Compensation and Benefits			3		
		<ul style="list-style-type: none"> Planning Goals and Strategies. Laws covering wages ,welfare and benefits Compensation Strategy, Structure Theories of Remuneration Design of Base Pay Structure Reward System 	<ul style="list-style-type: none"> Compensation policies Compensation Determinants Fringe benefits Base Pay Structure Equity Theory Agency Theory 	Personal Management by Dr. C.B Memoria Pg 482 to 548 HRM Text and cases by K Aswathappa	3		
9, 10	3	Job Analysis			3		
	1.5	<ul style="list-style-type: none"> Concept of Job Analysis Process of Job Analysis Information gathering <ul style="list-style-type: none"> Job Evaluation Job Description Job Specification Job analysis Methods Observation Method <ul style="list-style-type: none"> Individual interview Group Interview Drafting and 	<ul style="list-style-type: none"> Critical Incidents Technique Job design Job Evaluation Job Description Job Specification Functional Job Analysis Critical Incidents Technique Point Factor 	Personal Management by Dr. C.B Memoria Personal Management by Dr. C.B Memoria pg 182 to 183 Eg: Discuss FFSL Case Study - VSP	1.5		

		maintaining Job Description	Method <ul style="list-style-type: none"> ▪ Job Elements ▪ Approach 	Rao, HRM, Second Edition Pg.No. 105 or Any other relevant case study			
	1.5	<ul style="list-style-type: none"> ▪ Uses of Job analysis <ul style="list-style-type: none"> ○ Employment ○ Organizational audit ○ Training and development ○ Performance Appraisal ○ Promotion and Transfer ○ Preventing Dissatisfaction ○ Compensation Management ○ Health and Safety ○ Induction ○ Industrial Relations ▪ Career Planning ▪ Succession planning 	<ul style="list-style-type: none"> ▪ Induction ▪ Industrial Relationship ▪ Auditing ▪ Career Planning ▪ Process 	Personal Management by Dr. C.B Memoria Pg 184 to 189	1.5		
11, 12, 13	4.5	Recruitment & Selection			4.5		
	1.5	<ul style="list-style-type: none"> ▪ Concept of Recruitment ▪ Factors Affecting Recruitment <ul style="list-style-type: none"> ○ Organizational Factors ○ Environment Factors ▪ Recruitment Policy 	Third-Party Methods: Deputation:	Personal Management by Dr. C.B Memoria Chap 9 pg 203 to 205 pg 209 to 210	1.5		
	1.5	<ul style="list-style-type: none"> ▪ Sources of Recruitment. <ul style="list-style-type: none"> ○ Internal Search ○ External Search ▪ Need for Flexible and Proactive ▪ Recruitment Policy Evaluation of Recruitment 		Discuss a Case Study	1.5		

		Program					
Benchmarked assignment 1- assignment description with Weightage for 20 Marks							
	1.5	Concept of Selection <ul style="list-style-type: none"> ▪ The Selection Process ▪ The Selection Method Standards ▪ Legality <ul style="list-style-type: none"> ○ Application Forms ○ Ethical issues of application forms design Selection Test	Interest Tests Planned Interview: Patterned Interview: Interview Rating: Reference checks	Personal Management by Dr. C.B Memoria Pg 219 to 233 Chap 10 pg 236	1.5		
Mid Term Exam					3.0		
14	1.5	Training and Development			1.5		
	1.5	<ul style="list-style-type: none"> ▪ Definition and purpose of training ▪ Improving employee performance ▪ Updating employee skills ▪ Avoiding managerial obsolescence ▪ Preparing for promotion ▪ Retaining and motivating employees Employee Training methods <ul style="list-style-type: none"> ▪ On the job training ▪ Off the job training Evaluation of the training	Job rotation In-basket Role playing Simulation On-job training Vestibule training Apprenticeship Training evaluation	Personal Management by Dr.C.B.Mamoria chap 12 pg 307-348 Eg: Refer Laxmi Bank Case Study - VSP Rao, HRM Second Edition Pg.No. 234 or Any other Case Study	1.5		
15, 16, 17	4.5	Performance Management			4.5		
		<ul style="list-style-type: none"> • Performance planning and Review 	appraiser: Forced Choice Method	*Refer to developed aid materials	1.5		

			Management by Objectives 360 degree			
		• Competency Mapping *	Competency Model Gap Analysis Succession		1.5	
		• Potential appraisal, Career and Succession Planning	Potential Appraisal Assessment Centres Career Planning		1.5	
18 to 23	9.0	HRM - Concept and System			9.0	
	3.0	○ Coaching and mentoring *	Process of Coaching Effective Coaching · Process of Mentoring	*Refer to developed aid materials	3	
	1.5	○ Reward system *	Competence-Related Pay Profit Sharing Employee Ownership	*Refer to developed aid materials	1.5	
	1.5	○ Self renewal system *	Cacooning: Restructuring Corporate Social Responsibilities		1.5	
	1.5	○ Employee attrition	meaning reasons, calculation of attrition rate,		1.5	

			managing separations			
	1.5	○ Contemporary trends in demand and supply	Social ,economical organisational transformation		1.5	
24, 25	3	HRD issues and Experiences			3	
	1.5	○ Multi source feedback system*			1.5	
	1.5	○ Knowledge Management*	Tacit knowledge Implicit knowledge Knowledge Identification Knowledge Elicitation Knowledge Classification Knowledge Storing	*Refer to developed aid materials	1.5	
26, 27, 28	4.5	HRD issues and Experiences (Cont'd)			4.5	
	1.5	○ Diversity Management	Job Diversification Mergers Acquisition	*Refer to developed aid materials	1.5	
	3.0	○ Labour Management (Laws)	Penalties Exemption Equal Remuneration Statutory social security benefits		3.0	
Benchmarked assignment 2- assignment description with weightage for 20 Marks						
End term exam					3.0	

Suggested references Books:

1. Aswathappa, K., (1999): *"Human Resource and Personnel Management"*, New Delhi, Himalaya Publishing House
2. DeCenzo, David A and Robbins, Stephens P. PERSONNEL/HUMAN RESOURCE MANAGEMENT PrenticeHall of India Private Limited , New Delhi

3. Monappa ,Arun and Saiyadain, Mizra.S PERSONNEL MANAGEMENT Tata McGraw- Hill Publishing company Limited, New Delhi
4. Venkata Ratnam, C.S and Srivastava B.K PERSONNEL MANAGEMENT AND HUMAN RESOURCES Tata McGraw – Hill Publishing Company Limited New Delhi
5. VSP Rao, Excel Books Publishers, “Human Resource Management – Text and Cases”, Second Edition (2009)

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	NA	NA	NA	20	40	100

Learning outcome:

1. The students would be able to understand the importance of effective management of human resources in the overall management of the organization in Apparel Industry. They would be equipped to manage human resource effectively.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1 - 20 M (Group Assignment – 3 or 4 students in a group)	
Details/ description of assignment (Hand Written / Presentation)	Describe the various recruitment methods. Explain the recruitment process being adopted in Any Organization of your choice Discuss the advantages and disadvantages of it. Briefly describe the Organization you are referring to
Weightage	20 Marks
<u>Assignment 2</u> What do these acts enforce and what are their benefits? (group Assignment 3 to 4 students in a group) - Document / Presentation	
a) Laws on working conditions <ul style="list-style-type: none"> • The Factory Act 1948 • Contract Labour (Regulation and Abolition Act 1986) • Child Labour (Prohibition and Regulation Act 1986) b) Industrial Relation Laws	

<ul style="list-style-type: none"> • Trade Union Act 1926 • Industrial Dispute Act 1947 – I • Industrial Dispute Act 1947 – II • Industrial Discipline and Misconduct <p>c) Wages and Labour Laws</p> <ul style="list-style-type: none"> • Minimum Wages Act 1948 • Payment of Wages Act 1936 • Payment of Bonus Act 1965 • Equal Remuneration Act 1976 <p>d) Laws for Labour Welfare and social Security</p> <ul style="list-style-type: none"> • The workmen's Compensation Act 1948 • The Maternity Benefit Act 1961 • The Employee's Provident Fund and Miscellaneous Provision Act 1952 • The Payment of Gratuity Act 1972 	
Weightage of Marks	20 Marks

Pattern for mid term/ final term CEB examination paper

For CEB subject (theory) suggested format of CEB question paper to be mentioned

Mid term Exam				
Parts	Type of question	Choice	marks	Total
A	Short Answers (200 words)	any 2	each of 5 marks	10
B	Long answer (1000 words)	any 1	each of 10 marks	10
Total				20
End term Exam				
Parts	Type of question	Choice	marks	Total
A	Short Answers (200 words)	any 4	each of 5 marks	20
B	Long answer (1000 words)	any 2	each of 10 marks	20
Total				40

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester III
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT205T	Management Information Systems	Lecture	1.5	48	2.5	NC	TH
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study	-				
		Self Study	-				
		Total	3.0				

Perquisite: None

Course objectives:

- Gain an understanding of the role of information system in organization and provide digital firm perspective
- Develop knowledge of the different ways that information technology may be used to support organization to provide competitive advantage.
- Focus on strategy and performance by MIS design in a digital firm.
- Provide insight on Information security in digital firms.
- Introduce a range of methods and modern technologies that can aid in decision-making, decision analysis and support systems, knowledge-based systems, and electronic meeting systems, and group decision support.

Course structure:

- **Concept domain** – MIS brings a systematic knowledge of managing information technology for its application in business and industry.
- **Knowledge domain** – Technology – Use of Hardware, Software, Database and so on to create and manage information.
- **Skill domain** – Analyze factors behind successful implementation of MIS within an organization.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1 - 4	6.0	Managing the Digital Firm: Information system, Organization, Management and Strategy	Why Information Systems? Perspectives of IS & What is an IS? How IS impact Organizations and Business Firms Impact of IT in Decision making IS and Business Strategy	R1- P 36-39 R1- P 45 (Refer Case Studies also) R1- P 113–117 R1- P 117–121 R1- P 122-130	3.0	3.0 (case analysis)	

5 - 8	6.0	<p>Information Systems in the Enterprise:</p> <p>Major type of system in Organization</p> <p>Relationship of system to one another</p>	<ul style="list-style-type: none"> ▪ Executive support system ▪ Decision support system ▪ Knowledge work system ▪ Transaction processing system ▪ Management information system ▪ Office automation system 	<p>R1- P 71-79</p> <p>R2- P 40-44</p> <p>R2- P 44-47</p> <p>R1- P 80-84</p>	3.0	3.0 (relating various systems with business processes)	
9 - 12	6.0	Management Information Systems: Overview	MIS: Concept, Definition, Role, Impact, Support, Effectiveness, Managing a Digital Firm	R3: P 3 - 25	3.0	3.0 (Impact Analysis)	
<p>Assignment 1</p> <p>Relate the various Information Systems in the Strategic Business Development of Digital Firm viz. E-commerce, E-communication, Real Time Enterprise (R3: P 27-54) – 20 Marks</p>							

13 - 14	3.0	Strategic Management of Business	Strategic Planning, Business Strategies, Types of Strategies, Planning & Planning Tools, Analysis of business, BSC	R3: P 60-89	1.5	1.5	
15 - 16	MID TERM EXAM (CEB) – 20 Marks						
17 - 18	3.0	Development Process of MIS	Development of Long Range Plans, Class of Information, Info. Requirements, MIS Implementation, MIS: Process Model	R3: P 284 - 308	1.5	1.5 (Requirement Analysis)	
19 - 22	6.0	Business process Re-engineering	Business Process, Process Model, Value Stream Model, MIS & BPR	R3: P 355-372	3.0	3.0 (Value Stream Mapping)	
23 - 24	3.0	Application in Manufacturing sector & service Sector	Personnel Mgmt, Financial Mgmt, Production Mgmt, Marketing Mgmt	R3: P 383-415	1.5	1.5 (Presentation Guidelines)	
Assignment 2							
Presentation on MIS Application in Manufacturing Sector - 20 Marks							
25 - 28	6.0	Decision Support System & Knowledge Management	DSS, GDSS, KM, KMS, KBES	R3: P 456-499	3.0	3.0 (Building Knowledge base & KMS)	

29 - 30	3.0	Enterprise Management system E-business Technology	EMS, ERP, SCM, CRM Introduction to E- business models, WWW, Intranet, CMS, EPS, Enterprise Portal	R3: P 506-547 R3: 690-739	1.5	1.5 (Portal developme nt)	
31 - 32	End term exam (CEB) – 40 Marks						

Text Books:

R1: Management Information Systems: Managing the digital firm - Kenneth c. Laudon & Jane P. Laudon Prentice Hall of India ISBN 81-7758-941-5

R2: Management Information Systems - Sadagopan S Prentice Hall (I).1997 II print 1998 ISBN-81-203-1180-9

R3: Management Information Systems: Text and Cases - Waman S Jawadekar Tata Mc Graw Hill Publication 4th Edition 2009 ISBN 0-07-014662-4

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	NA	NA	NA	20	40	100

Teaching Tools:

1. Lectures
2. Powerpoint Presentations
3. Case Studies / Exercises

Pattern for midterm/ final term CEB examination paper**Midterm exam**

Part A	Fill in the Blanks / Multiple choice questions	10 questions	10 marks
Part B	Short Answer (not exceeding 50 words)	04 questions	10 marks

Final exam

Part A	Fill in the Blanks	10 questions	10 marks
Part B	Multiple choice questions	10 questions	10 marks
Part C	LOng Answer (not exceeding 150 words)	04 questions	20 marks

Learning outcome:

Upon completion of the course the students would be able to:

1. Student understand the basic concept and importance of MIS
2. Learning of case study helps the students to understand the functioning of the organization as well as application of MIS in Manufacturing sector
3. MIS is also providing the opportunity to explore the IT skills with managerial skills, which leads to develop the information system for manufacturing sector.
4. Student would be able to work in different department and understand the function of systems.
5. Analyse and apply alternate methods for designing, developing and implementing support system.
6. Evaluate the select alternative technology, used for building support system.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester III
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT207P	Garment Construction I	Lecture		96	4.0	C	PB
		Practical / Workshop	6				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	6.0				

Course objective:

- Developing skill and dexterity in sewing machine handling and operating
- Understanding the construction of different seams and finishing by using efficient technologies, applicable for garment manufacturing
- Handling of different materials/fabrics according their characteristics
- Use of attachments and folders
- Introduction to different kinds of fabrics trims and accessories suitable for Skirts.
- Garment analysis and Operation breakdown of a Skirt.

Course structure:

- **Concept domain-** To understand positional relationship among fabric plies during construction.
- **Knowledge domain-** To understand construction of bodice, shirt placket and skirt
- **Skill domain-** To be able to operate/control the sewing machine and handle/control the fabric.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1- 8	24	Introduction To Sewing Equipments and Seams				24	
1	3	<p>Introduction to sewing room and basic sewing equipment and its importance in Garment Manufacturing</p> <p>Operating the SNLS machine to develop confidence</p>		<p>Sewing & Knitting P: 10-14</p> <p>Sewing for the Apparel Industry Ch: 2,3,5</p> <p>Creative Clothing Construction Ch: 16</p>		3	
2 - 3	6	<p>Parameter setting in SNLS machine and material handling practice</p> <p>Machine practice to sew lines in various shapes, following a guide line</p>		<p>Sewing for the Apparel Industry Ch: 2 P: 351-357, 359</p>		6	

4 - 8	15	Introduction of pressing equipment and methods used in sewing section and its impact for better quality and easy handling Introduction to different seam types and finishing, their features, application and construction techniques in different fabrics. Seam Diagram of these seam types.		Sewing & Knitting P: 15, 158-175 Sewing for the Apparel Industry Ch: 6		15	
9	3	Assignment 1: Submission of Different Seam Types (20 Marks)				3	
10 - 11	6	Factory visit - Garment manufacturing Unit				6	
12 - 15	12	Bodice Block and Introduction of Gathering Technique (Manual and with Ruffling Foot)				12	
12 - 13	6	Analyzing an upper bodice garment and understanding the pre sewing activities Construction of a straight cut upper bodice garment (unisex), using efficient technologies and methods to ensure high quality.		Sewing for the apparel industry Ch: 15		6	
14 - 15	6	Introduction of Gathering Technique (Manual and with Ruffling Foot)		Sewing & Knitting P: 192-202		6	
16	3	Assignment 2: Submission of samples on gathering (Manual & with attachment) (20 Marks)				3	
17 - 21	15	Shirt's Front Placket				15	
17	3	Introduction and analyzing formal shirt to understand the manufacturing process		Sewing & Knitting P: 384-385		3	

18 -20	9	Introduction to different Shirt Front Plackets, construction techniques and use of attachments.				9	
21	3	Introduction to chest pockets for shirts, construction techniques and attachment		Sewing & Knitting P: 287-291		3	
22	3	Assignment 3: Submission of Shirt Front with Front Placket and Chest Pocket (20 Marks)				3	
23 - 31	27	Skirt				27	
23 - 26	12	Introduction to Skirt construction. Introduction to different Seam finishes, different Pocket styles, Facing/Lining and Zipper Attachment (Normal Zipper and Invisible Zipper).		Sewing & Knitting P: 292-300, 334 - 335		12	
27 - 31	15	Finishing waistline of Skirt by normal Waistband, Elasticated waistband and by Facing with Lining (Slit at Center Back) Understanding the manufacturing process of the Skirt, Cutting parameters, assembling the components and making of the Skirt to the highest level of quality		Sewing & Knitting P:250-258		15	
32	3	End Term Submission Skirt (Use pattern developed in End term Submission of PM-I) (40 Marks)				3	

End Term Submission Evaluation is Jury Based and Jury for PM and GC should be held together.

Suggested references Books:

- | | |
|---|--|
| 1. Sewing for the Apparel Industry | Claire Shaeffer, Prentice Hall, 2001 |
| 2. Sewing & Knitting | Reader's Digest (Australia) Pty Ltd, 1993 Edition. |
| 3. Creative Clothing Construction | Allyne Bane, McGrawhill, 1966 |
| 4. Apparel Manufacturing Handbook | Jacob Solinger |
| 5. Clothing Technologies for Fiber to Fashion | Europa Lehrmittel |
| 6. Federal Standard | FED-STD-751A, 1983 |

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Teaching Tools:

1. Lectures
2. Directives and Demonstrations
3. Audio Visuals, Library and Resource Center
4. Industry visits
5. Learning diary/ Sample file

Learning outcome:

1. Familiarization with basic sewing equipment for Garment Manufacturing
2. Students will achieve the required standard of professional operating a power driven machine
3. Ability to analyze and construct various seam types
4. Effective use of steam pressing equipment during the process of constructing a garment
5. Quality awareness in construction processes
6. Analyzing abilities of component pattern pieces for skirts
7. Use of efficient construction techniques applicable in skirt manufacturing
8. Quality assurance and improvement in shirt production
9. Improvement of skill and dexterity in machine and fabric handling

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester III
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hours / Week	Hour / Semester	Credit	(C / NC)	Subject Type (TH/ PB/ DE/CE)
BFT209P	Pattern Making I	Lecture	-	96	4.0	C	PB
		Practical / Workshop	6				
		Tutorial / Seminars / Field Study	-				
		Self Study	-				
		Total	6.0				

Course objective:

To enable students to relate body shapes to patterns

To enable student to understand control points in each patterns leading to well fitted garment

To make student understand scientific way of manipulating patterns to achieve the desired style line

Course structure:

Concept domain- to understand patterns of bodice block and skirt

Knowledge domain- to understand points of control in each pattern for achieving desired fit

Skill domain- to enable student to generate well fitting patterns and manipulate them to achieve desired style line

Course contents:

No of sessions (3 hours each)	Hrs	Contents	Reference	Lecture	Practical / Workshop	Self Study
1- Introduction To Anthropometry						
1	3	Body shape analysis	<ul style="list-style-type: none">• Armstrong,H.J. "Pattern making for Fashion design", Edition 4 chapter 2 page 43-52• Kunick pattern making for womens wear chapter 2 & 3.• Metric pattern cutting for women - Winifred Aldrich 5th edition chapter 1- page 10 &15• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 1 page 12& 12		3	
		Landmarks on body and corresponding ones on dress forms / Terminology				
		Anthropometry and body sizing				
		Standard measurement techniques and its importance in fit				
		Importance of pattern making in quality of a garment				
2- Bodice Block						
4	12	Basic bodice blocks	<ul style="list-style-type: none">• Armstrong,H.J. "Pattern making for Fashion design",edition 4 chapter3 page 53- 63• Aldrich,W. Metric pattern cutting for Women's wear. Edition 5 chapter 1page 16 to 30• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 1 page 13& 14		12	
		Test-fitting of bodice blocks & discussion regarding the mistakes done and impact of the mistakes in over all fit of the garment				
		Truing of darts / seams / curves / notches & its significance				
		Concepts of seam allowance & production patterns				
		Assignment 1: Submission of Bodice Block with Test Fit- 20marks				

3- Dart Manipulation Front & Back						
6	18	Dart manipulation techniques - slash and spread & pivot	<ul style="list-style-type: none">• Armstrong,H.J. "Pattern making for Fashion design", Edition 4 chapter 4 to 8 page 85 to 176• Metric pattern cutting for women - Winifred Aldrich 5th edition chapter 3 page 38- 48• Dress fitting by Natalie bray chapter 2,		18	
		Single dart manipulation - moving a single dart in various positions				
		Double dart manipulation moving both the darts in various positions				
		Shaped / asymmetrical/ intersecting /multiple darts				
6	18	Darts into panels - princess lines / style lines not passing through apex point			18	
		Darts in tucks / gathers				
		Principle of fullness- darts in flares and added fullness				
		Combinations of various dart manipulations i.e. yoke with gathers etc.				
		Importance of balancing of patterns and notches and its importance				
		Assignment 2: Submission of Dart Variation (Use Practice Problems in Armstrong,) with Test Fit 20marks				
4- Dart Less Block						
4	12	Difference between darted and dart less slopers	Armstrong,H.J. "Pattern making for Fashion design", Edition 4 chapter 21 Armstrong,H.J. "Pattern making for Fashion design", Edition 4 chapter 16		12	
		Development of dart less slopers				
		Development of different Front Plackets				
		Buttons, Buttonholes, Neckline and Facings				

5- Skirt & Variation						
2	6	Basic skirt block and test fitting	<ul style="list-style-type: none">• Armstrong,H.J. “Pattern making for Fashion design”, Edition 4chapter 3 page 64to 68• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 1 page 15		6	
		Assignment 3: Submission of Basic Skirt Block with Test Fit & Development of any design involving Added Fullness 20marks				
9	27	Discussion of various silhouette of skirts and there differences	<ul style="list-style-type: none">• Armstrong,H.J. “Pattern making for Fashion design”, Edition 4chapter 13 page 251- 326• Metric pattern cutting for women - Winifred Aldrich 5th edition chapter 6 page 79-98• Dress fitting by Natalie bray chapter 5• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 7 page 131-163		27	
		Straight skirt / flare skirt / peg skirt / slinky skirt				
		Concept of high and low waist skirt				
		Panels in skirts - gores / yokes				
		Introduction to pleats - knife /box & godet				
		Principle of circularity				
		Finishing with waist bands, elasticated waistband, facings and Lining (with Slit at Center back Hem)				
		Balancing of patterns and notches and its importance				
		Various parameters controlling fit and fall of skirts				
		Discussion on various defects and there rectifications at pattern stage				

		Assignment 4/ End term Submission : Skirt (Selection of design to be done from magazines and approved by the concerned faculty) Note: Pattern should be complete in all respect like development of facing/ Lining etc 40marks				
32	96	Total number of session of 3 hrs each				
End Term Submission Evaluation is Jury Based and Jury for PM and GC should be held together.						

Further References:

Book Name	Author	Publisher
Pattern Making for Fashion Design	Helen Joseph Armstrong	Harper Collins, LA
Metric Pattern Cutting	Winifred Aldrich	Blackwell Science Ltd., London
Metric Pattern Cutting for Menswear	Winifred Aldrich	BSP Professional Book, Oxford
How to Draft Basic Patterns	Kopp, Ralfo, Zelin & LGross	Fairchild Publication, NY
Pattern Cutting and Making up- The Professional Approach	Martin Shoben & Janet Ward	Butterworth Heinmann, Oxford
Modern Sizing for Women's and Children's Garments	P.Kunick	Philip Kunick Publication, London
Designing Pattern- A Fresh Approach to Pattern Cutting	Hillary Campbell	Stanley Thornes (Publisher) Ltd.
Dress Fitting	Natalie Bray	Blackwell Science Ltd., London
Dress Pattern Designing	Natalie Bray	Blackwell Science Ltd , London
More Dress Pattern Designing	Natalie Bray	Blackwell Science Ltd., London

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20		-	-	40	100

Assignment 1: Submission of Bodice Block with Test Fit- 20marks

- Pattern of Front bodice block - 5 Marks
- Pattern of Back bodice block - 5 Marks
- Balancing & Truing of blocks - 2.5 Marks
- Information on pattern notches and awls etc - 2.5 Marks
- Test fit - 5 Marks

Assignment 2: Submission of Dart Variation (Use Practice Problems in Armstrong,) with Test Fit - 20marks

- Pattern of Front bodice block with variation - 5 Marks
- Pattern of Back bodice block with variation - 5 Marks
- Balancing & truing of blocks – 2.5 Marks
- Information on pattern notches and awls etc - 2.5 Marks
- Test fit - 5 Marks

Assignment 3: Submission of Basic Skirt Block with Test Fit & Development of any design involving Added Fullness - 20marks

- Pattern of Front & Back Skirt block - 5 Marks
- Pattern of front & Back Skirt with fullness - 5 Marks
- Balancing & Truing of basic & skirt block with fullness – 2.5 Marks
- Information on pattern, notches and awls etc - 2.5 Marks
- Test fit – 5 Marks

End term Submission: Skirt (Selection of design to be done from magazines and approved by the concerned faculty) Note: Pattern should be complete in all respect like development of facing/ Lining etc-40marks

- Difficulty level of visual selected& overall understanding of the assignment undertaken – 5 marks
- Pattern developed for front & back -10 marks
- Pattern of lining/ facing/waist belt /pockets etc-10 marks
- Information on pattern, notches and awls etc - 5 Marks
- Test fit in muslin or comparable fabrics – 10 marks

Teaching Tools:

Lecture and demonstrations.

Presentations

Assignments.

Learning outcome:

Ability to relate body shapes with patterns

Ability to use right manipulation techniques to achieve desire style line

Ability to understand critical measurements which control fir of a garment

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester III
 (For entire curriculum **July – December**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT211P	Sewn Products Machinery & Equipments -1	Lecture	6	96	4	C	PB
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	6				

Perquisite: Elements of Textiles and Fabric Science

Course objective:

1. Understanding of different classifications of continuous sewing machine and their applications to maximize needle time.
2. Develop skill to operate and understand working principles to adjust the different machine settings for different materials to be sewn as well as maintenance.
3. Understanding of different in-built features, work-aids, add-on devices to de-skill sewing operation for consistent quality and improved productivity.

Course structure:

- **Concept domain** - To understand the different types of sewing machines kinematics used in garment manufacturing. To be able to understand the working concept of all the machines and be able to do some basic adjustments.
- **Knowledge domain** - The students should be able to analyze the seams and stitches used in a sample and be able to indicate the suggestive machineries, auxiliaries and equipments used in manufacturing the garment.
- **Skill domain** -
 - Students should be able to do the minor adjustment in all the sewing machines.
 - Should have hands on experience in threading and operating all the machines.

Course content:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1 - 2	6	Introduction to Sewing Machine				6	
		History of Sewing machine.	Barthelemy Thimonnier, Walter Hunt & Elias Howe. Issac Singer	About.com inventors		1	
		Classification of Sewing machine and Important parts of Single Needle Lock Stitch Machine with its function Threading of Lock Stitch machine. (Students should learn the threading of Lock stitch machine and be able to do it in 10 minutes)	Lock stitch, Chain stitch machine, Over Lock machine, Flat lock machine Presser foot, Throat Plate, Presser spring, Needle bar, Take up Lever, Tension Device, Take up Spring, Thread guides, Bobbin & Bobbin case, Feed Dog, Stitch	Carr & Latham's – Technology of Clothing Manufacture pg nos: 139 to 140 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 481 - 493 Solinger – Apparel Manufacturing Handbook pg: 189 -		5	

			Regulator, Back Tack Lever, Needle, Lubricating System	208			
3 - 6	12	Assignment 1	10 Marks			12	
<p>Assignment 1 – Adjusting the needle and the bobbin thread tension for different types of fabric. After Balancing the thread tension samples have to be developed in the following fabric. (Fabric Sample 8/8 inches and Length of stitch – 6 inch). 1. Light Weight, 2. Medium Weight, 3. Heavy weight, 4. Fabric with elastomeric yarn, 5. Synthetic Chiffon fabric. Students should be able to do the threading of the SNLS machine in 10 minutes Samples to be submitted in folder. Marks - 10</p>							
7-9	9	Sewing Machine Kinematics				9	
		Formation of Single Needle Lock Stitch Formation of Single Thread Chain Stitch Bevel Gears Needle and Needle Bar Movement Thread Take up Lever Feed Dog Elliptical Movement Feed Dog Movement in relation to Stitch Regulator.	Interlooping, Intralooping, Interlacing, Hand wheel , Horizontal Shaft or Main Shaft, Vertical Shaft, Bevel Gears, Cam, Crank, Counter weight, Curved Groove, Gears, Drive Wheel, Tension Disc Assembly, Linkages, Feed Dog, Rotary hook, Oscillating shuttle, Hook Shaft Bobbin Hook, Stitch tongues, Flagging, Feed Dog Eccentric. Feeder Rocker Shaft,	Carr & Latham's – Technology of Clothing Manufacture pg: 60,63, 66, Glock & Kunz – Apparel Manufacturing Sewn Product Analysis 489 - 493 Solinger – Apparel Manufacturing Handbook pg:195 - 208 www. Howstuffworks .com		9	

		<p>Tension Device</p> <p>Loopers & Spreaders</p> <p>Tongues & Chaining Plates</p> <p>Thread Fingers and Thread Finger Hooks</p> <p>Bobbin, Bobbin Cases, Hooks, Shuttles & Shuttle Hook Assembly Movement.</p>	<p>Horizontal Hook, Vertical Hook, Oscillating Looper, Rotating Looper</p>				
10 - 12	9	Needle Hook Timing & Clearance between Needle and Hook Tip and Feed dog Adjustment				9	
		<p>Demonstration have to be given on ----- Needle Hook Timing & Clearance between Needle and Hook Tip</p> <p>(After demonstration the students should individually sit on the machines and do the setting and develop one sample. Fabric Sample 8/8 inches and Length of stitch – 6 inches)</p>		Sewing Machine Manuals		6	
		<p>Adjusting the Feed Timing and the Height of the Feed Dog for different types and</p>		Sewing Machine Manuals		3	

		thickness of fabrics. (Only Demonstration)					
13 -15	9	Stitches and Seams				9	
		Seams and Classification Properties of seams Different types of Seams with technical seam diagram Its application in the garments Quality aspects of Seam	Seam Definition, Seam Dimensions, Seam Heading, ASTM standards, Seam Class, Superimposed Seam, Lapped Seam, Bound Seam, Flat Seam, Edge Finishing, Ornamental Seam, Seam puckering, Seam Grinning, Seam Diagram	Carr & Latham's – Technology of Clothing Manufacture pg: 47 to 57 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 441 - 453 Solinger – Apparel Manufacturing Handbook pg: 181 - 185		4.5	
		Stitches and Stitch Classification Properties of Stitch Different types of Stitches and its application in the Garments Identification of Stitches and Seams practically on different types of garments	Stitch Definition, Interlooping, Intralooping, Interlacing, Stitch Class 100 to Class 700, Advantages and Disadvantages of each stitch class and subclass, properties, application, comparative analysis, strength, elasticity, durability, flatness, reversibility, back tacking, Appearance of each stitch – technical & practical	Carr & Latham's – Technology of Clothing Manufacture pg: 57 to 77 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 427 – 440 Solinger – Apparel Manufacturing Handbook pg: 171 - 179 Federal Standard stitch type		4.5	
16 -17	6	Feed Mechanism				6	
		Working Principles of	Feed Lift, Feed travel,	Carr & Latham's –		6	

		Different types of Feed Mechanism and its application.	pitch, Major axis and Minor axis, Types of Teeth, Drop Feed, Roping, Interply Shift, puckering, Differential Feed, Gathering, Stretching, Ruffles, Variable Top Feed, Needle Feed, Unison Feed, Compound Feed, advantages and disadvantages of different feed mechanism	Technology of Clothing Manufacture pg: 74 to 86 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis 492 to 493 Solinger – Apparel Manufacturing Handbook pg:210 -217			
18	1.5	Assignment 2: Written Test	Marks - 20			1.5	
19	3	Sewing Needle				3	
		Classification & Application	Set point, Ball point, Cut point, Metric Needle Sizing, Needle Numbers, Curved Needles, Scarf Position, Singer System, Groz Beckert System,	Carr & Latham's – Technology of Clothing Manufacture pg: 86 to 97 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 467 - 470 Solinger – Apparel Manufacturing Handbook pg: 195 -198		1.5	
		Important Parts of Sewing needle	Shank, Butt, Shoulder, Reinforced Shoulder, Blade, Point ---- Set, Cut, Ball, Eye, Groove, Scarf Needle Finishes,	Carr & Latham's – Technology of Clothing Manufacture pg: 88 to 99 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 467 - 470		1.5	

				Solinger – Apparel Manufacturing Handbook pg: 195 -198			
20	3	Machine Bed - Classification & Application				3	
		Machine Bed -Classification & Application	Flat Bed, large area Raised Bed, accessories attachment, Post Bed, Convex and Concave sewing, Cylinder Bed, tubular part, Mini cylinder bad, Side Bed, Edge sewing,Feed off the arm, Convex & concave, Lapped seam, Inseam, Zipper attachment,	Ref:Carr & Latham's – Technology of Clothing Manufacture pg: 139, 441 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 487 - 488 Solinger – Apparel Manufacturing Handbook pg: 191 -194		3	
21 - 26	6	Working Principals and threading of commonly used sewing machines.				18	

		<p>Computerized Lock stitch machine</p> <p>Students should be able to do threading in 10 minutes. Double needle Lock Stitch machine.</p> <p>Students should be able to do threading in 15 minutes</p>	<p>Memory Bank, Programming, repositioning device, Needle Positioners, precise sewing, short cycles, Sew control Rotary hook, Vertical Bobbin, Split Needle bar, Needle positioner, Corner sewing, Sewing angle, Groove, Stitch Length, Back Tacking</p>	<p>Machine Manual Machine Manual</p>		3	
		<p>Double needle Lock Stitch machine.</p> <p>Students should be able to do threading in 15 minutes</p>	<p>Rotary hook, Vertical Bobbin, Split Needle bar, Needle positioner, Corner sewing, Sewing angle, Groove, Stitch Length, Back Tacking</p>	Machine Manual		3	
		<p>Multi Needle Chain Stitch Machine – Pullar adjustment and elastic tension adjustment to be demonstrated.</p> <p>Students should be able to do threading in 20 minutes</p>	<p>Loopers, Fingers, Rear Puller Feed, Front Puller Feed, Tension Device, Feed Mechanism, Needle position</p>	Machine Manual		3	
		<p>Over Lock Machine – 3 thread, 4 thread and 5 thread O/L machine</p>	<p>Loopers, Differential Feed Mechanism, Tension Device, Trimming Knife,</p>	Machine Manual		3	

		Students should be able to do threading of each machine in 20 minutes	Adjustment of trimming knife, Adjust of Differential Feed, Side Bed, Bight, Comparative analysis				
		Blind Stitch Sewing Machine Students should be able to do threading in 20 minutes	Curved needles, Hemming, Attaching interlining, Lifter, Lifting height, Stitch Depth, Stitch selector, Stitch length, Feed mechanism, Skip length	Machine Manual		3	
		Flat Lock Machine – 3 thread, 4 thread and 5 thread F/L Students should be able to do threading of each machine in 20 minutes	Loopers, Blind Loopers, Spreaders, Needle position, Feed mechanism, Tension device, Stitch Bight, SPI,	Machine Manual		3	
26 -28	9	Assignment 3				9	
<p>Assignment 3- Students on rotation basis should develop samples from the machines under unit no: 13</p> <ol style="list-style-type: none"> 1. Top stitch Collar and Pocket Flap with Split Needle bar on DNLS machine. 2. Developing samples of 3 Thread Over lock machine, 4 Thread Over Lock Machine , 5 Thread OverLock Machine – sample size 12/12 inches 3. Develop a Bottom Hem sample using Blind Stitch machine. Sample Size 10/15 inches. 4. Developing Samples of--- 3 Thread Flat lock machine, 4 Thread Flat Lock Machine and 5 Thread Flat Lock Machine Sample size 10/15 inches <p>Samples are to be submitted in a folder format. Total – 9 samples</p> <p>Marks – 30</p>							

29 -30	6	Deskillling Devices				6	
		Different types of deskillling Devices and its Application	Work Aids, Quality, Consistency, mechanical, pneumatic, electronic, Attachments, Guides, Positioning attachments, Folders, Hemmers, Metering Device, Cloth Pullers, Shirring device, Thread Trimmers, wipers, Chain Cutters, Photoelectric Sensors, Needle Positioners, Single toe presser foot, Compensating presser foot, Long toe, Short toe, Offset soles	Carr & Latham's – Technology of Clothing Manufacture pg: 140 - 164, Glock & Kunz – Apparel Manufacturing Sewn Product Analysis 494-499 Solinger – Apparel Manufacturing Handbook pg:242- 251		6	
31	3	Latest Developments in Sewing Machine				3	

Final Evaluation/End Term Jury –
Stitch and Seam analysis for Actual garments
 One Woven Garment
 One Knitted Garment
Report should contain-
 Identification of Component parts
 Technical Flat Sketch
 Technical Seam Diagram and Stitches used in the garment.
 Suggested Specification of Machines used for each seam and stitches
 Suggested Specification for Desking device used
 Suggested Needle specification
 Suggest one alternate and seams and stitch that can be used against each used seam.
Student should carry the Sample Garments and the Report and attend the Jury.
The Jury will be conducting a Viva Voce on the specified date as a part of the final Evaluation.
Marks – 40 Marks

Reference Magazines, Journals and other sources:

1. Apparel (erstwhile Bobbin)
2. Apparel Industry Magazine
3. World Clothing Manufacturer
4. Fashion Technics Today
5. www.just-style.com
6. www.techexchange.com

Evaluation Matrix:

Assignment 1	Assignment 2:Written Test	Assignment 3	Assignment 4	End Term Jury	Total
10	20	30	NA	40	100

Teaching Tools:

- Lectures
- Class room exercises
- Demonstrations
- Industry visit

Learning outcome:

- Students will learn the working principals of all the commonly used machines used in garment manufacturing.
- Students will have hands on experience in doing minor adjustments of the machines depending on different thickness of fabric.
- Students will be able to analyze the stitches seams that are used in different types of garments.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY**Academic Plan for Semester III****(For entire curriculum July – December)**

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT213P	VB.net	Lecture	1.5	48	2.5	NC	PB
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite:

Knowledge of System and database management through System Analysis and Design and RDBMS subjects.

Course objective:

- To create an application software using Microsoft Visual Basic as front end and MS Access as backend

Course Structure:**Concept domain-**

Conceptual understanding of system requirement specifications, .net platform and visual basic as application software development platform.

Knowledge domain-

Understand the VB.net syntax, ADO and SQL for the software development.

Skill domain-

Acquire the skill of Visual Basic programming development, ADO for database connectivity.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1-6	9	VB.net language Constructs			6	3	
1	1.5	Introduction to .net and vb.net What is Microsoft .NET .NET Framework Overview Common Language Runtime	.Net framework, Common language Runtime (CLR)	R1-1 to 49	1.5	0	0
		Introduction to VB.net Environment. Introduction to namespaces, files, project etc.	Namespaces				
2	1.5	Language Syntax Comments, Variables, Data types, Operators and expressions methods	(Public, protected, friend, private, static, shared), Option statements, Arrays	R1(52 to 82)	1.5	0	0
3,4	3	Control Structures Decision making statements If – else statement Select – case statement		R1-84 to 88	1.5	1.5	
5,6	3	Loops For – next loop For – each – next loop Do- loop loops	Do loop, For loop, While Loop, Switch function	R1- No-88-92	1.5	1.5	

Session 7-8 : Benchmarked assignment 1- Weight age 20 Marks – 3 hours A project (console/window) which includes all the keywords of session 1 – 6 – spot assignment to be evaluated immediately after the session.							
9-17	13.5	Building Windows Applications			7.5	6	
9	1.5	Arrays, Enumerations, Constants	Arrays, Enumerations, Constants	R1- No-73-82	1.5	0	0
10,11	3	Build windows Applications Windows class hierarchy, Various Form controls, their properties and methods	Windows class hierarchy	R1-138-188,	1.5	1.5	
12,13	3	Label, Textbox, checkbox, radio button, message box, link label, combo boxes, picture boxes	ToolBox (All windows forms, Common Contols)	R1-191-299,	1.5	1.5	
14,15	3	Datetimepicker, calendar, timer, statusbar, button, panels, groupboxes		R1-305-341	1.5	1.5	
16,17	3	Responding to events Using multiple forms and creating MDI applications. Debugging and deploying application	MDI applications	R1-168-172	1.5	1.5	
18 – 19 : Benchmarked assignment 2 weight age 20 Marks – 3 Hours A windows application which covers all the keywords from session 9 – 17. Spot assignment to be evaluated immediately after the session.							
20-28	13.5	Debugging, error Handling and Database connectivity			6	7.5	
20	1.5	Menus Various Menu features Designing and coding menus, Toolbars, Context menus	Menus, Toolbars, Context menus	R1-345- 388	0	1.5	

21	1.5	Debugging and error handling Error types Debugging – break points, command window, watch window, locals window, Exception handling	Debugging and error handling , break points, Exception handling	R1-391-436	0	1.5	
22	1.5	Object Oriented Techniques • Building classes • Creating objects • State and behaviors of objects • Constructors	Class, objects, Constructors	R1-488-472	1.5		
23	1.5	Inheritance Garbage collection	Inheritance, Garbage Collection	R1-473-508	1.5		
24,25	3	Accessing Databases Create and open a connection to database, read, update and delete records in table Data Access Components OleDbConnection Dataset, OleDbDataAdapter, OleDbCommand, DataView, Data Binding, DataGrid Control, Data Form	ADO, ADO.net, Dataset, DataGrid, OleDbDataAdapter	R1-821 to 860	1.5	1.5	
26,27	3	ADO.net SqlConnection, basic functionality, sqlCommand, SqlDataAdapter and Dataset classes Xml Schema	XML	R1-821 to 860	1.5	1.5	
28 : Benchmarked assignment 3- weight age 20 Marks –1.5Hours An MDI application with all the forms controls, event handlers, and database connectivity for retrieval, modification, insertion and deletion of data. (20 marks)							

End Term Submission - Benchmarked assignment 4 - weight age 40 Marks**Jury Based evaluation –**

Create an application which has a front end created in VB.net, backend created in MS-Access/MS SQL Server. Submit *SRS (System requirement specification)* document to faculty for approval of the topic. The final product is the deployed application on .net platform and a document which describes Database design, relationship diagrams, snapshots of front end, and the logical flow of the application.

The application software should have the following *Functional Expertise (This may be open ended)*

- Finance & Accounts
- Manufacturing Resource Planning –MRP I/II
- Inventory & Logistics Management
- Human Resource Management
- Purchase / Sales Management
- Point of Sales
- Supply Chain Management
- Warehousing & Distribution
- Customer Relationship Management
- Electronic Data Interchange

Suggested references Books:

Apart from ones mentioned with the course curriculum

R1:-Visual Basic .Net Programming 2005 Edition (Black Book) Author: - Steven Holzner, Dreamtech Press & Paraglyph Press

R2:- Visual Basic 2005 with .NET 3.0, Author: Rod Stephens, Publisher: Wrox

R3:- Visual Basic.NET Programming Bible, Author: Bill Evjen Jason Berses, Willey Dreamtech publishers

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	-	-	-	40	100

Teaching Tools: Vb.net 2005

Learning outcome: Students will be able to create application software using Visual Basic .NET following the System Development Life Cycle principles.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	To Develop Console/window Application
Evaluation parameter	Understanding of the programming constructs, VB.net Environment, look, feel and functionality of the application, usage of appropriate platform tools and algorithms.
Type of assignment	On spot
Weight age	20
Assignment 2	
Details/ description of assignment	To Develop Windows Application using form controls and event handlers.
Evaluation parameter	Understanding of the programming constructs, VB.net Environment, look, feel and functionality of the application, usage of appropriate platform tools and algorithms.
Type of assignment	On spot
Weight age	20
Assignment 3	
Details/ description of assignment	To Develop MDI Application with backend connectivity
Evaluation parameter	Understanding of the programming constructs, VB.net Environment, look, feel and functionality of the application, usage of appropriate platform tools and algorithms.
Type of assignment	On spot
Weight age	20
End Term Jury	
Details/ description of assignment	Final Project – The application software with Systems Requirement Specifications document, database design based on RDBMS principles, VB.net coding and ADO connectivity for database functionalities (A group of 3 to be evaluated by external jury)
Evaluation parameter	Understanding of the programming constructs, VB.net Environment, look, feel and functionality of the application, usage of appropriate platform tools and algorithms.
Type of assignment	Jury evaluation
Weight age	40

The background features a large, light gray watermark of the NIFT logo. It consists of a red circle at the top, a gray triangle pointing right in the middle, and a stylized, flowing line that forms a large 'N' shape at the bottom.

SEMESTER IV

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-IV

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT202T	C	TH	Spreading and Cutting of Apparel Products	3.0	1.5	-	-	4.5	72	4.0
BFT204T	C	TH	Apparel Standards, Specifications & Quality Control	1.5	1.5	-	-	3.0	48	2.5
BFT206T	NC	TH	Fabric & Garment Finishing	3	-	-	-	3.0	48	3.0
BFT208P	C	PB	Garment construction II	-	6.0	-	-	6.0	96	4.0
BFT210P	C	PB	Pattern Making II	-	6.0	-	-	6.0	96	4.0
BFT212P	C	PB	Sewn Products Machinery & Equipments	1.5	3	-	-	4.5	72	3.5
BFT214P	C	PB	Web Technologies	1.5	1.5	-	-	3.0	48	2.5
			Total	10.5	19.5	-	-	30	480	23.5

Total Hours for Semester	480
Total Credits for Semester	23.5
Internship Total -Hrs /Duration /credit	-

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)

Programme /Specialization: B.F.Tech- Semester -IV

Evaluation Matrix

Semester Four	Subject Code	Subject type	Core / Non Core	Subject	Evaluation Matrix							
					Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Continues Evaluation	Mid – Term Exam /Jury	End – Term Exam/ Jury	Total
	BFT202T	TH	C	Spreading and Cutting of Apparel Products	10	30	NA	NA	NA	20	40	100
	BFT204T	TH	C	Apparel Standards, Specifications & Quality Control	20	20	NA	NA	NA	20	40	100
	BFT206T	TH	NC	Fabric & Garment Finishing	10	10	10	10	NA	20	40	100
	BFT208P	PB	C	Garment construction – II	20	20	20	NA	NA	NA	40	100
	BFT210P	PB	C	Pattern Making - II	20	20	20	NA	NA	NA	40	100
	BFT212P	PB	C	Sewn Products Machinery & Equipments – II	20	20	20	NA	NA	NA	40	100
	BFT214P	PB	C	Web Technologies	20	20	20	NA	NA	NA	40	100

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester IV
 (For entire curriculum January to June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT202T	Spreading & Cutting of Apparel Products	Lecture	3.0	72	4.0	C	TH
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	4.5				

Perquisite: None

Prerequisite for: Apparel production planning & control
Industrial engineering
Plant layout

Course objective:

1. To provide an understanding of the importance of the spreading and cutting section of a garment factory.
2. To equip them with a thorough understanding of the process flow, spreading, marker making modes and cutting techniques keeping in mind fabric and manpower utilization.
3. To develop skills in cut order planning, cutting room layout planning, capacity calculation, documentation procedures and fabric fault handling keeping in mind the optimum fabric and manpower utilization.
4. To familiarize them with computer software used for processes in the cutting room.

Course structure:

▪ **Concept domain-**

1. To understand different spreading and cutting methods; their application, advantages and disadvantages.
2. To optimize the fabric consumption, manpower and resource utilization.
3. To understand different parameters for optimization of spreading and cutting cost.

- **Knowledge domain**-To equip them with a thorough understanding of the process flow, fabric types, spreading, marker making modes and cutting techniques planning, capacity calculation, documentation procedures keeping in mind material and labor utilization.
- **Skill domain**-To develop skills in manual and computerized marker making for different fabrics, cut order planning, cutting room layout planning and fabric fault handling keeping in mind the optimum fabric and manpower utilization.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1-2	4.5	Introduction to cutting room and fabrics			4.5		
1	1.5	Introduction to cutting room: Process Flow of Cutting Room Importance of cutting room	Lay, marker, ticketing, shading, sloping, bundling,	Jacob Solinger (JS) Second Edition 1988 (Pg. 120)	1.5		

2	3	<p>Introduction to fabrics: Understanding Fabrics Understanding Garment design Fabric types and critical aspects in relation to spreading and cutting</p>	<p>nap , symmetry, direction, grain, right side, open and tubular fabric</p>	<p>Carr & Latham (C&L) Second Edition 1996 (Pg. 6-10) Europa Lehrmittel (EL) Clothing Technology 1995 (Pg. 135) Reference material by Prof. Prabir Jana: Fabric classification Spreading and cutting (Pg. 2,3)</p>	3		
3-6	9	Marker making and spreading modes / methods			6	3	

3 & 4	4.5	Marker making modes/methods	<p>Marker efficiency, computerized marker making, carbon duplicating, splicing, nap either way, open and closed markers, miniaturization, half garment marker, sectional marker, interlocking marker, stepped spread, scrambling, daizo photographic method.</p>	<p>Reference material by Prof. Prabir Jana: Fabric classification Spreading and cutting(Pg.5-7)</p> <p>Jacob Solinger (JS) Second Edition 1988 (Pg. 147-159)</p> <p>Glock & Kunz Apparel Manufacturing- Sewn Product Analysis Third Edition (Pg. 392-399)</p> <p>Terry Brackenbury Knitted Clothing Technology(Pg. 39-41)</p> <p>Europa Lehrmittel (EL) Clothing Technology 1995 (Pg. 136-137)</p> <p>Carr & Latham (C&L) Second Edition 1996 (Pg. 11-14)</p>	3	1.5	
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5 & 6	4.5	Spreading modes & methods	Lay-up, nap, face to face, nap- up- and-down, direction, symmetry, velvets, pair spreading, turntable,	Reference material by Prof. Prabir Jana: Fabric classification Spreading and cutting(Pg.4-5) Glock & Kunz Apparel Manufacturing- Sewn Product Analysis Third Edition (Pg. 399-402) Terry Brackenbury Knitted Clothing Technology (Pg. 44-48) Europa Lehrmittel (EL) Clothing Technology 1995 (Pg. 138)	3	1.5	
7-10	9	Spreading Parameters/ Marker Making Parameter			6	3	

7 & 9	6	Spreading Parameters/Marker Making Parameter in relation with fabric types and availability of resources	Ply tension, static electricity, fused edges, ply alignment, set up for spreading, remnant losses, direct losses, indirect losses.	<p>Reference material by Prof. Prabir Jana: SCAP Reference [1]</p> <p>David Tyler Materials Management in Clothing Production (Pg. 69-75)</p> <p>Carr & Latham (C&L) Second Edition 1996 (Pg. 18-29)</p> <p>Glock & Kunz Apparel Manufacturing-Sewn Product Analysis Third Edition (Pg. 403-405)</p>	3	3	
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10	3	Handling Fabric Faults in the Cutting Room	Types of fabric faults, splicing, re cutting, remnant losses	Carr & Latham (C&L) Second Edition 1996 (Pg. 23) Jacob Solinger (JS) Second Edition 1988 (Pg. 125-128) Chuter Introduction to Clothing Production Management Second Edition 1995(Pg. 132-133)	3		
Benchmarked assignment 1 (10 marks) To decide spreading and marker making modes / parameters for 20 different fabrics. <ul style="list-style-type: none"> • Collect the swatches of 20 different fabrics*. Mark their grain line. (*Fabrics should be different in symmetry, direction, weave, repeats etc.) • Decide marker modes/ parameters • Decide spreading modes 							
11 - 20	24	Plotting Markers			6	15	

11 - 15	10.5	Manual marker making Computerized marker making Comparison on basis of marker efficiency, time, etc.,	Manual marker making, computerized marker, auto marker, marker queue , end allowance, ways to increase marker efficiency	Reference material by Prof. Prabir Jana: Technology-cutting room-[1] and [11] David Tyler Materials Management in Clothing Production (Pg. 45-58) Carr & Latham (C&L) Second Edition 1996 (Pg. 15-17)	3	7.5	
16 - Mid Term Exam (3 hrs.)							
17 - 21	10.5	Spreading and Cutting parameters/requirements for Stripes, Checks, Printing, Engineered stripes etc. Practice of manual and computerized marker making in checks and stripe of shirt, trouser, jackets, etc.	Pinning table, blocking out, relaying, pattern repeat, folding, mitering, check spikes, predominant stripe, potential for automation in matching.	David Tyler Materials Management in Clothing Production (Pg. 59-67)	3	7.5	

22	3	<p>a. Preparatory Processes for Sewing Bundle Ticket Design. Off – loading Bundling</p> <p>b. Documentation Procedures and Control such as Cutting Instruction issue, fabric control charts etc.</p>	Bundle ticket, types of tickets, ticket details Ticketing Bundle type Bundle size Issue of material, spreading audit, fabric reconciliation record, cutting instructions record, accounting for purchased length issued	<p>Glock & Kunz Apparel Manufacturing- Sewn Product Analysis Third Edition (Pg. 422 & 423)</p> <p>David Tyler Materials Management in Clothing Production (Pg. 116-126)</p> <p>Jacob Solinger (JS) Second Edition 1988 (Pg. 162- 165)</p>	3		
23	1.5	<p>Cutting Room Layout and Cutting Room Organization</p>	Planning layout, cutting layout problems, minimum transport distance	<p>Jacob Solinger (JS) Second Edition 1988 (Pg. 614,615)</p> <p>Chuter Introduction to Clothing Production Management Second Edition 1995(Pg. 168 & 169)</p>	1.5		
24-28	12	Cut order planning			12		

24 &-27	9	Numerical exercises for cutting parameters optimization	Issue of cutting instructions, economic cut quantities,	David Tyler Materials Management in Clothing Production (Pg. 93-108) Reference material by Prof. Prabir Jana: SCAP Reference [1] Glock & Kunz Apparel Manufacturing- Sewn Product Analysis Third Edition (Pg. 390-391) (Pg. 408-409)	9		
28	3	Costing cut order plan	Labor cost, material cost, fabric wastes.	David Tyler Materials Management in Clothing Production (Pg.109-113)	3		

29-30	3	Assignment 2	Details given below			3	
Benchmarked assignment 2 - Cutting room project (30 marks) To be done individually <ul style="list-style-type: none"> Order details required* - Garment type**, order quantity, sizes, size ratio, max. lay length, max. no of plies, end and edge allowance, fabric required, fabric roll lengths and widths. Students need to do following: <ol style="list-style-type: none"> Decide marker and spread mode Cut order planning Make cad markers and find lay lengths Decide rolls used in each lay depending on fabric width and length. Calculate fabric used, unused, and end bits <p>*These can be assumed by the students and then approved by the faculty OR details are given by faculty OR from POs procured from companies. ** Graded patterns of the garment should be available in Lectra or Tukacad garment library.</p>							
31	3	Special Lecture by Industry Expert on latest developments.				3	
32 - End Term Exam (3 Hrs.)							

Suggested references Books:

1. David Tyler Materials Management in Clothing Production
2. Carr & Latham (C&L) Second Edition 1996
3. Jacob Solinger (JS) Second Edition 1988
4. Gerry Cooklin Introduction to Clothing Manufacture
5. Terry Brackenbury Knitted Clothing Technology
6. Glock & Kunz Apparel Manufacturing- Sewn Product Analysis
7. Europa Clothing Technology
8. Chuter Introduction to Clothing Production Management Second Edition 1995

Reference Magazines, Journals and other sources:

- Apparel (erstwhile Bobbin)
- Apparel Industry Magazine
- World Clothing Manufacturer
- Fashion Techniques Today
- www.just-style.com
- www.techexchange.com

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
10	30	NA	NA	NA	20	40	100

Teaching Tools:

- Lectures
- Class room exercises
- Demonstrations
- Industry visit

Learning outcome:

- Students will learn the functions of cutting room and their importance in Garment making.
- Students will be able to optimize the fabric consumption, manpower and resource utilization.
- Student will familiarize with computer software used for processes in cutting room.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	<p>To decide spreading and marker making modes / parameters for 20 different fabrics.</p> <ul style="list-style-type: none"> • Collect the swatches of 20 different fabrics*. Mark their grain line. (*Fabrics should be different in symmetry, direction, weave, repeats etc.) • Decide marker modes/ parameters • Decide spreading modes
Evaluation parameter	Different types of fabrics selected, understanding of fabric (symmetry, direction, etc), marker and spreading modes decided.
Type of assignment	Documentation
Weight age	10 Marks
Assignment 2	
Details/ description of assignment	<p>To be done individually</p> <ul style="list-style-type: none"> • Order details required* - Garment type**, order quantity, sizes, size ratio, max. lay length, max. no of plies, end and edge allowance, fabric required, fabric roll lengths and widths. • Students need to do following: <ol style="list-style-type: none"> 1. Decide marker and spread mode 2. Cut order planning 3. Make cad markers and find lay lengths 4. Decide rolls used in each lay depending on fabric width and length. 5. Calculate fabric used, unused, and end bits <p>*These can be assumed by the students and then approved by the faculty OR details are given by faculty OR from POs procured from companies.</p> <p>** Graded patterns of the garment should be available in Lectra or Tukacad garment library.</p>
Evaluation parameter	Type and no. of marker in cut plan, marker efficiency, fabric utilization, cut order plans, step followed in doing project, fulfillment of all order requirements.
Type of assignment	Practical on CAD and documentation.
Weight age	30 marks

Pattern for mid term CEB examination paper (20 marks)

- Objectives (e.g., fill ups / multiple choice questions/ true – false / match the following)
- Practical based question (e.g., find marker modes and spreading modes for swatches, manual marker making, case study)
- Short or long theory question (preferably indirect questions e.g., explain why)

Pattern for Final term CEB examination paper (40 marks)

- Objectives (e.g., fill ups / multiple choice questions/ true – false / match the following)
- Practical based question (e.g., find marker modes and spreading modes for swatches, manual marker making, case study)
- Short or long theory question (preferably indirect questions e.g., explain why)
- Numerical (e.g. cut order plan, material and labor cost)

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester IV

(For entire curriculum **January to June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT204T	Apparel Standards, Specifications and Quality Control	Lecture	1.5	48	2.5	C	TH
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite: SPME 1 and 2, SCAP, PM, GC, Fabric Science

Course objective:

1. To make the students understand the concepts of Quality, it's relevance in the global business scenario, and it's central role in an apparel organization.
2. To make students understand tools and techniques of quality control and quality assurance for raw materials and cutting room.
3. To equip students with knowledge on apparel quality standards, specifications and control procedures followed in apparel manufacturing set – up, through self- study based assignments and presentations.

Course structure:

- **Concept domain**-Quality Concept, its importance
- **Knowledge domain**-tools and techniques of quality control and assurance specifically for the garment industry
- **Skill domain**- application of the quality principles to the real life situations in solving quality issues

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	3	Introduction to quality			3		
1	3.0	Definition Related terms	Juran, Crosby, ISO Assurance, Control, Management	Managing Quality in the apparel Industry- Mehta and Bharadwaj Ch. 1 And Quality Assurance for Textiles and Apparel- Sara J. Kadolph Chapter 2	3.0		
2	3.0	Standards and Specs			1.5	1.5	

2	3.0	Standards, Types, Importance, Grade definition, Difference from standard,	Company, Industry, National and International AATCC, ASTM, ANSI, ISO, BSI, BIS	Managing Quality in the apparel Industry-Mehta and Bharadwaj Chapter 14 and Quality Assurance for Textiles and Apparel-Sara J. Kadolph Chapter 3	1.5	1.5	
		Specification- need, Importance, types, process of development	inputs required, process and resultant output	Quality Assurance for Textiles and Apparel-Sara J. Kadolph Chapter 3 and chapter 10			
		Tolerances, limits	maximum,minimum,zero				
3-4	6.0	Role of raw materials in Quality			3.0	3.0	
3	3.0	Fabric Inspection and grading	Inspection machines/Equipments; grading of fabric , 4 point and 10 point system relevance on quality and cost,	Managing Quality in the apparel Industry-Mehta and Bharadwaj Chapter 2,Pages 14-20 and pg 75-77	1.5	1.5	
4	3.0	Fabric defects- Reasons and solutions, effect on apparel quality and cost		Fabric defects-S.S Satsangi, Usha publishers,first edition,pgs.1-60	1.5	1.5	
		Trim defects- Reasons and solutions,	Possible defects	Managing Quality			

		effect on apparel quality and cost	Zippers, buttons, etc	in the apparel Industry- Mehta and Bharadwaj Chapter 3			
5	3.0	Benchmarked assignment 1- Creation of Fabric defect Library		20 marks		3.0	
6-7	6.0	Role of testing in quality				6.0	
6-7	6	Basic tests conducted, testing related to apparel end use.	Standard used, Equipment used, Test Procedure and analysis of result, relevance to apparel quality	Managing Quality in the apparel Industry- Mehta and Bharadwaj Chapter 3		6.0	
		Basic tests on fabrics to be demonstrated to the students either in NIFT Lab or a testing laboratory.					
8 Mid Term							
9-10	6.0	Role of quality in Sampling and pre production			4.5	1.5	
9	3.0	Understanding quality procedures in sampling and sample development	Proto, fit, pre-production TOP, shipment, sealor	Buyer Manuals Excel Sheet by Ms. Archana Gandhi	1.5	1.5	
10	3.0	Understanding quality in pre production activities	Pattern Making, Grading, Pre Production Meeting, Pilot run	Buyer Manuals	3.0		
11	3.0	Role of Quality in Cutting and Fusing			3.0		

			Marker making, spreading, cutting, bundling, ticketing-quality parameters and formats, Fusing Parameters and quality problems due to fusing	Managing Quality in the apparel Industry- Mehta and Bharadwaj Page 34-42	3.0		
12	3.0	Inspection Procedures in the Sewing room:			1.5	1.5	
12	3.0	Inspection Loop; Understanding of Inspections What and how to Inspect during Sewing? Documentation and Record keeping of the defects in a Production line	Pilot run , Inline and Final Inspection for continuous production, AOQL, AQL, Random Sampling, Inline inspection reports, Records of repairs, rejections Factory with in a factory	Quality Assurance for Textiles and Apparel- Sara J. Kadolph Page 375, Managing Quality in the apparel Industry- Mehta and Bhardwaj- Chapter 2, Buyer Manuals/ Reference of Internship reports from Factories	1.5	1.5	
		Key Inline checkpoints for standards Garment Types How to measure garments	Shirt, Trouser, T-Shirt, and Jeans, flow charts	Buyer Manuals			
13	3.0	Procedures practiced for Quality control and Assurance(finishing)			3.0		

13	1.5	Finishing Defects – Types, their causes and corrective measures	Burnt, scorched, shine marks, water spots, odour, stains	Quality Assurance for Textiles and Apparel- Sara J. Kadolph Chapters 11-13, Managing Quality in the apparel Industry- Mehta and Bharadwaj Chapter 2 Page 42-74, Buyers manuals	1.5		
	1.5	Inspection Procedures in finishing dept -Final audits -Final inspection report, statistical sampling, application of AQL Zoning of garments and classification of defects	sample selection, AQL charts, normal, reduced, tightened, Single, double & Multiple sample plans		1.5		
			A one, B and C zone, Critical, Major, Minor	Quality Assurance for Textiles and Apparel- Sara J. Kadolph Chapters 11-13, Managing Quality in the apparel Industry- Mehta and Bharadwaj Chapter 2 Page 42-74, Buyers manuals			
14	3.0	Benchmarked assignment 2- Garment defect analysis		20 marks	3		
15	3.0	Quality standards of Apparel Companies- Assessment of Buyer Manuals	Procedures, systems, defects classifications, formats	Any buyer manuals available	1.5	1.5	
16	End Term Exam						

Suggested references Books:

1. Philip Crosby 'Quality is Free'
2. J. M. Juran & Frank M. Gryna – Juran's Quality Control Handbook
3. Anita A. Stamper, Sue Sharp, Linda B. Donnell – Evaluating Apparel Quality

Reference Magazines, Journals and other sources:

Quality Manuals of various buyers

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	NA	NA	NA	20	40	100

Teaching Tools:

1. Lecture
2. Demonstrations
3. Field Visits
4. Presentations

Learning outcome:

1. Students will be able to understand the importance of quality as a crucial function in an apparel organization.
2. Students will have knowledge of the various quality control procedures followed in an apparel firm for achieving quality from raw materials to finished products.
3. Students will be able to identify the defects and causes for the same,.
4. Students will understand the documentation procedures required to implement quality assurance system from raw material to finishing process.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1 - Creation of Fabric defect Library	
Details/ description of assignment	Students to be divided into groups and assigned a set of commonly occurring fabric defects for which they need to collect samples and create a defect library
Evaluation parameter	Presentation and sample relevance
Type of assignment	Group assignment – portfolio submission
Weight age	20 marks
Assignment 2 – Garment defect analysis	
Details/ description of assignment	Students to select a garment and analyze the garment in terms of all possible defects, categorize the defects and record the findings in a correct evaluation sheet.
Evaluation parameter	Evaluation sheet preparation, Correct assessment of defects, Correct categorization of defects
Type of assignment	Individual- Report submission
Weight age	20 marks

Pattern for mid term/ final term CEB examination paper**Paper Pattern-**

Objective type answers- like Fill in the blanks, Match, etc – 30%

Short Answers – including definitions, Difference between etc. - 40%

Word Limit- 100- 150 words

Long Answers – Detailed descriptive – 30%

Word Limit - 300-500 words

If any sub parts of the detailed questions- each part to carry distinct marking.

For end term-

25% weightage will be from pre mid term portions and 75% from post mid term portion.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester IV
 (For entire curriculum January to June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT206T	Fabric & Garment Finishing	Lecture	3	48	3	NC	TH
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Prerequisite: Fabric Science, Knitting technology

Course objective:

1. To develop the holistic understanding of the finishing of fabric and garment used for the apparel industry
2. To deliver adequate inputs on the finishing processes and let the participants develop the analyzing skill on these methods,
3. To develop an understanding of the aesthetic & functional features of various types of finished fabrics and garments. To identify the effects of various types of finishes on the fabrics and the garments, changes occurring in their properties and their end uses in the apparel sector.
4. To make the students understand the modern techniques of Garment and Fabric finishing in relation to productivity, cost quality and performance.
5. To achieve the understanding about features and characteristics of finishes of the special types used for exclusive and value added fabrics and specialized garments and apparels.
6. To develop the understanding of different types of testing methods and specifications of finished fabrics and garments.

Course structure:

- **Concept domain-** To conceptualize the fabric and garment finishing processes
- **Knowledge domain-** To know about the chemical processing techniques, parametric conditions, and machineries required for the fabric and garment finishing processes, the cost factors involved in these processes
- **Skill domain-** To develop the skill of managing and optimizing the processes of fabric and garment finishing processes

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1-2	3	Introduction to Finishing			3		
1&2	3	Object of finishing. Considerations for finishing. Terms and definitions frequently used in finishing. Functional and aesthetic effects of finishes on fabrics and garments.	Fabric Finishing, Garment Finishing, Functional Finish, Aesthetic Finish.	J.T. Marsh Pages: 1-26. Tortora & Collier Pages: 361-365 and 368-379.	3		
3-4	3	Types of finishes			3		
3 & 4	3	Types of finishes i) Temporary ii)Semi permanent iii)Permanent Detailed description of various mechanical finishing operations, e.g., 3 bowl, 7 bowl calendaring, decatizing, emerizing, Sanforizing, etc...	Temporary finish, semi- Permanent finish, Permanent Finish, Calendaring, decatizing, sanforizing, emerizing.	J.T. Marsh Pages:3-8 & 74-84. Corbman Pages: 180-187. Tortora pages: 381-407.	3		

5-7	4.5	Resin finishing			4.5		
5,6 & 7	3	Resin finishing - with special mention on resin finish on cellulosic materials. Controlling factors in resin finishing	Resin, Cellulose derivatives, Resin finish, cellulosic, wool, etc... fabric finishing,finishing parameters.	Corbman Pages: 162-179. J.T.Marsh Pages: 135-152 and 325-437. Tortora Pages: 381-407.	4.5		
8-10	4.5	Wool finishing			4.5		
8,9 & 10	4.5	Preparation for finishing of wool. Milling, felting of Woolen fabrics.	Woolen materials, Felting, Milling, Finishing of woolen materials.	Corbman Pages: 277-282. J.T.Marsh Pages: 235-239. Sello & Lewin Pages: 318-428	4.5		
Benchmarked assignment 1 Presentation / Documentations on the Textile and garment finishing methods and presentation on the same. (students may be divided into groups)					10 Marks		

11-13	4.5	Functional finishes			4.5		
11,12 & 13	4.5	Various functional finishes Water repellent, Fire repellent, Soil repellent, Anti static, Bacteriostat, etc.	Water Repellent, Flame Retardant, Soil Repellant, Anti Bacterial Finish, Anti static Finish.	Tortora Pages:381-407. Sello & Lewin Pages:1- 122,142- 284,291-313 & 456-464. Corbman Pages:188-200. J.T.Marsh Pages:458-539.	4.5		
14-16	4.5	Finishing of Garments			4.5		
14,15 & 16	4.5	Finishing of Garments i) Durable press finish ii) Wash -n- wear finish iii) Different types of Finishing parameters and their controlling factors	Durable press, Washable, Wash n Wear, Padding, Curing, Permanent set, Surface property after finish.	Sello & Lewin Pages: 453-456	4.5		
Benchmarked assignment 2 Presentation / Documentation on the changes of properties (mainly qualitative analysis) of the finished fabrics after calendering, decatizing, emerizing, Sanforizing, Resin finish, other functional finishes like, bacteriostat finish, antistatic finish, flame retardant finish, crease resistant finish, etc..., collection of samples and presentation of the same. .(students may be divided into groups)					10 Marks		
17 & 18	Midterm exam				3		

19-22	6	Spotting and Washing			6		
19 & 20	3	Spotting and Washing of garments i) Identification of stains, characteristics & history ii) Selection criteria of spotting chemicals iii) Factors for spotting	Spotting, Different types of Stains, Stain removal techniques, chemicals used for stain removal, Garment washing, Enzyme wash, Bata Wash, Stonewash, Environmental pollution for garment washing, effluent treatment, Eco friendliness, Eco friendly chemicals	Tortora Pages: 451-463 & 468-481. J.T.Marsh Pages: 27-101.	3		
21 & 22	3	iv) Washing machine equipment's and processing conditions v) Finishing of jeans with special emphasis on various types of jeans washing. vi) Environment pollution, eco friendliness in washing & finishing			3		
23-24	3	Pressing			3		
23 & 24	3	Objective of pressing, fabric and garment Characteristics, Pressing equipments. parametric conditions Types of pressing	Garment ironing, pressing, buck pressing, pressing machines, pneumatic controls, electrode boilers, etc...	Stitch World article on Pressing..., Nov., 2005 issue Pages: entire Part-I Glock & Kunz Pages: 426-433 Carr & Latham Pages: 223-241	3		

25-27	4.5	Packaging & Folding			4.5		
25 , 26 & 27	4.5	Criteria for packaging Specifications & standards for packaging & folding Material & equipment used for packaging Considerations for packaging& folding.	Packaging materials, packing standards, folding devices, packaging & folding Systems.	J.Solinger Pages: 366-385	4.5		
Benchmarked assignment 3 Presentation / Documentation on different types of spotting, washing, pressing, packaging & folding techniques, machineries and systems followed in the contemporary garment industry- presentation on that. Identifications of the specific finishes, their evaluations and ultimate effects on the garments. Documentation & presentation on the Quantitative evaluation methods of different functional finishes. .(students may be divided into groups)					10 Marks		
28-30	3	Evaluation of finishes			4.5		
28 , 29 & 30	3	Basic concept of evaluation of different types of finishes like, flame retardancy, crease resistant, etc. through simple test methods. Cost estimation of Finishing processes Basic knowledge on the cost involvement of the various types of finishes.	Crease Resistance test, Flame Repellency test, Evaluation of surface property Changes.	J.E.Booth Pages: 276-335 Textile Progress, Vol.3 No.4. Pages: 90-100. S.K. Bhardwaj & P.V. Mehta Pages: 100-102, 107-116 & 201-207.	4.5		

Benchmarked assignment 4		10 Marks
Presentation / Documentation on the special type of finishes and non conventional finishes applied in the Apparel industry and presentation on the same. Information may be collected from the internet, resource materials, industry experts, etc... .(students may be divided into groups)		
31 & 32	End term exam	3

Suggested references Books:**Finishing**

1. Chemical Processing of fibres and fabrics, Vol-II (functional finishes, Part-B) Edited by Menachem Lewin & Stephen B. Sello, Publisher Marcel Dekker, N.Y.
2. Textiles fibre to fabrics, By B.P.Corbman 6th Edition, Mcgraw Hills Intl. Publications
3. An Introduction to Textile Finishing By J.T. Marsh, second edition, Chapman & Hall Publishers
4. Understanding Textiles By Tortora & Collier, 5th Edition, Prentice Halls Publications
5. Textile progress by P.W.Harrison, The Textile Institute
6. Managing quality in the apparel industry by P.V.Mehta & S.K.Bhardwaj, New age international publishers
7. Principles of Textile Testing by J. E.Booth, CBS Publishers & distributors, New Delhi
8. Stitch World article on Ironing-Pressing-Finishing..., Nov., 2005 issue, entire Part-I of the article
9. NCUTE progress series of IIT, Delhi, September, 2000, By Asolekan & Yogira
10. The technology of clothing manufacture By H. Carr & B. Latham, Om Book Service
11. Apparel manufacturing:Sewn product analysis by R.E. Glock & G.I. Kunz, second edition, 1995, Prentice Hall publications
12. Apparel manufacturing handbook, second edition, By J. Solinger, Bobbin Blenheim Media Corporation Publication

Reference Magazines, Journals and other sources:

8. Fabric source from Resource centre, NIFT
9. Dyed yarn and dyed & printed fabric swatch samples from Resource centre, NIFT
10. Dyed & printed Garment samples from Resource centre, NIFT
11. Dyed and printed samples from Industry
12. Finished fabric swatch samples at Resource centre, NIFT
13. Finished Garment samples at Resource centre, NIFT
14. Industry resources of the finished fabric & garment samples

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
10	10	10	10	NA	20	40	100

Teaching Tools:

1. Visit to fabric and garment finishing units/Factories, Textile Research Association/Textile Committee/Weaver's service centre, etc..., are advised.
2. Assignments are suggested on the Textile and garment finishing methods and the identifications of the specific finishes, their evaluations and ultimate effects on the garments. This could be guided through demonstrative lectures and the visits.
3. The textile testing practical and the observations on the changes observed in the woven fabric sample (finished) swatches and their documentations are advised

Learning outcome:

1. Understanding the fundamentals of the fabric and garment finishing and their uses in the apparel sector.
2. Identify and evaluate the various types of finished fabrics and garments
3. Understanding of the finishing costs for the product development

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	Presentation / Documentations on the Textile and garment finishing methods and presentation on the same.
Evaluation parameter	Based on information gathered, documentation skills and analyzing skills.
Type of assignment	Presentation/ Documentation
Weight age	10 marks

Assignment 2	
Details/ description of assignment	Presentation / Documentation on the changes of properties (mainly qualitative analysis) of the finished fabrics after calendering, decatizing, emerizing, Sanforizing, Resin finish, other functional finishes like, bacteriostat finish, antistatic finish, flame retardant finish, crease resistant finish, etc..., collection of samples and presentation of the same.
Evaluation parameter	Based on information gathered, documentation skills and analyzing skills.
Type of assignment	Presentation/ Documentation
Weight age	10 marks
Assignment 3	
Details/ description of assignment	Presentation / Documentation on different types of spotting, washing, pressing, packaging & folding techniques, machineries and systems followed in the contemporary garment industry- presentation on that. Identifications of the specific finishes, their evaluations and ultimate effects on the garments. Documentation & presentation on the Quantitative evaluation methods of different functional finishes.
Evaluation parameter	Based on information gathered, documentation skills and analyzing skills.
Type of assignment	Presentation/ Documentation
Weight age	10 marks
Assignment 4	
Details/ description of assignment	Presentation / Documentation on the special type of finishes and non conventional finishes applied in the Apparel industry and presentation on the same. Information may be collected from the internet, resource materials, industry experts, etc...
Evaluation parameter	Based on information gathered, documentation skills and analyzing skills.
Type of assignment	Presentation/ Documentation
Weight age	10 marks

Pattern for mid term/ final term CEB examination paper

For CEB subject (theory) suggested format of CEB question paper to be mentioned

Paper Pattern

Objective type answers- like Fill in the blanks, Match, etc – 30%

Short Answers – including definitions, Difference between etc. - 40%

Word Limit- 100- 150 words

Long Answers – Detailed descriptive – 30%

Word Limit - 300-500 words

If any sub parts of the detailed questions- each part to carry distinct marking.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester IV
 (For entire curriculum January to June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT208P	Garment Construction II	Lecture		96	4.0	C	PB
		Practical / Workshop	6				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	6.0				

Perquisite: GC – I, PM - I

Course objective:

1. Introduction to construction techniques for garment components in Tops and Blouses.
2. Introduction to different kinds of fabrics trims and accessories suitable Tops and Blouses.
3. Understanding Quality Parameters and Manufacturing techniques.
4. Assembling of Garment components for Blouses and Dresses.

Course structure:

- **Concept domain-** To understand positional relationship among fabric plies during construction.
- **Knowledge domain-** To understand construction of sleeve plackets, collars and dress.
- **Skill domain-** To be able to operate/control the sewing machine and handle/control the fabric.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1 - 4	12	Sleeve, Sleeve Plackets & Cuffs				12	
1	3	Introduction to varieties for sleeve bottom finishing in shirt manufacturing.		Sewing & Knitting P: 274-277		3	
2 - 3	6	Introduction to different sleeve plackets (continuous, Square/Diamond, Continuous Diamond), their application and construction techniques.		Sewing & Knitting P: 278-279		6	
4	3	Construction of Cuff (Basic/French/roll up) and attachment.		Sewing & Knitting P: 280-284		3	
5	3	Assignment 1 Submission of 3 types of Sleeve Plackets (20 Marks)				3	
6 - 10	15	Collars				15	
6 - 8	9	1 pc, 2 pc stand collar (construction and attachment with 2 different ways but without facing/binding)) Shirt Assembly.		Sewing & Knitting P: 237-240		9	
9 - 10	6	Peter pan collar (construction, attachment with facing and binding)		Sewing & Knitting P: 224-227		6	

11	3	Assignment 2 Submission of 2 pc Collar Shirt assembly & Peter Pan Collar (20 Marks) 2 Pc Collar Shirt assembly – 15 Marks. Peter Pan Collar – 05 Marks.				3	
12 - 16	15	Grown on Collars and Sleeves				15	
12 - 14	9	Shawl and notch collar (construction, attachment with facing and lining)		Sewing & Knitting P: 228-236		9	
15 - 16	6	Kimono, Bat Wing, Raglan and 2 pc sleeves		Sewing & Knitting P: 270-271		6	
17	3	Assignment 3 Ladies Blouse with Shawl/Notch Collar (Using dart less Bodice Block from last semester and Shawl/Notch Collar developed for Assignment 3 Submission of PM-II) (20 Marks)				3	
18 - 32	30	Dress					
19 - 21	6	Neckline and armhole finishing by binding		Sewing & Knitting P: 204-217		6	
22 - 31	30	Halter Neck Dress with Facing, Lining, boning along with Invisible Zipper at Side/Back (Use Pattern Developed in PM-II)		Sewing & Knitting P: 328-335		24	
32	3	End term submission Dress from pattern developed in End Term Submission of PM-II (40 Marks).				3	

Suggested references Books:

1. Sewing for Apparel Industry
2. Sewing & Knitting
3. Apparel Manufacturing Handbook
4. Clothing Technologies for Fiber to Fashion
5. Federal Standard

Claire Shaeffer, Prentice Hall, 2001
 Reader's Digest (Australia) Pty Ltd, 1993 Edition.
 Jacob Solinger
 Europa Lehrmittel
 FED-STD-751A, 1983

Reference Magazines, Journals and other sources:

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Teaching Tools:

1. Lecture
2. Directive and demonstrations
3. Garment making sessions
4. Audio visuals, forecasting services and samples from the industry
5. Learning diary and sample file

Learning outcome:

1. Complete picture of the fabrics and garments
2. Ability to construct and finish a Ladies Blouse and Dress
3. Use of good construction techniques and quality finishes
4. Quality awareness in the whole process of selection of fabric, cutting, assembling and finishing.
5. Use of Attachments and Folders

Pattern for mid term/ final term CEB examination paper

End Term Submission Evaluation is Jury Based and Jury for PM-II and GC-II should be held together

Jury Guideline for evaluation of End Term Submission

Complexity of construction method used	Appropriateness of the use of seam type and stitch type	Quality (neatness, accuracy) of stitching, seams etc.
10	10	20

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester IV
 (For entire curriculum January to June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT210P	Pattern Making II	Lecture		96	4.0	C	PB
		Practical / Workshop	6				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	6.0				

Course objective:

- To enable students to understand the fit control points in sleeves, collar and dresses
- To understand scientific way of manipulating patterns to achieve the desired style line

Course structure:

- **Concept domain-** to understand patterns of sleeves, collars and dresses
- **Knowledge domain-** to understand points of control in each pattern for achieving desired fit
- **Skill domain-** to enable students to generate well fitting patterns and manipulate them to achieve desired style line

1	3	Balance points in sleeve and its significance in fit and fall of sleeve Pattern Development of Different Sleeve plackets and their influence on Sleeve Hem Measurement			3	
1	3	Concept of set in sleeve and grown-on sleeve			3	
		Set-in sleeve variations - cap / puff / flare / bishop			3	
1	3	Adoption of sleeve to a lowered armhole and dropped armhole			3	
1	3	Introduction to grown on sleeve variations like kimono dolmans/ batwing raglan			3	
1	3	1 pc and 2 pc kimono with balanced side seam / raglan style kimono sleeve			3	
					3	
1	3	Assignment 1 Submission of Raglan Variation (Use Practice Problems in Armstrong, P-375) with Test Fit & Submission of Basic Sleeve Block with Test Fit Marks 20				
1	3	2- Various Kinds Of Cuffs				
1	3	Basic / French /roll up cuff Concept of grain line and button hole extensions	Armstrong,H.J. "Pattern making for Fashion Design", chapter 14, 16		3	
8	24	3- Collars				
1	3	Basic terminology of collars Collar variations - flat /stand /roll / grown on / notch collars	• Armstrong,H.J. "Pattern making for Fashion design",eition 4chapter 10 (page 198- 219)		3	
					3	
1	3	Patterns for peter pan / sailor / stand /shirt collars - 2pc/ 1pc/convertible / frilled			3	

1	3	Assignment 2 Submission of Collar Variation (Use Practice Problems in Armstrong) with Test Fit Marks 20			3	
1	3	Concept of grown on collars (With Facing, Lining) - rever / shawl collar - narrow and wide variations	<ul style="list-style-type: none">• Aldrich,W. Metric pattern cutting for Women’s wear. 5th edition chapter 5(page 69-78)• Dress fitting by Natalie bray chapter 4• Designing apparl through flat pattern –Kopp Rolfo& Gross-5th edition sketch collars 9,10,11 &13• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 6 page 102to 130		3	
2	6	<ul style="list-style-type: none">• Notched collar -normal and wide variations Balancing of patterns and notches and its importance Various parameters controlling fit and fall of collar			3	
2	6	Assignment 3 Development of Notch/Shawl Collar from Magazines (Use Dart less Bodice block from last semester) Note: Pattern should be complete in all respect like development of facing, Lining etc Marks 20			6	
8	24	4- Dress & Variations				
1	1.5	Introduction to fish dart and its difference from the open ended darts	<ul style="list-style-type: none">• Armstrong,H.J. “Pattern making for Fashion design”,edition 4 chapter 18 (page 415- 468)• Aldrich,W. Metric pattern cutting for Women’s wear.5th edition chapter 8(page 109-130)• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 4 page 59 to 64		1.5	
	1.5	Concept of torso slopers and its generation using the concepts of skirt and bodice blocks			1.5	
1	3	Discussion on fits of dresses - shift /sheath / box /tent /contoured			3	
2	6	Variation of dresses a line /princess / panel /low waist/ tent Darts in tucks / gathers			6	

3	9	Principle of contouring	<ul style="list-style-type: none">• Pattern making for fashion design -4th edition Helen Joseph-Armstrong chapter -9(page 177- 196)• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 4 page 65to 71			
1	3	Application of principle of contouring - halter neck/ strap dresses/ strapless dresses/ empire lines Importance of balancing of patterns and notches and its importance. Importance and relevance of various parameters controlling the fit and fall of dresses. Importance of Neckline and Armhole finishing.			3	
2	6	5- Kids Wear				
1	3	Sizing in kids wear	Armstrong,H.J. "Pattern making for Fashion Design",Edition 4 chapter 30, 31		3	
1	3	Basic difference in pattern making for kids and that of adults- concept of longer center front / smaller or no darts etc.			3	
4	12	End Term Submission Any Dress based on contouring principle (Selection of design to be done from magazines and approved by the concerned faculty). Note: Pattern should be complete in all respect like development of facing, Lining etc Marks 40				
32	96					

Further References:

Book Name	Author	Publisher
Pattern Making for Fashion Design	Helen Joseph Armstrong	Harper Collins, LA
Metric Pattern Cutting	Winifred Aldrich	Blackwell Science Ltd., London
Metric Pattern Cutting for Menswear	Winifred Aldrich	BSP Professional Book, Oxford
How to Draft Basic Patterns	Kopp, Ralfo, Zelin & LGross	Fairchild Publication, NY
Pattern Cutting and Making up- The Professional Approach	Martin Shoben & Janet Ward	Butterworth Heinmann, Oxford
Modern Sizing for Women's and Children's Garments	P.Kunick	Philip Kunick Publication, London
Designing Pattern- A Fresh Approach to Pattern Cutting	Hillary Campbell	Stanley Thornes (Publisher) Ltd.
Dress Fitting	Natalie Bray	Blackwell Science Ltd., London
Dress Pattern Designing	Natalie Bray	Blackwell Science Ltd , London
More Dress Pattern Designing	Natalie Bray	Blackwell Science Ltd., London

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	-	40	100

Assignment 1: Submission of Raglan Variation (Use Practice Problems in Armstrong,) with Test Fit & Submission of Basic Sleeve Block with Test Fit Marks 20

- Pattern of basic sleeve block - 2.5 Marks
- Test fit of Back sleeve block – 2.5 Marks
- Pattern of raglan sleeve - 5 Marks
- Test fit of raglan sleeve - 5 Marks
- Balancing & truing of blocks -2.5 Marks
- Information on pattern notches and awls etc - 2.5 Marks

Assignment 2: Submission of Collar Variation (Use Practice Problems in Armstrong) with Test Fit
Marks 20

- Pattern of peter-pan collar - 5 Marks
- Pattern of stand collar -5 Marks
- Pattern of Shirt collar - 5 Marks
- Balancing & Truing of blocks -2.5 Marks
- Information on pattern notches and awls etc - 2.5 Marks

Assignment 3: Development of Notch/Shawl Collar from Magazines (Use Dart less Bodice block from last semester) Note: Pattern should be complete in all respect like development of facing, Lining etc
Marks 20

- Pattern of Notch/ Shawlcollar -10 Marks
- Pattern of facing/ lining - 5 Marks
- Balancing & truing of blocks -2.5 Marks
- Information on pattern notches and awls etc - 2.5 Marks

End Term Submission: Any Dress based on contouring principle (Selection of design to be done from magazines and approved by the concerned faculty).

Note: Pattern should be complete in all respect like development of facing, Lining etc **Marks 40**

- Difficulty level of visual selected& overall understanding of the assignment undertaken – 5 marks
- Pattern developed for front & back -10 marks
- Pattern of lining/ facing/any other garment component (sleeve/collar etc.) –10 marks
- Information on pattern, notches and awls etc - 5 Marks
- Test fit in muslin or comparable fabrics – 10 marks

Teaching Tools: Demonstration

Learning outcome:

1. Students will be able to appreciate the critical areas and shapes in sleeves collars and dresses impacting the fit of the garment.
2. The student will be able to develop various kinds of grown on and set in sleeves and collars
3. The students will be able to develop various style lines of the loose fitting, semi fitting, fitted and contoured fitting dresses

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester IV
 (For entire curriculum January to June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT212P	Sewn Products Machinery & Equipments – II	Lecture	1.5	72	3.5	C	PB
		Practical / Workshop	3				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	4.5				

Perquisite: Sewn Product Machineries and Equipments I

Course objective:

- Develop skill to operate and understand the working principles to carry out basic adjustments of different cycle sewing machine and their applications.
- Understanding of working principles of spreading and cutting equipments, their classifications, adv/disadvantages and applications.
- Understanding of working principles of fusing equipments, their classifications, adv/disadvantages and applications.
- Understanding of working principles of different finishing room equipments, their classifications, adv/disadvantages and applications

Course structure:

- **Concept domain -**
 - To understand the working principles of Cycle Sewing Machine, Spreading machine, Cutting machine, Fusing Machine, Computerized Embroidery Machine and finishing machines.
 - To understand the advantages and disadvantages of using different types of machines and equipments in garment manufacturing.

- **Knowledge domain** - To equip the students with the thorough understanding of the machineries and equipments used in cutting room, sewing room and finishing room.
- **Skill domain** - To develop the hands on skill in developing samples in Cycle sewing machines.
The students should be able to develop the required list of machineries in cutting, sewing and finishing room based on the type of garment and order quantity.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	Detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs
1 – 4	12	Cycle Sewing Machine			3	9
		Working Principle of Cycle sewing machine. Basic Adjustments to achieve the required stitch pattern with quality	Button Sewing m/c, Button Feeder, Button hole, Transport rails, Button magazine's Clamp Feed, Bar Tack, Short Cycle m/c, Label Sewing m/c, Cam control,	Carr & Latham's – Technology of Clothing Manufacture pg: 161 -169 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 546 -559 Solinger – Apparel Manufacturing Handbook pg: 251 - 253 Machine Manuals	3	9

5 – 8	12	Assignment 1	Details given below		12
Assignment # 1 <ul style="list-style-type: none">• Develop Samples changing Button hole size and with different stitch density• Develop Samples of two holes / four holes button and with different stitch density• Develop Samples in Bar Tack machine of different sizes and different stitch density• Developing Samples from Eyelet Machine. Submission to be done in a folder Along with the sample filled up “Machine Formats” are to be enclosed. ** “Machine Format enclosed” Marks 20					
9 -10	6	Spreading Machine, Equipments and Tools			3
		Working principle of Automatic Spreading Machine and Spreading Machine Auxiliaries	Process flow cutting room, Table width, Pin Table, Vacuum table, Air floatation table, ConveyORIZED table, Fabric Control device, End treatment device, Spreading m/c speed, Bolt drive, Drum Drive, Cradle feed,	Carr & Latham’s – Technology of Clothing Manufacture pg: 25 -27 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 405 -410 Solinger – Apparel Manufacturing Handbook pg:121-128	3
11 -12	6	Cutting Equipments			3
		Working principle of different types of Cutting Equipments & Tools and its application and advantages and disadvantages.	Straight Knife, Round Knife, Die Cutters, Servo Cutters, Notchers, Edge markers, Automated cutting systems, Blade cutting, Laser cutting,	Carr & Latham’s – Technology of Clothing Manufacture pg: 30- 43 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 410-424	3

			Water Jet cutting, Plasma Jet cutting, offloading	Solinger – Apparel Manufacturing Handbook pg:131 -143 Ref: material by Prof Prabir Jana CAM article		
		Assignment 2	Details given Below			
Assignment 2 Work out the Spreading and the Cutting equipments and other auxiliaries to be used to achieve the highest standards with reasons. Also suggest the Cut Order Planning. (The details of the fabric type, type of garments to cut and the quantity should be specified by the subject teacher) The assignment to be done in groups of 2 -3 students. Each group should work on minimum 5 different types of fabrics and garments. The details should be submitted in a hardcopy / softcopy format. Marks 20						
13 – 16	12	Fusing Technology & Equipments			3	9
		Classification & Application of Fusible Interlinings – Woven, Non Woven and Knitted Interlings Different types of Resin and Technology of applying Resin to the substrate	Base Cloth (substrates), Resin, Coating System, Fusing Temperature, Glue line Temperature, Microdot, Paste coating, Dry Dot printing, Scatter coating, Temperature, Time, Pressure, Cooling, Dielectric properties,	Fusing Technology By G Coolin Carr & Latham’s – Technology of Clothing Manufacture pg: 194 – 222 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 515 -523	1.5	1.5

		Different types of Machines and equipments used and quality parameters associated with Fusing Technology	Working method of fusing machine, Continuous Fusing m/c, Flat Bed Fusing m/c, Carousel press, Quality Control.	Fusing Technology By G Coolin Carr & Latham's – Technology of Clothing Manufacture pg: 194 – 222 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 515 -523	1.5	1.5
		Students should set the machine and practically fuse the Collar and Cuff in different blends of fabric.	100% Cotton fabric – plain, stripes, checks, Poly/ cotton blends, silk, satin etc			6
17	Assignment 3	Written Test	Marks 20		3	
18 – 19	6	Pressing and Finishing Quality parameters			3	3
		Elements of Pressing, Purpose of Pressing and Types of Pressing and Finishing Equipments and its quality parameters	Under Pressing, Off Pressing, Moulding, Elements of Pressing, Shrinkage, Hand irons, Buck Presser, Foam Finishers, Tunnel finishers, Steam dolly Pressing Cycles, Carousel press, Trouser pressing, Shirt pressing, Sgirt Finishing machines,	Carr & Latham's – Technology of Clothing Manufacture pg: 223 - 241 Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg: 498 -506 Solinger – Apparel Manufacturing Handbook pg:309 -345	1.5	3
		Latest developments in Pressing and Finishing Technology		Latest Manuals	1.5	

20	3	Computerized Embroidery Machines				3
		Working principles of Manual and Computerized Embroidery Machine. Materials used for Embroidery and different types of Embroidery stitches Costing and Quality Factors affecting Embroidery	Computerized Digitizing, Schiffli, Smocking, Single head, Multi head, computer disk, Punched card, framing, hopping, backings, embroidery stitches, Quality Factors, Cost	Glock & Kunz – Apparel Manufacturing Sewn Product Analysis pg:578-591 Machine manual		3
21	3	Machine Catalogues				3
		Reading and Understanding Machine Catalogue		Machine Manuals	1.5	3
22-23	3	Machine Motors			1.5	1.5
		Study the different Types of Motors used in Sewing Machine and their working principle.	Clutch Motors, Continuous Running motors, Step Motors, Variable speed control, pulley, rpm, Horse Power, Electric Phase, Voltage, Belt, and Diameter of pulley.	Solinger – Apparel Manufacturing Handbook pg: 271,272 Machine Manuals	1.5	1.5

24	3	Special Lecture on Latest Development of Cutting equipments, sewing equipments and finishing equipments.			1.5	1.5
Final Jury/ End Term Evaluation Presentation on any one of the following topic by a group of 3-4 students <ul style="list-style-type: none"> • Spreading Technology in Garment Manufacturing • Cutting Technology in Garment Manufacturing • Fusing Technology in Garment Manufacturing • Pressing and Finishing Technology in Garment Manufacturing The Presentation will be followed by Viva Voce Marks 40						

Reference Magazines, Journals and other sources:

- Apparel (erstwhile Bobbin)
- Apparel Industry Magazine
- World Clothing Manufacturer
- Fashion Technics Today
- www.just-style.com
- www.techexchange.com

Evaluation Matrix:

Assignment 1	Assignment 2	Assignment 3 :Written Test	Assignment 4	End Term Jury	Total
20	20	20	NA	40	100

Teaching Tools:

- Lectures
- Class room exercises
- Demonstrations
- Industry visit

Learning outcome:

- Students will learn the working principles of all the machines and equipments used in Cutting room, Sewing room and Finishing room
- Students will have hands on experience with the cycle sewing machines
- Students will be able to read and interpret machine catalogues.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester IV
 (For entire curriculum **January to June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT214P	Web Technologies	Lecture	1.5	48	2.5	C	PB
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite: Basic Understanding of Internet, RDBMS, SQL

Course objective:

- To develop an understanding of World Wide Web
- To design static Web pages using Hyper Text Markup Language
- Stylize the pages using Cascaded Style Sheets
- To add interactivity to Web Pages through client side and server side scripts. (JavaScript and Active Server Pages)

Course structure:

▪ **Concept domain**

- Understand the concept of WWW and Internet
- Understand text, graphics, audio, video, and animation as media components of websites
- Understand client side and server side scripting for websites

▪ **Knowledge domain**

- Learn HTML and CSS to create static websites
- Learn Java Script as client side scripting language to add functionality on web client's end
- Learn Active Server pages to add functionality on server side of the website

▪ **Skill domain**

- Develop skills to create fully functional website using HTML, CSS, JavaScript and Active Server Pages. Develop skills to use Adobe Dreamweaver as visual tool to create websites.

Reference

1. **R1** - Teach yourself HTML 4 in 24 hours second edition by TechmediaAuthors : Dick Oliver, Molly Holzschlag
2. **R2** – Beginning CSS cascading style sheets for web pages by Richard York Wrox
3. **R3** - Mastering Javascript and Jscript by James Jaworski bpb publication
4. **R4** - Teach yourself Active Server Pages 3.0 in 21 days by Sams Techmedia

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	1.5	<ul style="list-style-type: none"> ▪ World wide web ▪ Clients and servers ▪ Web browsers ▪ Components of WebPages ▪ Analyzing websites ▪ Design <ul style="list-style-type: none"> ○ Visual layout ○ Consistency structures ○ Color scheme ○ Visual hierarchy elements ○ Content 	WWW Web Browser and Server Text, audio, video, graphics and animation file formats supported on web.	Beautiful web design, Chapter – 1. Reference provided	45 Mins	45 Mins	-

2	1.5	<p>Introduction to HTML</p> <p>Creating a webpage and basic formatting</p> <p>Creating hyper links, working with text</p> <p>(Introduce the assignments)</p>	<p>Html, head, title, body,p, br, headers, B, I, U, align, div, small, big, super, sub, strike, pre, Font, color, size, face A , href, relative and absolute linking, intra-page links</p>	<p>R1 (15-23)</p> <p>R1(27-34)</p> <p>R1(53-62)</p> <p>R1(66-70)</p> <p>R1(89-90)</p>	45 Mins	45 Mins	-
3	1.5	<p>Lists, webpage graphics</p> <p>Background, text and link colors, background graphics</p>	<p>Ul ,ol, dl, type, start, Img, src , alt, align, vspace, hspace, Bgcolor, text , link, vlink, alink, background</p>	<p>R1(77-85)</p> <p>R1(101-112)</p> <p>R1(155-160)</p>	45 Mins	45 Mins	
4	1.5	Working with Tables	<p>Table, tr, td, cellpadding, cellspacing, colspan, rowspan, Width, align, th, caption, thead, tfoot, tbody, colgroup</p>	R1(193-211)	45 Mins	45 Mins	

5	1.5	Working with Forms	Form, method, action, input, type(text, password, radio, checkbox, submit, reset, button) select, textarea, hidden	R1(247-265)	45 Mins	45 Mins	
6	1.5	Working with Frames	Frameset, rows, cols, frame, name, scrolling, target, margin, frameborder, iframe, noresize,	R1(230-244)	45 Mins	45 Mins	
7	1.5	Introduction to Dream Weaver. Setting up IIS Web server and hosting the site	Orientation to Dreamweaver for all the content covered above Demonstrate an example site creation in Dreamweaver.		45 Mins	45 Mins	
8	1.5	Introduction to CSS. Understanding CSS rules grouping, class selector, comments	class id tag compound rules	R2(43-48)	45 Mins	45 Mins	
9	1.5	External, embedded and inline style sheet	link, rel, href, style, comment css code, inline styles	R2(49-54)	45 Mins	45 Mins	

10	1.5	CSS properties	Type background block box border list positioning	R2(175-200) R2(203-234) R2(248-259) R2(288-291) R2(343-351)	45 Mins	45 Mins	
Benchmarked assignment 1 Submit the static website created with HTML and stylization of the pages using CSS. The website may be created using HTML code generated through DreamWeaver or writing the code on your own. The site is submitted along with the site documentation describing the site through concept note and sitemap. Marks – 20							
11	1.5	Introduction to JavaScript as client site scripting language. Syntax of JavaScript	JavaScript and browser, server, script, noscript, src, comments, variables, literals, type conversion,	R3(28-69)	45 Mins	45 Mins	
12	1.5	Expressions and Operators	Arithmetic operators, logical operators, relational operators, assignment operator, ternary operator comma, delete, new and typeof operator	R3(81-93)	45 Mins	45 Mins	
13	1.5	Decision Making	If-else, switch	R3(94-99)	45 Mins	45 Mins	

14	1.5	Looping	While, do-while, for, label, break, continue,	R3(108-110) R3(100-107)	45 Mins	45 Mins	
15	1.5	Functions, arguments, invoking functions	Function call, definition, parameters, local variables, global variables, return	R3(110-118)	45 Mins	45 Mins	
16	1.5	Functions and Events, Writing event handler	Onload, onunload, onclick, onmouseover, onmouseout	R3(130-150)	45 Mins	45 Mins	
17	1.5	Math Object String object	abs, ceil, floor, log, max, min, pow, random, round, sqrt charAt, charCodeAt, indexOf, lastIndexOf, toLowerCase, toUpperCase	R3(224-226) R3(228-230)	45 Mins	45 Mins	
18	1.5	Processing forms	Button, text, password, textarea, select (length, name, options, selectedIndex) Radio button, checkbox Checked, value	R3(292-303) R3(292-303)	45 Mins	45 Mins	

19	1.5	JavaScript window object	Alert, prompt, confirm, setInterval, setTimeout, clearInterval, clearTimeout, focus, open, close	R3(248-262)	45 Mins	45 Mins	
Benchmarked assignment 2 Implement the client side scripting in the website created after assignment - 1 Marks – 20							
20	1.5	Introduction to ASP as server side scripting language.	Response.write Set-up personal web server (IIS) <% %> <%= Comments	R4(5-26) R4(40-43,48-50)	45 Mins	45 Mins	
21	1.5	VB Script Syntax (Variable, operators and expressions)	Variable declaration, naming convention and usage Assignment, arithmetic, relational, logical operators	R4(59-65) R4(73-85)	45 Mins	45 Mins	
22	1.5	VB Script Syntax (Decision making)	If-then-else Select -case	R4(90-102)	45 Mins	45 Mins	

23	1.5	VB Script Syntax (looping)	Do-loop Do-while-loop While-wend For-next	R4(102-107)	45 Mins	45 Mins	
24	1.5	Introduction to built-in asp objects	Introduction – response Request Application Session server	R4(162-164)	45 Mins	45 Mins	
25	1.5	The Response Object Writing to the browser from server. Redirect the page.	Response.write Buffer, clear Flush End Redirect	R4(178-192)	45 Mins	45 Mins	
26	1.5	The Request Object: collecting the from data from client. QueryString collection and form collection	Get, post, action, request.form, request.querystring	R4(216-234)	45 Mins	45 Mins	

27	1.5	ASP and Database Connectivity Set-up a backend (Access or SQL server or Oracle) Open the connection from webpage to the backend Retrieve data, Display retrieved data on webpage	Introduction to ADO Setup the database Server.createobject Adodb.connection Connection string Open Close Adodb.recordset Adovbs.inc Movenext Moveprevious Bof, eof	R4(493-498) R4(507-510) R4(510-528)	45 Mins	45 Mins	
28	1.5	Insert data from webpage to the backend Modify data from webpage to the backend, delete data	Addnew Update Cancelupdate delete	R4(534-542) R4(542-554)	45 Mins	45 Mins	
Benchmarked assignment 3 Create the backend and complete the website created at the end of assignment 2 with server side scripting. Marks – 20							

Suggested references Books:

1. HTML in 24 Hours Publishers techmedia
2. Mastering JavaScript -- B P B Publications
3. ASP In 21 Days -- Publishers techmedia
4. ASP unleashed Publishers techmedia

Reference Magazines, Journals and other sources:

1. <http://www.w3schools.com> (Web Tutorials, Try yourself interface)
2. <http://www.w3.org/> (world wide web consortium for latest web updates)
3. <http://www.htmlgoodies.com/>
4. <http://www.asp.net/> (Official Microsoft website for asp)
5. <http://www.adobe.com/products/dreamweaver/> (Official Adobe site for Dreamweaver)

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Teaching Tools:

Live demonstration of theoretical concepts in IT lab using multimedia projector, followed by practical sessions. All the computers should have 2-3 different Internet browsers installed and Adobe CS- 4 DreamWeaver installed.

Learning outcome:

Students understand WWW and web technology by creating the fully functional website.

Benchmarked assignment Description (if required to be documented separately)

1. All the three assignments are progressive.
2. Assignments are introduced in the beginning of the subject. Students prepare the concept note for the website to be developed along with the site map. Students submit the concept note in written, in the fourth session. The three submissions due sessions are mentioned in the session plan.
3. The final website in the end will be refined by the students as per the faculty's feedback and presented to the jury for end-term evaluation.

Assignment 1	
Details/ description of assignment	Submit the static website created with HTML and stylization of the pages using CSS. The website may be created using HTML code generated through DreamWeaver or writing the code on your own. The site is submitted along with the site documentation describing the site through concept note and sitemap. The feedback will be given along with marks to the students by faculty. The assignment is an individual assignment.
Evaluation parameter	The website with at least 6 web pages all linked, stylized and look like professional website.
Type of assignment	Soft copy with document
Weight age	20
Assignment 2	
Details/ description of assignment	Implement the client side scripting in the website created after assignment – 1 and implement the feedback given after first assignment.
Evaluation parameter	The website should have atleast three different JavaScript applications fully functional, one of which should be the form validation.
Type of assignment	Soft copy
Weight age	20
Assignment 3	
Details/ description of assignment	Create the backend and complete the website created at the end of assignment 2 with server side scripting.
Evaluation parameter	The functional Backend created in MS Access following RDBMS principles and site connectivity with the backend for inserting data and retrieving data from database and webpage.
Type of assignment	Soft copy
Weight age	20

The background features a large, light gray watermark of the NIFT logo. It consists of a red circle at the top, a gray triangle pointing downwards in the center, and a stylized, flowing line that forms a large 'N' shape around the triangle.

SEMESTER V

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July – December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-V

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT301T	C	TH	Production & Operation Management	3	1.5	-	-	4.5	72	4
BFT303T	C	TH	Work Study for Apparel Manufacturing	1.5	3	-	-	4.5	72	3.5
BFT305T	C	TH	Apparel Quality Management	3	1.5	-	-	4.5	72	4
BFT307T	NC	TH	Fashion Merchandising	3	-	-	-	3	48	3
BFT309P	C	PB	Pattern Making - III	-	6	-	-	6	96	4
BFT311P	C	PB	Garment Construction - III	-	6	-	-	6	96	4
-	NC	DE	Department Elective	1	1.5	-	-	2.5	40	2
			Total	11.5	19.5	-	-	31	496	24.5

Total Hours for Semester	496
Total Credits for Semester	24.5
Internship total -Hrs /Duration /credit	-

Department Electives:

BFT313DE	NC	DE	E Commerce	1	1.5	-	-	2.5	40	2
BFT315DE	NC	DE	Advance Presentation Technique	1	1.5	-	-	2.5	40	2

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July - December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-V

Evaluation Matrix

Semester Three	Subject Code	Subject type	Core / Non Core	Subject	Evaluation Matrix								
					Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Benchmark Assignment-6	Mid – Term Exam /Jury	End – Term Exam/ Jury	Total
	BFT301T	TH	C	Production & Operation Management	20	20	NA	NA	NA	NA	20	40	100
	BFT303T	TH	C	Work Study for Apparel Manufacturing	20	20	NA	NA	NA	NA	20	40	100
	BFT305T	TH	C	Apparel Quality Management	20	20	NA	NA	NA	NA	20	40	100
	BFT307T	TH	NC	Fashion Merchandising	20	20	NA	NA	NA	NA	20	40	100
	BFT309P	PB	C	Pattern Making - III	20	20	20	NA	NA	NA	NA	40	100
	BFT311P	PB	C	Garment Construction - III	20	20	20	NA	NA	NA	NA	40	100
	BFT313DE	DE	NC	e-Commerce	25	25	30	NA	NA	NA	NA	20	100
	BFT315DE	DE	NC	Advance Presentation Technique	25	25	30	NA	NA	NA	NA	20	100

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester V
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT301T	Production and Operations Management	Lecture	3	72	4.0	C CBE	TH
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	4.5				

Pre-requisites: None

Objectives:

To orient the student with

- Different Production Systems
- Methods of optimizing resources for production
- learn to use tools required for scientific decision making
- Application of quantitative techniques and decision making tool for forecasting for production developing product mix and solution of linear programming problem
- The process of project management and various constraints while planning for a project

Course Structure:

- **Concept domain-** Application of Quantitative Techniques in Apparel Production Industry
- **Knowledge domain-** Production And Operations Management
- **Skill domain** - Application of Quantitative Techniques for real time situation in the production environment.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1, 2, 3	4.5	<p><u>Introduction to P/O M for Manufacturing industries</u></p> <p>P/O M in Corporate Profitability and Competitiveness. 5 P's – Product, Plant, Processes, Program & The People Difference between Manufacturing & Service industry Classics V/s. Modern P/O M Concepts Product life cycle Vs systems life cycle Evolution of P & O management</p>	<p>Conversion process, Factors of Production Cost components of production Systems view of operations management Feed back, Production capacity, External/internal environment Lead time, Inventory, Monitoring, Services, Capacity gap, Sequence.</p>	<p>Pg. 2 – 30 & 38 - 64 Adam & Ebert</p> <p>Pg. 3 -16 & 18 - 47 S.Buffa</p>	3	1.5	-

4, 5	3	<u>Nature of Manufacturing</u> Categorization of production systems Different types of Production Systems	Custom Order Manufacturing Production for Stock Continuous Manufacturing Project form Intermittent form Continuous form Process form Flexibility WIP Flexible manufacturing	Pg.118 – 155 Adam & Ebert and Notes by Prof. Prabir Jana	3	-	-
6, 7, 8, 9	6	<u>Linear Programming (LP) in P/O Management</u> LP Problem formulation, Graphical Solution & its Economic Interpretation	Constraint/variable Limitations feasible solution Basic feasible solution Objective function Optimal solution Iso-profit line method Extreme point evaluation method Types of feasible regions Maximization/Minimization	Chapter 3 & 5 Pg. 3 – 53 & 67 – 81 S.D.Sharma Pg. No. 9 – 62 & 71–126 & 127 – 153 Panneerselvam	4.5	1.5	

			functions Basic Variable Minimum ratio Entering vector Leaving vector Optimality check Net evaluations Condition for optimality Job Shop Scheduling				
10, 11, 12, 13, 14, 15	9	<u>Simplex Method</u> of LPP and its Economic Interpretation (both for minimization and maximization problems) (simple Numericals only)	Johnson's algorithm SPT		6	3	
16, 17, 18, 19	6	<u>Transportation</u> Models, Basic feasible solution Optimal Solution with MODI Method	SWPT EDD		4.5	1.5	
20, 21, 22, 23	6	<u>Assignment Models</u> and Traveling Salesman Problem Use of assignment in scheduling/loading			4.5	1.5	
24, 25, 26, 27	6	<u>Job Sequencing / Scheduling</u> Terminology n jobs-2 machine 2 jobs – m Machines – graphical method n jobs – m machines			4.5	1.5	

28, 29, 30	4.5	Assignment – 1 (application of LPP) choosing the product mix for profitability and other business goals related to garment industry. (Faculty to choose appropriate assignment)	20 Marks		4.5	
MID Term Exam – 20 Marks						
31, 32, 33, 34	6	<u>Forecasting for Production</u> Forecasting is the process of estimating the future sales volume, the rate of sales, and the rate of delivery. Application of Time Series	Judgmental approach Delphi technique Econometric forecasting methods Market surveys Regression Time Series – Moving Averages, Weighted Moving averages, Trend Adjustments & Projections.	Pg.No. 76 – 117 Adam & Ebert Pg No. 53 – 88 E.S. Buffa	4.5	1.5
35, 36, 37, 38	6	<u>Project Management</u> Project planning Project scheduling models Use of PERT/ CPM in project planning Behaviors in project management	Activity Event Network EST, LST, EFT, LFT Critical path Variance Crashing Normal cost Crash cast	Pg No. 355 – 408 Panneerselvam Pg.Nos 332 – 360 Adam & Ebert	4.5	1.5
39, 40, 41, 42	6	<u>Inventory Management</u>	ABC Analysis	Pg. No.	4.5	1.5

		Inventory Costs Selective Inventory Control techniques Basic inventory models (P-system, Q-System) Material Requirements Planning (MRP) Material Resources Planning (MRP – II) Economic Order Quantity (EOQ) – (Numericals) Reordering Advantages and imitations of Inventory Management	VED analysis FSN analysis Buffer stocks Safety stocks Lead time Carrying cost Ordering cost ROP Dead stock Backlogging Annual usage value.	230 – 274 Panneerselvam Chap. 20 62 – 140 S.D.Sharma			
43, 44	3	Assignment – 2 Project Faculty May choose appropriate assignment related to Garment Industry from the Session topics 18 – 27	20 Marks			3	
45, 46, 47, 48	6	<u>Maintenance of Facilities and Equipment</u> Uses of maintenance and its effect on total cost Types of maintenance – Breakdown, preventive, Scheduled etc. Replacement theory – Replacement for the Machines depreciating with time, Replacement for the machines which fail completely (Understanding of concepts only)	Breakdowns Corrective maintenance Downtime History cards Maintenance program Overhaul Tero-technology (economic life cycle costs)	Pg.No. 471 – 493 Panneerselvam Pg.No 176 – 214 Chapter 22 S.D.Sharma Pg.No 378 – 388 E.S.Buffa	4.5	1.5	
END Term Exam – 40 Marks 25% weightage from sessions <u>Before MID</u> Term 75% weightage from sessions <u>Post MID</u> Term							

References:

1. Everett E. Adam, Jr. Ronald J. Ebert – 5th edition
 - Production and operations management, Prentice-hall of India pvt. Ltd.
2. Elwood S. Buffa & Rakesh K. Sarin – 8th edition
 - Modern production/operations management, John Wiley & Sons
3. S.D Sharma – Operations Research – 15th edition
 - Kedar Nath Ram Nath & Co
4. N.V.S Raju – Operations Research
 - Hi-tech publishers
5. R. Panneerselvam – Operations Research – PHI – 2nd edition

Suggested references Books:

Faculty may decide as per the availability of books/Project documents on specific topics,

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	NA	NA	NA	20	40	100

Benchmarked assignment Description (if required to be documented separately)

Assignment 1:	
Details/ description of assignment	Application of LPP choosing the product mix for profitability and other business goals related to garment industry. Faculty to choose appropriate assignment
Evaluation parameter	Faculty to appropriately decide
Type of assignment	Written submission/presentation
Weight age	20 Marks
Assignment 2:	
Details/ description of assignment	Project Faculty May choose appropriate assignment related to Garment Industry from the Session topics Forecasting for Production, Project Management and / or Inventory Management.
Evaluation parameter	Faculty to appropriately decide
Type of assignment	Written submission/Presentation
Weight age	20 Marks

Pattern for mid term/ final term CEB examination paper:

MID Term	End Term
Equal weightage to be given from all the topics covered	25 % weightage from Pre-Mid Term portion and 75 % weightage from Post Mid term.
33 % choice should be given in the question paper. 20 % objective choice questions, 40 % short answer questions & 40 % long answer questions. Questions can be theoretical or numerical in nature. All topics should be covered.	

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester V
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT303T	Work Study for Apparel manufacturing	Lecture	1.5	72	3.5	C	TH
		Practical / Workshop	3				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	4.5				

Perquisite: None

Course objective:

- To orient the students towards the concepts of industrial engineering and its importance in garment industry
- To orient the students towards analyzing of operation and optimizing it and by this method improving overall efficiency.
- To prepare the students for to generation of the standard data for production and other related activities
- To sensitize the students towards the working condition in the industry and ergonomic concepts.

Course structure:

- **Concept domain-** Better understanding of the concepts of method study, improvement in working method, estimation of time required to complete the job. Understanding of different techniques of work measurement and advantages and disadvantages of one over the others.
- **Knowledge domain-** Understanding of work content in a job and identification of wastages in various forms like poor design, inappropriate methods, management issues, etc.
- **Skill domain-** They will get the skill of method improvements, measurement of work content, generation of various types of formats and charts, techniques of using the stop watch for the development of time study data (SAM).

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	1.5	Introduction to Industrial Engineering Development of Industrial Engineering Importance of IE in RMG Industry	Productivity, management output & input Factors & Resources., Ineffective time reduction	Page 3-8 (Ch 1) Page 9-15 (Ch 2) glock n kunz Ch 1 (page 324- 325)	1.5		
2	1.5	Garment Terminology- understanding it's various variation like capacity, productivity etc.	Productivity, Productivity in individual enterprise, Labour wages, SMV/Sam, allowance, Efficiency, Capacity Study, Lost Time, Cost/minute.	Page 4-6 (Ch 1)	1.5		
3	3	Introduction to work study. Development of work study Importance of work study.	Basic procedure WS. Techniques, WS & Labour, WS & Practitioner	Page 17- 24 (Ch 3) page 25-34 (Ch 4)	1.5	1.5	

4	4.5	Ergonomics:	Display, Work place, Arrangement, Sitting, Standing etc.	Page (62-65) (Ch 5) Glock n Kunz Ch 11 Page 332-337	1.5	3	
5	6	Working condition and work Environment for RMG Industry General consideration Occupational safety and health organization Safety criteria Prevention of Industry Accidents Working premises Lighting Noise and vibration Climate condition Exposure to toxic substance Personnel protective equipment Work related welfare activity	Occupational Safety, Health Organization, Accidents, Working Premises, Good Housekeeping, Light, Colour, Noise and Vibration, Climatic Condition, Ventilation, Toxic Substance, Personal protective Equipments, Working time welfare activity.	Use Industrial Standards	2	4	
6	10	What are method study and its importance? Development of charts Flow chart Man & machine chart (multiple activity chart Left hand and right hand chart String diagram Understanding of basic chart, it's importance, plotting of diagram on charts, reading of plotted chart, conclusion and action required.	Method Study, Flow Chart, String Diagram, Left and Right Hand Chart, Multiple Activity Chart	Page 75 – 80 (Ch 6) Page 109- 138 (Ch 8) Glock n Kunz Ch 11 (325- 327)	2	8	
7	3	Principals of motion economy Motion study economy and its principals	Principals of motion economy	Page 139- 158 (Ch 9)	1	2	

Benchmark Assignment 1 on Method Study, Basic Working Condition and use of principle of motion economy in Industry. (Marks 20) Presentation (8 hrs)							
Midterm Session 1 to 7							
8	1.5	<p>What is work measurement Importance of work measurement techniques? Different types of work measurement techniques.</p> <ol style="list-style-type: none"> 1. Time study 2. Work sampling 3. PDTS 	<p>Work Measurement. Time Study, Work Sampling, PDTS, MTM.</p>	<p>Page 243- 248 (Ch 18) Page 249- 264 (Ch 19) page 265- 280 (Ch 20) Page 381- 408 (Ch 26) Glock n Kunz CH11 (331 – 332)</p>	1.5		
9	8	<p>Time study Time study data recording techniques and its usages and Pontiac Development of cycle time Rating exercise Development of standard time, work sampling</p>	<p>Time study, stop watch, fly bag, basic time, qualified worker, elemental break down, Cycle check Sample size, rating, average worker, standard rating and performance, basic time, Standard time, allowance, personal allowance, fatigue allowance, delay allowance, contingency allowance, policy allowance, fixed and variable allowance, special</p>	<p>Page 281- 296 (Ch 21) Page 297- 312 (Ch 22) Page 313- 342 (Ch 23) Glock n Kunz CH 11 (page 328- 331)</p>	2	6	

			allowance, confidence level, sample size, nomogram, random observation, group sampling techniques, structured estimating.			
10	3	PTS / PMTS / Synthetic time standards Introduction to MTM Introduction to GSD	PTS, PMTS, Motion classification, TMU, GSD, MTM I & II, SMV	Page 381- 408 (Ch 26) Page 409- 430 (Ch 27)	3	
11	7	Practical exercise and Development of work station by using work measurement and method study Techniques. Effect of use of I.E. at all levels like Productivity Costing Layout Production control Manpower Quality Handling, Layout and process planning	Labour wage fixation, Incentives SMV/Sam allowance, efficiency, Capacity Study, Lost Time, Cost/Minute, Productivity.	Page 181- 186 (Ch 11) Page 195- 200 (Ch 13) Page 201- 220 (Ch 14) Page 221- 228 (Ch 15)	2	5
Benchmark Assignment 2 on development of work study Standards, of work measurement techniques, Latest Development in the field work study (Marks 20): Presentation (9 hrs)						
End – Exam (3 hrs)						

Suggested references Books:

1. Introduction to work study ILO
2. Ervin videos & book
3. MTM Core Data- a new dimension in by John R. Robinson
4. Methods Engineering by Edward V Krick Published by J.Wiley & sons
5. Motion and Time Study by E Barnes Published by John Willey & Sons

Reference Magazines, Journals and other sources:

1. Efficiency in clothing Manufacturing by E.G.Selzer
2. Motion and Time Study: Improving Productivity by M.E. MundelPublished by Prentice-Hall of India
3. Human factors in engineering and Design by McCormick Published by Mc Graw Hill
4. Glock Kunz
5. Exploting cycle time technology management by Gerard Gaynor H.
6. Ergonomic Checkpoint, Practical easy to implement solutions for improving safety, health and working conditions. International Labour office Geneva.

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	NA	NA	NA	20	40	100

Learning outcome:

Students should be in a position to

- Improve on operations and Methods of Manufacturing.
- Set of production standards
- Understand of requirement of appropriate working condition.
- Design of work station layout.

Pattern for mid term/ final term CEB examination paper

For CEB subject (theory) suggested format of CEB question paper to be mentioned

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester V
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT305T	Apparel Quality Management	Lecture	3	72	4.0	C	TH
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	4.5				

Perquisite: SPME -1 & 2, SCAP, PM and GC, Fabric Science, ASSQC

Course objective:

1. To make students understand techniques of using quality tools.
2. To equip students with knowledge on international apparel quality standards followed in apparel manufacturing set –up through self study based assignments and presentations.
3. To introduce the students to quality management practices.

Course structure:

- **Concept Domain** -concept of quality management as an integral part of all business functions.
- **Knowledge Domain** - Knowledge about the evolution of quality systems and its role in managerial functioning
- **Skill Domain** - Usage of quality systems, concepts and tools in resolving issues at all operational level of an organization

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	4.5	Introduction to Quality Management		Juran`s Quality Handbook, Fifth edition`Juran and Godfrey Chapter 2.5- Pg- 24-36	4.5		
	4.5	Introduction Quality Journey from Q.C to present	Juran`s Trilogy, Quality Evolution		1.5 3.0		
2	4.5	Care Labeling and product safety			4.5		
		Care Labeling - Importance of care labels -Care symbols and variations in different countries -Care instructions for different fabrics and garment types	Ginetex, Japanese, American, Symbols, Meanings	Mehta and Bhardwaj Ch.4&11 Compiled material by Divya Satyan	3.0		
		Product Safety Growing relevance of Product Safety – the concept	Product safety laws, Product recalls	Mehta and Bhardwaj Ch.4 &11 Compiled material by Divya Satyan	1.5		

3	4.5	Managing Quality in Decentralized Manufacturing Process capability model and its application in Indian apparel industry	Sub contractor, Quality, Process, Key elements, Input, output, process capability	Dr .Rajesh Bheda, 'Managing Quality in Decentralized Manufacturing', power-point. presentation	4.5		
4-6	12	Benchmark Assignment 1 – Corporate restructuring through quality initiatives- 20 marks					
7	4.5	Introduction to SPC Various statistical techniques used to record and analyze data gathered during, inspections and audits	SQC, SPC, control charts, Variable, Attribute	Managing Quality in the apparel Industry-Mehta and Bharadwaj Chapter 13,Quality Assurance for Textiles and Apparel-Sara J. Kadolph Chapters 15	3.0	1.5	
8	4.5	Tools of Quality Control	7 classic tools, 7 new tools	Mehta and Bharadwaj Chapter 13,Quality Assurance for Textiles and Apparel-Sara J. Kadolph Chapters 15 PPT by Ms. Divya Satyan	3.0	1.5	
MID Term Exam							

9	4.5	Cost of Quality and Quality Maturity of an Organization Cost of Quality- Concept, categorization of defects, their implication for an organization	Conformance, internal & external failure, appraisal, Prevention, examples	1.PPT By Dr. Rajesh Bheda 2.Phillip Crosby Quality is Free	3.0		
		Quality maturity Grid and its understanding	Stages of maturity of quality	Phillip Crosby Quality is Free	1.5		
10	4.5	Quality Planning Process	Quality Planning Steps, Process Planning	Juran's Quality Handbook, 5th Edition Page number 3.1-3.50	4.5		
11	4.5	Quality Control & Improvement Process	Quality Control & Assurance, Planning for quality control, Quality Control Flow Diagram, Basic concepts of Quality Improvement, Quality Improvement goals in the business plan	Juran's Quality Handbook, 5th Edition Page number 4.1-4.12, 5.7- 5.24	4.5		
12	4.5	Benchmarking & Strategic Deployment	Definition & Objective of Benchmarking, Fundamentals of benchmarking, Process of Benchmarking, Introduction of Strategic deployment,	Juran's Quality Handbook, 5th Edition Page number- 12.1- 12.19, 13.1- 13.23	4.5		

			Elements of Strategic deployment				
13-14	Benchmark Assignment -2 – 20 marks Development of quality management- role of Deming PDCA cycle and 14 principles of Deming, Juran, Philip Crosby- and their contributions to the discipline.					9.0	
15	4.5	Tools of quality management			4.5		
15	1.5	Introduction to management tools	Kaizen, Quality circles, Lean-5s , six sigma, FMEA, QFD	Invited Industry Lectures, Case study discussion	1.5		
		Applicability of various tools for problem solving					
	1.5	Compliance and quality			1.5		
		Introduction, Need, Role in quality	Social, Legal and ethical				
		Role of Agencies and standards International standards-ISO its background and need,ISO-9000, important clauses, advantages and disadvantages	Evolution of quality standards, need for uniform standards WRAP, OSHAS	Powerpoint presentation by Ms. Archana Gandhi			
	1.5	Role of quality assurance from vendor selection to customer feedback	Vendor selection, Process quality, Customer feedback and introspection	Chapter 9-Managing Quality In Apparel Industry-Mehta & Bhardwaj	1.5		
3.0		End term exam					

Suggested references Books:

1. Dr .Rajesh Bheda, 'Managing Productivity in Apparel Industry', Chapter 9
2. Anita A. Stamper, Sue Sharp, Linda B. Donnell - Evaluating Apparel Quality

Reference Magazines, Journals and other sources:

1. Dr .Rajesh Bheda, 'Managing Quality in Decentralized Manufacturing', power- point. presentation
2. Dr .Rajesh Bheda, 'Profitability through Quality', power- point presentation
3. Stitch World Articles on Operator Training and Supervisor training by Gene Levine,Roberto Inglesi,Paul Collyer and Dr.Rams

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	NA	NA	NA	20	40	100

Teaching Tools:

1. Lectures
2. Invited expert inputs
3. Case study discussions

Learning outcome:

1. Students will have knowledge of the various quality control procedures followed in an apparel firm for achieving quality from sewing to finishing.
2. Students will be able to suggest possible solutions to various quality problems that occur till the garments are finally packed.
3. Students will understand the documentation procedures required to implement quality assurance system in an apparel manufacturing unit.
4. Students will get a basic knowledge of the quality management practices followed worldwide.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1 - Corporate restructuring through quality initiatives	
Details/ description of assignment	The assignment is based on the analysis of case studies collected by students from all types of industries which have made quality as a focal point in their strategic plan to have a healthier bottom line. The students can do the net search for any such companies in their region and visit them to collect data and present as a report in the class. In case sufficient number of such companies do not exist in the region then attempts have to be made to do a research of such companies on the internet with some primary data through exchange of e-mails . The discretion of the faculty to decide based on the circumstances in their centre to focus more on primary or sec. data. The purpose is to make the students aware that quality initiatives at the policy making levels can make a difference to the company's profitability. The students can do this assignment in groups of two
Evaluation parameter	Relevance, presentation
Type of assignment	Group, Case study presentation
Weight age	20 marks
Assignment 2 – Development of quality management – role of quality gurus	
Details/ description of assignment	The purpose of this assignment is to make the students aware of the contributions of different quality gurus to the development of quality as a discipline. A group of student not more than 2-3 in each group can present their learning in different ways to the class. Students to be divided into groups and each group to be a given a quality guru to make a presentation- Crosby,Balridge,Shewhart,Juran,Deming, Feignbaum,Ishikawa,Taguchi,Shingo
Evaluation parameter	Presentation, Content
Type of assignment	Group presentation
Weight age	20 marks

Pattern for mid term/ final term CEB examination paper

For CEB subject (theory) suggested format of CEB question paper to be mentioned

Paper Pattern -

Objective type answers- like Fill in the blanks, Match, etc – 30%

Short Answers – including definitions, Difference between etc. - 40%

Word Limit- 100- 150 words

Long Answers – Detailed descriptive – 30%

Word Limit - 300-500 words

If any sub parts of the detailed questions- each part to carry distinct marking.

For end term-

25% weight age will be from pre mid term portions and 75% from post mid term portion.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester V
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT307T	Fashion Merchandising	Lecture	3	48	3	NC	TH
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Course objective:

1. To enable students to understand the concept of merchandising and its application
2. To familiarize the students with the aspects of manufacturing (export & domestic) and retail merchandising
3. To understand the linkage, function of merchandising with various departments of an organization and between organization

Course structure:

- **Concept domain** -merchandising as a core function of an apparel organization
- **Knowledge domain** - Merchandising role, responsibilities of a merchandiser in different setups of export and retail
- **Skill domain** - tools of merchandising and their application in the retail or export environment to function effectively

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	3	Introduction to marketing, and merchandising			3.0		
1	1.5	Introduction to marketing, and Fashion marketing	Marketing, Fashion marketing, merchandising	Marketing Today's Fashion: Helena De Paola & Carlos Stewart Muller Principles of marketing: Philip Kotler	3.0		
	1.5	Introduction to merchandising					
2	3	Consumer behavior			3.0		
2	1.5	Consumer Behavior	PESTAL theory	Chapter 4, Pg 134-140, Apparel merchandising By Rosenau & Wilson	3.0		
	1.5	Consumer Behavior	PESTAL theory	Chapter 4, Pg 114-152 , Inside Fashion Business			

3	3	Fashion Apparel sourcing structures			3.0		
3	3.0	Fashion Apparel sourcing structures	Domestic and Export Manufacturer Retailer/ Whole Seller/ Co operatives, Buying Agencies/ Buying offices-Direct exporting, indirect exporting Agencies/ Buying Offices- Direct Exporting Indirect Exporting	Chapter 11- Buying Foreign merchandise, Fashion Buying- Elaine Stone Chapter 11	3.0		
		Domestic and Export Manufacturer					
4	3	Overview of Different Departments in Manufacturing and retail sectors			3.0		
4	3.0	Overview of Different Departments in Manufacturing	Order Processing order Procurement	Fashion Buying – Elaine Stone Chapter 4,	3.0		
		Overview of Different Departments in Retail Sector					

5	3	Responsibilities of a merchandiser			3.0		
5	3.0	Responsibilities of merchandiser in Apparel manufacturing sector	Merchandiser in-export, house buying house and buying office. Domestic & retail Organization. Difference between a buyer and a merchandiser	To be prepared by subject faculty	3.0		
		Responsibilities of merchandiser in Retail sector					
Benchmark Assignment 1- sample programme sheet – 20 marks							
6-7	6	Buying cycles and tools of merchandising			6.0		
6	3.0	Buying cycles	Types of buying cycles /seasonal time and action calendars, critical path for product development. Production and delivery	Chapter 3 – Fashion buying Helen Gowrek, Chapter4, Pg 134- 140, Apparel merchandising by Rosenau & Wilson	3.0		
		Tools of merchandising					
7	3.0	Time and action calendar					3.0
		Critical path for product development					
8. Mid term exam							
9	3	Fashion Forecasting			3.0		
9	3.0	Fashion Forecasting	Comparative and Direction Shopping	Chapter 3 – Fashion buying Helen Gowrek, Chapter4, Pg 134- 140, Apparel merchandising by Rosenau & Wilson	3.0		
		Fashion Forecasting					

10-11	6	Product Development and costing			6.0		
10	3.0	Product Development and Global sourcing	PF & Global sourcing, Need for PD , Product life cycle, Product Identity, Product Differentiation, People involved in process of PD and their roles	Chapter 5 – Fashion buying Helen Gowrek, Paper by PD & global sourcing by Dr. Noopur Anand & Archana Gandhi	3.0		
		Product Life Cycle					
11	3.0	Merchandising Costing	CMT, LDP , Whole sale Price, Minimum Order Quantities	Chapter 7 Apparel merchandising by Rosenau & Wilson	3.0		
		Merchandising costing CMT, LDP etc					
12	3	Vendor Selection and development			3.0		
12	3.0	Vendor Selection	Corporate Social responsibility technical, social	Chapter10 Apparel merchandising by Rosenau & Wilson	3.0		
		Vendor Development	Benchmarking	Chapter 9- Analyzing & Selecting Resources, Fashion Buying- Elaine Stone			

13-14	6.0	Communication with Buyers			6.0		
13	3.0	Communication with buyer	Buyer Checklist When meeting a new buyer what aspects that buyer and manufacturer need to discuss_- Range presentation to the buyer (to assess logical sequencing)	To be developed by faculty teaching the subject	3.0		
14		Buyer checklist					
		Range presentation			3.0		
		Export Documentation	Bill of landing, LC, AWB, Invoice	PPT by Ms. Divya Satyan			
		Benchmark Assignment 2 -Buyer assignment					
15	3	Trends in apparel supply chain management			3		
15	1.5	Trends in apparel supply chain management-	CPFR, Quick response, Fast Fashion, RFID, VMI, VICS, EDI	Chapter 9, Apparel merchandising by Rosenau & Wilson	1.5		
	1.5	Trends in apparel supply chain management			1.5		
16. End term exam							

Suggested references Books:

1. Profitable merchandising to apparel: Bertrand Frank Associates
2. Merchandising Buying: Bohlinger
3. Marketing Today's Fashion: Helena De Paola & Carol Stewart Mueller.
4. Fashion Machining: Stone
5. Sidney Packard Fashion merchandising principles
6. Apparel marketing: Bern Wisner, Prentice Hall
7. Marketing: David Mercer, Blackwell publication
8. Fundamentals of marketing: William J. Stanton, Charles Furtell, Mc Graw Hill
9. Principles of marketing: Philips Kotler
10. Fashion Buying Helen Gowrek, Blackwell Publication
11. Inside fashion business, Kitty Dickersen , Pearson Educatio

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	NA	NA	NA	20	40	100

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	The interpretation of proto tech pack received the buyer and further processing.
Evaluation parameter	Content and understanding of concept-10, Industry interaction- 5, Presnetation-5
Type of assignment	Industry interactive assignment in which students are divided in groups, give a garment each and asked to prepare a sample programme sheet for the sampling department. Students need to give presentation in class.
Weight age	20 marks

Assignment 2	
Details/ description of assignment	Buying Process, Time and Action Calendar from order to confirmation to delivery
Evaluation parameter	Content and understanding of concept-10, Industry interaction- 5, Presentation-5
type of assignment	Industry interactive assignment in which Student are divided into group research for any 1 retailer/buyer (Through a exporter or buying agency) . Students need to give presentation in class.
Weight age	20 marks

Teaching Tools:

1. Lecture
2. Presentations
3. Discussion
4. Industrial visits

Learning outcome:

1. The students would be able to understand the importance of merchandising function in apparel industry
2. They would be equipped with merchandising tools for decision making

Pattern for mid term/ final term CEB examination paper

For CEB subject (theory) suggested format should be

For CEB subject (theory) suggested format of CEB question paper to be mentioned

Paper Pattern-

Objective type answers- like Fill in the blanks, Match, etc – 30%

Short Answers – including definitions, Difference between etc. - 40%

Word Limit- 100- 150 words

Long Answers – Detailed descriptive – 30%

Word Limit - 300-500 words

If any sub parts of the detailed questions- each part to carry distinct marking.

For end term- 25% weightage will be from pre mid term portions and 75% from post mid term portion.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester V
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT309P	Pattern Making III	Lecture		96	4.0	C	PB
		Practical / Workshop	6				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	6.0				

Course objective:

1. To enable students to understand the fit control points in pants, hoods, work wear, shirts and knitted garments
2. To understand scientific way of manipulating patterns to achieve the desired style line

Course structure:

- **Concept domain-** to understand patterns of pants, hoods, work wear, shirts and knitted garments
- **Knowledge domain-** to understand points of control in each pattern for achieving desired fit
- **Skill domain-** To enable students to generate well fitting patterns and manipulate them to achieve desired style line

Course contents:

No of sessions (3 hours each)	Hrs	Contents	Reference	Lecture	Practical / Workshop	Self Study
11	33	1- Trouser & Variations			33	
1	3	Understanding bifurcated garments - concept of crotch level, extensions and crotch point	<ul style="list-style-type: none">• Armstrong,H.J. “Pattern making for Fashion design”,edition 4 chapter 25 (page 565- 619)• Metric pattern cutting for women -Winifred Aldrich 5th edition chapter 7 (page 99-108)• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 11 page 205- 214		3	
1	3	Terminology of bifurcated garments			3	
		Basic trouser block and its test fitting				
		Importance and relevance of various parameters controlling the fit and fall of trouser - body rise /back seat angle / bottom hem /waist shaping /out seam shaping /inseam shaping etc.				
2	6	Assignment 1: Submission of Basic Trouser Block with Test Fit Marks 20			6	
2	6	Various leg line variations - flared pants /baggy fit / culottes /pedal pushers /shorts / Capri etc.	<ul style="list-style-type: none">• Armstrong,H.J. “Pattern making for Fashion design”,edition 4 chapter 25 (page 565- 619)• Metric pattern cutting for women -Winifred Aldrich 5th edition chapter 7 (page 99-108)• Pattern cutting & marking up- Martin Shoben & ward revise edition published in 1990 chapter 11 page 205- 214		6	
1	3	Concept of fly, waistband, Waistband Extension and bottom hem variations			3	
1	1	Various kinds of pockets – Side Pockets & Back welt pocket (Single/Double), pocket bags and jet pieces			1	
		Balancing of patterns and notches and its importance				

3	9	ASSIGNMENT 2: Formal / Casual Trouser (Selection of design to be done from magazines and approved by the concerned faculty). Note: Pattern should be complete in all respect like development of Waistband, Fly, Pocket Bag etc Marks 20		9	
5	15	2-Knits		15	
1	3	Concept and relation of fabric to pattern	<ul style="list-style-type: none">• Armstrong,H.J. "Pattern making for Fashion design"edition 4 ,chapter 26• Metric pattern cutting for women -Winifred Aldrich 5th edition chapter 9,10,11• Armstrong,H.J. "Pattern making for Fashion design"edition 4 ,chapter 27, 28	3	
		Understanding difference of knits pattern making from woven pattern making			
1	3	Generation of pattern for knits polo tee with raglan sleeve		3	
1	3	Develop pattern for legging		3	
2	6	Assignment 3: Submission of T-Shirt Marks 20		6	
3	9	3-Hoods		9	
1	3	Discussion on various kinds of hoods and their usage	Armstrong,H.J. "Pattern making for Fashion design"edition 4, chapter 23 (page 542 to 553)	3	
2	6	Developing pattern for basic hood /close fitting hood and cut in one with bodice		6	
4	12	4-Men's shirt		12	
2	6	Drafting of Men's Shirt with all the concepts already studied generate shirt block	<ul style="list-style-type: none">• Aldrich,W. Metric pattern cutting for Men's wear.• Armstrong,H.J. "Pattern making for Fashion design"edition 4, chapter 21 (page 470 to 484)	6	
1	3	Shifting of shoulder line by use of panel concept / yoke and pleat		3	
1	3	Develop sleeve and cuff form concepts given earlier		3	

3	9	5- Jump Suit / Overall Pattern		9	
2	6	Learning to generate the pattern of overall and jump suit from already learnt concept of shirt, bodice, trouser and torso	Armstrong,H.J. "Pattern making for Fashion design"edition 4,chapter 25 page 620 - 623	6	
1	3	Bib and straps		3	
6	18	6-Casual /formal jacket		18	
1	3	Difference between casual and formal jacket	<ul style="list-style-type: none"> Aldrich,W. Metric pattern cutting for Men's wear. Armstrong,H.J. "Pattern making for Fashion design"edition 4,chapter 22 page 488 - 540 	3	
5	15	Generate casual jacket by use of concept already learnt		15	
		End Term Submission: Casual Jacket with Hood. (Selection of design to be done from magazines and approved by the concerned faculty). Marks 40			
32	96	Total number of session of 3 hrs each		96	

Further References:

Book Name	Author	Publisher
Pattern Making for Fashion Design	Helen Joseph Armstrong	Harper Collins, LA
Metric Pattern Cutting	Winifred Aldrich	Blackwell Science Ltd., London
Metric Pattern Cutting for Menswear	Winifred Aldrich	BSP Professional Book, Oxford
How to Draft Basic Patterns	Kopp, Ralfo, Zelin& LGross	Fairchild Publication, NY
Pattern Cutting and Making up- The Professional Approach	Martin Shoben & Janet Ward	Butterworth Heinmann, Oxford
Modern Sizing for Women's and Children's Garments	P.Kunick	Philip Kunick Publication, London
Designing Pattern- A Fresh Approach to Pattern Cutting	Hillary Campbell	Stanley Thornes (Publisher) Ltd.
Dress Fitting	Natalie Bray	Blackwell Science Ltd., London
Dress Pattern Designing	Natalie Bray	Blackwell Science Ltd , London
More Dress Pattern Designing	Natalie Bray	Blackwell Science Ltd., London

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Assignment 1: Submission of Basic Trouser Block with Test Fit Marks 20

- Pattern of Front trouser block- 5 Marks
- Pattern of Back trouser block - 5 Marks
- Balancing & truing of blocks -2.5 Marks
- Information on pattern notches and awls etc - 2.5 Marks
- Test fit - 5 Marks

ASSIGNMENT 2: Formal / Casual Trouser (Selection of design to be done from magazines and approved by the concerned faculty). Note: Pattern should be complete in all respect like development of Waistband, Fly, Pocket Bag etc Marks 20

- Pattern of Front trouser block- 5 Marks
- Pattern of Back trouser block - 5 Marks
- Patterns for all components i.e. waist band , fly, pockets etc- 5 Marks
- Balancing & truing of blocks -2.5 Marks
- Information on pattern notches and awls etc - 2.5 Marks

Assignment 3: Submission of T-Shirt Marks 20

- Pattern of Front T Shirt block- 5 Marks
- Pattern of Back T Shirt block - 5 Marks
- Patterns of sleeve- 5 Marks
- Balancing & truing of blocks -2.5 Marks
- Information on pattern notches and awls etc - 2.5 Marks

End Term Submission: Casual Jacket with Hood. (Selection of design to be done from magazines and approved by the concerned faculty). Marks 40

- Difficulty level of visual selected& overall understanding of the assignment undertaken – 5 marks
- Pattern developed for front & back of casual jacket -15 marks
- Pattern of Hood –5 marks
- Pattern of lining/ facing/any other garment component (sleeve/collar etc.) –10 marks
- Information on pattern, notches and awls etc - 5 Marks

Teaching Tools: Demonstration

Learning outcome:

1. Students will be able to appreciate the critical areas in pants, hoods, work wear, shirts and knitted garments impacting the fit of the garment.
2. The student will be able to develop various kinds of men's wear
3. The students will be able to develop various style lines of the men's wear

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester V
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT311P	Garment Construction III	Lecture		96	4.0	C	PB
		Practical / Workshop	6				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	6				

Perquisite: PM-I, GC-I, PM-II, GC-II

Course objective:

- Construction of the various given garment components
- Assembling Men's/Women's trouser
- To familiarize with knits
- Assembling the men's casual jackets

Course structure:

- **Concept domain** - To understand positional relationship among fabric plies during construction.
- **Knowledge domain** - To understand construction of trouser, T-shirt and casual jacket.
- **Skill domain** - To be able to operate/control the sewing machine and handle/control the fabric.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	Detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1 - 12	36	Trouser				36	
1	3	Introduction to various kinds of Trousers. Analysis of Classic Men's Trouser and its components		Sewing & Knitting P: 373		3	
2 - 5	12	Constructing different kinds of Seam finishes, Side and Welt pockets		Sewing & Knitting P: 375-377		12	
6 - 7	6	Zipper attachment with fly		Sewing & Knitting P: 378-379		6	
8	3	Assignment 1: Submission of Side & Welt Pockets and Fly with Zipper (20 Marks)				3	
9 - 12	12	Assembling components of the Trouser to make a high quality product, Pleats and Waist band attachment. Different types of Bottom Hem		Sewing & Knitting P: 178-182, 252-261, 380-383, 302-307		12	
13	3	Assignment 2– Formal / Casual Trouser in appropriate material, style (use patterns developed for Assignment-2 of PM-III) (20 Marks)				3	

14 - 18	15	T-Shirt				15	
14 - 18	15	Understanding of the various kinds of T-shirts Understanding the various machines needed for the finishing the knit garments Assembling components of the T-shirt				15	
19	3	Assignment 3: Submission of Polo T-Shirt using patterns developed for Assignment-3 of PM-III (20 Marks).				3	
20 - 31	36	Men's Jacket				36	
20 - 23	12	Introduction to the men's waist coat and casual jacket		Pattern Cutting and Making Up for Outerwear Fashions P: 191-200		12	
24 - 25	6	Understanding different kinds of Seam finishes, pockets, lining, button and button holing.(Key hole)		Sewing & Knitting P: 342-363		6	
26 - 31	18	Assembling components of a casual jacket (with Hood) to make a high quality product		Pattern Cutting and Making Up for Outerwear Fashions P: 218-226		18	
32	3	End Term Submission: Casual Jacket with Hood using Pattern developed in End Term Submission of PM-III (40 Marks).				3	

Suggested references Books:

Pattern Cutting and Making Up for Outerwear Fashions
 Sewing for Apparel Industry
 Sewing & Knitting
 Apparel Manufacturing Handbook
 Clothing Technologies for Fiber to Fashion
 Federal Standard

Martin. Shoben, 1995 Edition
 Claire Shaeffer, Prentice Hall, 2001
 Reader's Digest (Australia) Pty Ltd, 1993 Edition.
 Jacob Solinger
 Europa Lehrmittel
 FED-STD-751A, 1983

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Teaching Tools:

- Directive and demonstrations
- Garment making sessions
- Audio visuals, samples from the industry
- Industry visits

Learning outcome:

- Ability to construct and finish a Trouser, Polo T-Shirt and Casual Jacket
- Use of good construction techniques and quality finishes
- Improvement in skill and knowledge on different garment components

Pattern for mid term/ final term CEB examination paper

End Term Submission Evaluation is Jury Based and Jury for PM-III and GC-III should be held together

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester V
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT313DE	e-Commerce	Lecture	1	40	2.0	NC	DE
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	2.5				

Perquisite:

- Basic knowledge of Internet
- Understanding of different types of business models and their functionality

Course objective:

- To understand the concepts of e-commerce
- To enable students gain knowledge about e-commerce and its various components.
- To make the students aware about the nitty-gritty of on-line business
- To apply e-commerce applications to what e-marketers are doing in "the real world"

Course structure:

- **Concept domain-**
 - Familiarization with the current practices, issues and challenges of e-commerce
 - To acquire working knowledge of online business

- **Knowledge domain-** Understanding of e-commerce and its various facets in applications. Understanding of analyzing, implementation and maintaining e-commerce systems.
- **Skill domain-** Handling & controlling B2B, B2C, G2C, C2C, B2B e-commerce systems.

Course contents:

Session	Hrs (1.5)	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1-8	12.0	Introduction to e-commerce			6	6	---
1	1.5	Meaning and concepts; Electronic commerce versus traditional commerce; E-commerce and e-business	Commerce e-business e-commerce	1. Information System Series (E-Commerce / TATA McGraw-Hill Edition (David Whiteley) / 1-13; pg 2. Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 30pg	1.5	---	---

2	1.5	Channels of e-commerce; Business applications of e-commerce; Need for e-commerce, e-commerce as an electronic trading system-special features.	Business models e-commerce requirements and applications	Information System Series (E-Commerce / TATA McGraw-Hill Edition (David Whiteley) / 17-44pg	1.5	---	---
3	1.5			---	---	1.5	---
4	1.5	Demonstration of e-commerce websites global & Indian and their functionality in the context of apparel industry	Internet & WWW	Information System Series (E-Commerce / TATA McGraw-Hill Edition (David Whiteley) / 161-187pg	1.5	---	---
5	1.5			---	---	1.5	---
6	1.5	E-commerce models; Supply chain management,	B2B, B2C, C2B, C2C	1. Information System Series (E-Commerce / TATA McGraw-Hill Edition (David Whiteley) / 17-20pg 2. Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 427pg	1.5	---	---

7 & 8	3.0			---	---	3.0	---
Benchmarked assignment 1							
FULL MARKS FOR THE ASSIGNMENT = 25							
<u>B2C Mini Project Description:</u> Comparison Shopping							
This mini project provides you with the opportunity to systematically compare Internet retailing and traditional retailing shopping experiences.							
Background		35%					
Shopping Comparison		35%					
Recommendations		20%					
Style (clarity of writing)		<u>10%</u>					
		100%					
Pick a good or service that you (or someone you know) are planning to purchase. This could include products such as: shoes, medicine, toys, clothing, investment advice, groceries, wedding gift, insurance, sporting equipment, etc. Do NOT choose computer hardware or software, plane or event tickets, or books (these are too common).							
The mini project report must begin with a title page, and a one page executive summary. The body of the project should not exceed 7 pages.							
The first section, Background, includes (a) a description of the range of alternatives available to a potential buyer of this product; and (b) explanation of the key purchase considerations, such as convenience and price. <i>You are expected to explicitly draw on theories and concepts presented in class and in your readings, and to apply them to this type of purchase situation.</i>							
In the second section, Shopping Comparison, you will need to focus on two places to purchase the product on the Web, and two places to purchase the product in a physical retail establishment. Provide details of each of the four locations. You certainly do NOT have to complete the purchase of the product four times -- just once! You do, however, need to get far enough into the purchase process to be able to systematically compare the four purchase experiences using the key purchase considerations you identified in the first section. A summary table is expected.							
The final section, Recommendations, is a summary of practical recommendations for improving the purchasing process (not the entire website or store) of each of the four purchase sites.							

9-16	12.0	E-commerce resources & payment systems			7.5	4.5	
9	1.5	Remote servicing; On-line marketing and advertising;	Marketing and advertising online	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 475-510pg	1.5	---	---
10	1.5	E-commerce resources and infrastructure, resource and planning for infrastructure.	Hardware, software infrastructure planning and deployment	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 461pg	1.5	---	---
11	1.5	Role of web site in B2C e-commerce; web-site strategies and web-site design principles; push and pull technologies, alternative methods of customer communication.	Websites and customer communications	Information System Series (E-Commerce / TATA McGraw-Hill Edition (David Whiteley) / 147-236pg	1.5	---	---
12	1.5			---	---	1.5	---

13	1.5	Special features required in payment systems for e-Commerce' Types of e-payment systems; E-cash and currency servers, e-cheques, credit cards, smart cards, electronic purses and debit cards	Electronic payment gateway Using credit card, debit card, internet banking on websites	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 295-330pg	1.5	---	---
14	1.5	Business issues and economic implications; Operational, credit and legal risks of e-payment systems; Risk management option in e-payment systems; Components if an effective electronic payment system. Cyber laws and e-commerce. World vis-à-vis India I.T Act 2000.	Risk involved in electronic payment Cyber laws	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 253pg; 585pg	1.5	---	---
15 & 16	3.0			--	---	3.0	---

Benchmarked assignment 2**B2B Mini Project Description: B2B Exchanges**

This mini project will help increase your understanding of the range of B2B e-commerce exchanges available, and how companies utilize B2B exchanges.

Background	35%
Site Analysis	35%
Recommendations	20%
Style (clarity of writing) <u>10%</u>	100%

The mini project report must begin with a title page, and a one page executive summary. The body of the project should not exceed 7 pages. In addition, a list of references is expected, in standard format.

The first section, Background, is (1) a description of the range of alternatives available to Company, including general B2B exchanges and specific industry exchanges; and (2) a description and explanation of the key aspects or criteria the company should consider in evaluating the alternatives. Since you do not have extensive knowledge about company's market, make and state reasonable assumptions as appropriate. *You are expected to explicitly draw on theories and concepts presented in class and in your readings, and to apply them to this type of decision.* You are also expected to provide evidence that you have read about the industry of your choice.

In the second section, Site Analysis, you need to focus on three of the exchanges, and systematically analyze what the sites offer, using the evaluation criteria you developed in the first section.

The final section, Recommendations, is a summary of practical recommendations to Company regarding the B2B exchanges.

17-22	9	Introduction to EDI and its applications			4.5	4.5	
17	1.5	Need and alternative models of B2Be-commerce; Technologies, EDI and paperless trading; EDI architecture, EDI standards, VANS	EDI VAN	1. Information System Series (E-Commerce / TATA McGraw-Hill Edition (David Whiteley) /63-113pg 2. Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 369-400pg	1.5	---	---
18	1.5	Costs of EDI infrastructure, features of EDI service arrangement, Internet-based EDI and FTP based messaging, Business to Consumer, Consumer to Consumer.	Internet based EDI FP	Information System Series (E-Commerce / TATA McGraw-Hill Edition (David Whiteley) /115-143pg	1.5	---	---
19					---	1.5	---

20	1.5	Workflow management, mass customization and product differentiation; Organization restructuring; Integrated logistics and distribution; Knowledge management issues and role of e-commerce infrastructure	Mass customization Logistics Distribution Knowledge management	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 419, 423, 441-472pg	1.5	---	---
21 & 22	3				---	3.0	---
23-27	7	Security Issues in E-Commerce, M-Commerce & Multi-Media and E-Commerce		Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 659-694pg	4.5	2.5	

23	1.5	Security Issues in E-Commerce: Security risks of e-commerce, exposure of resources, types of threats, sources of threats, security tools and risk-management approach, e-commerce security and a rational security policy for e-commerce; Corporate Digital Library;	Digital signature PKI Encryptions Security certificate	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 441-472pg	1.5	---	---
24	1.5	M-Commerce: Introduction to m-Commerce; related uses & scope of m-Commerce, Difference between & m-commerce, Role if m-commerce in Business.	m-commerce	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 729-762pg	1.5	---	---

25	1.5	Multi-Media and E-Commerce: Concept and role of multimedia; Multi-media technologies; Digital video and digitization of product and customer communication; Desktop video conferencing and marketing	Audio video codec	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 659-694pg	1.5	---	---
26	1.5	C2G e-commerce and e-governance. C2C online auction like ebay.com E-commerce and Intellectual property rights.	C2G and its applications	Frontiers of E-Commerce / Pearson Education (Kalakota, Whinston) / 585pg			
27	1.0				---	2.5	---

Benchmarked assignment 3**G2C Mini Project Description:**

This mini project will help increase your understanding of the range of G2C e-commerce exchanges available, and how e-governance is helpful in economical and social growth of the nation.

Background	35%
Site Analysis	35%
Recommendations	20%
Style (clarity of writing) <u>10%</u>	100%

Take a scenario of any of the government department offering services online. You need to compare the traditional way of accessing to that services by the customer and accessing the same online.

The mini project report must begin with a title page, and a one page executive summary. The body of the project should not exceed 7 pages. In addition, a list of references is expected, in standard format.

The first section, Background, is (1) a description of the range of services you are comparing is needed. Develop the evaluation criteria on which you will be evaluating the traditional and online services in the context of economy and social structure of India. You need to refer to the official government site for the same.

In the second section, Site Analysis, systematically analyze what the sites offer, using the evaluation criteria you developed in the first section.

The final section, Recommendations, is a summary of practical recommendations to Government regarding G2C website.

End Term Jury**E-Commerce Group Project Description (The final project to be evaluated by jury)**

This project provides a students with an opportunity to increase and demonstrate their understanding of e-commerce theory and practice. Relatively few companies or nonprofit organizations effectively utilize the Internet in their marketing programs. Most small businesses still do not even have a website. Working with a group of 3-4 students, identify a company you believe would benefit from an improved e-commerce program. Use the class Listserv to inform me of the members of your group, the company of your choice, and why you have selected it. I will then reply as to whether the company is approved.

The project report must begin with a title page and a one page executive summary. The one page executive summary must be posted using the Course Listserv by the November 30 deadline (or you will lose 2 points off the project grade).

The first section, Market Analysis, is a 3-4 page summary of the company, its marketing environment, its main customer market, its marketing mix, and two or three of its major competitors. Tools such as SWOT analysis, STEP analysis, and Porter's 5 Forces may be applied. Additional information may be placed in an appendix. *Primary and secondary research is expected. References are expected.*

The second section, E-Commerce Rationale, is a 4-5 page rationale as to why the company or organization should increase and improve its e-commerce activity, given the particular nature of its marketing environment. *You are expected to explicitly draw on theories and concepts presented in class and in your readings, and to apply them to the company's particular situation.*

The final section, E-Commerce Critique and Recommendations, is a 4-5 page critique of the company/organization's website and apparent e-commerce activity, and recommendations for improvement. The summary is to detail what the company's e-commerce priorities should be, and your proposal for how the company/organization should proceed. Additional information may be placed in an appendix. A detailed implementation plan is not expected, but you should provide enough specifics to make the proposal a substantial foundation for practical follow-up with the company. *In making the recommendations, you are expected to explicitly draw on theories, concepts and readings.*

The presentation & documentation will be evaluated by external jury on following criteria

Market Analysis

E-Commerce Rationale

E-Commerce Critique & Recommendations

Style (clarity of writing, evidence of research)

Presentation

Suggested Reference Books:

- Ravi Kalakota, Andrew b.Whinston, Frontiers of Electronic Commerce, Awl International
- Bajaj KK and Nag Debjani, From EDI to Electronic Commerce, TataMcGraw-Hill
- Bajaj and Nag, Electronic Commerce: The cutting edge of Business, Tata McGraw-Hill
- Greg Holden, Starting An E-commerce Business For Dummies, 2nd edition, IDG books India
- David Kosiur, Understanding Electronic Commerce, Microsoft Press
- J.B. Schafer, J. Konstan, and J. Riedl, "Recommender Systems in ECommerce,"
- Agarwala, K.N. and Deeksha Agarwala: Business on the Net: What's and How's of E-Commerce: machillan, New Delhi.
- Schneider, Gary P: Electronic Commerce, Course Technology, Delhi.
- Young, Margaret Levine: The Complete Reference to Internet, Tata McGraw Hill, New Delhi.

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
25	25	30	NA	NA	NA	20	100

Teaching Tools:

- Lectures and demonstrations
- Case studies and Group discussion
- Review & feedback by faculty

Learning outcome:

- Understanding of basic e-commerce definitions and terminology
- Knowledge of technological components required for implementing e-commerce
- Students will have the fair amount of knowledge about e-commerce and its applications
- Knowledge of successful e-commerce business models
- Understanding of payment systems work on the Internet
- Various levels of security on the Internet and understand how these can be circumvented.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester V
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT315DE	Advanced presentation Techniques	Lecture	1	40	2.0	NC Elective	DE
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	2.5				

Course objective:

- To create visually appealing and highly interactive presentations through Adobe Flash.

Course structure:**Concept domain-**

Understand the concept of vector and raster graphics.

Understand text, graphics, audio, video, and animation as media components of flash presentations

Knowledge domain-

Learn Flash animation and Action Script.

Skill domain-

Develop skills to author and distribute multimedia presentation using Adobe Flash CS4.

Reference

R1 – Adobe Flash CS4 Professional Bible, by Robert Reinhardt and Snow Dowd.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	2.5	<ul style="list-style-type: none"> • Introduction to flash • Flash file types and its elements • Flash environment • Frames and layers 	Fla, swf Project panel Properties panel Tools panel Document window Timeline window	R1 Pg 7-11 46-55 59-73 76-100	1	1.5	-
2	2.5	<ul style="list-style-type: none"> • Drawing in flash • Working with color, text 	Shape tools Drawing tools Fill and stroke Selection tool Design panels Color panel Text fields, font symbol	103-159 218-228 232-239 252-263	1	1.5	

3	2.5	<ul style="list-style-type: none"> Symbols, instances & library 	Common libraries Graphic, movie clip and button symbols Instance Animate symbol	164-202	1	1.5	
4	2.5	<ul style="list-style-type: none"> Creating animation & effects 	Frame-by-frame animation Onion skinning Shape tween Motion tween	329-382	1	1.5	
5	2.5	<ul style="list-style-type: none"> Filters, blends and mask 	Filters, blend modes Motion guide Mask	386-425	1	1.5	
Assignment – 1							
6	2.5	<ul style="list-style-type: none"> Sound video 	Sound file formats Sound on button and timeline Start, stop, stream and event sound Integrating video	473-490 556-574	1	1.5	
7	2.5	<ul style="list-style-type: none"> Basic Interactivity 	Actions Event handlers Gotoandplay Gotoandstop Nextframe Prevframe	601-615	1	1.5	
8	2.5	<ul style="list-style-type: none"> Basic Interactivity 	Nextscene Prevscene Play Stop Navigatetourl Mouse events Button events	616-624	1	1.5	

9	2.5	<ul style="list-style-type: none"> ActionScript basic syntax 	Variables Expressions Operators If-else Switch-case While,do-while,for	761-778	1	1.5	
10	2.5	<ul style="list-style-type: none"> Controlling movie clips 	Movie clip properties Movie clip methods	785-819	1	1.5	
Assignment – 2							
11	2.5	<ul style="list-style-type: none"> Interacting with movie clips, sound 	Collision detection	839-862	1	1.5	
12	2.5	<ul style="list-style-type: none"> Animating with ActionScript 	Tween through script Follow Mouse cursor	875-884	1	1.5	
13	2.5	<ul style="list-style-type: none"> Sending data in and out of flash 	Input field Dynamic field	930-934	1	1.5	
14	2.5	<ul style="list-style-type: none"> Optimize Publish movie 	Publish settings Publish formats	673-706	1	1.5	
Assignment – 3							

Reference Magazines, Journals and other sources:

<http://www.flashkit.com>

<http://www.adobe.com>

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
25	25	30	-	-	-	20	100

Teaching Tools:

Live demonstration of theoretical concepts in IT lab using multimedia projector, followed by practical sessions. All the computers should have Adobe Creative Suite 4 installed.

Learning outcome:

Students understand flash animation, scripting and in its presentation applications by creating the fully functional digital flash presentation.

Benchmarked assignment Description (if required to be documented separately)

1. All the three assignments are progressive.
2. Assignments are introduced in the beginning of the subject. Students prepare the concept note for the presentation to be developed along with the story board. Students submit the concept note, story board in written, in the fourth session. The three submissions due sessions are mentioned in the session plan.
3. The final presentation in the end will be refined by the students as per the faculty's feedback and presented to the jury for end-term evaluation.

Assignment 1	
Details/ description of assignment	Submit a basic flash animation for a presentation introduction screen. The submission includes documentation explaining usage of Flash elements symbols used.
Evaluation parameter	Animation with Twinning, Guide and Mask. Usability as presentation title / introduction screen.
Type of assignment	Individual assignment Soft copy with document
Weight age	25
Assignment 2	
Details/ description of assignment	Submit an animation with basic interactivity using flash symbol elements and ActionScript 3.0
Evaluation parameter	Advance animation with Interactivity. Usage of ActionScript 3.0.
Type of assignment	Soft copy
Weight age	25
Assignment 3	
Details/ description of assignment	Create an interactive flash presentation with at least four sub categories and sound on selected subject.
Evaluation parameter	Subject relative appropriate flash animation. User friendly interactive navigation. Professional looking final product.
Type of assignment	Soft copy with hard copy of storyboard
Weight age	30

The background features a large, faint watermark of the NIFT logo. It consists of a red circle at the top, followed by a grey triangle pointing to the right, and a series of grey, flowing, ribbon-like lines that form a stylized 'N' shape.

SEMESTER VI

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-VI

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT304T	NC	TH	Maintenance Management	3	-	-	-	3	48	3.0
BFT306T	C	TH	Apparel Production Planning & Control	1.5	3	-	-	4.5	72	3.5
BFT308P	NC	PB	Entrepreneurship Management	3	-	-	-	3	48	2
BFT310P	C	TH	Costing of Apparel Products	1.5	1.5	-	-	3	48	2.5
BFT312P	NC	PB	Enterprise Resource Planning	1.5	1.5	-	-	3	48	2.5
BFT314P	NC	PB	Computer Aided Production Planning	-	3	-	-	3	48	2.0
BFT316P	NC	PB	Auto CAD	1.5	1.5	-	-	3	48	2.5
	NC	DE	Department Elective 1	1	1.5	-	-	2.5	40	2
	NC	DE	Department Elective 2	1	1.5	-	-	2.5	40	2
	NC	DE	Department Elective 3	1	1.5	-	-	2.5	40	2
			Total	15	15	-	-	30	480	24

BFT302II	NC	PB	Textile Internship (2 weeks)	-	-	-	-	48	96	1.5
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Total Hours for Semester with internship	576 (480 + 96)
Total Credits for Semester	26.5 (24+1.5)
Internship total -Hrs /Duration /credit	48 hours for two weeks (Total 96 hours), credit=1.5

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester - VI

Evaluation Matrix

	Subject Code	Subject type	Core / Non Core	Subject	Evaluation Matrix							
					Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Continues Evaluation	Mid – Term Exam /Jury	End – Term Exam/ Jury	Total
Semester Six	BFT302II	PB	NC	Textile Internship(2 weeks)	-	-	-	-	-	-	-	100
	BFT304T	TH	NC	Maintenance Management	10	10	20	NA	NA	20	40	100
	BFT306T	TH	C	Apparel Production Planning & Control	20	20	NA	NA	NA	20	40	100
	BFT308P	PB	NC	Entrepreneurship Management	10	10	20	NA	NA	20	40	100
	BFT310P	TH	C	Costing of Apparel Products	20	20	20	NA	NA	NA	40	100
	BFT312P	PB	NC	Enterprise Resource Planning	20	20	20	NA	NA	NA	40	100
	BFT314P	PB	NC	Computer Aided Production Planning	20	20	20	NA	NA	NA	40	100
	BFT316P	PB	NC	Auto CAD	20	20	20	NA	NA	NA	40	100
	BFT318DE	DE	NC	Sustainable Production	20	20	NA	NA	NA	20	40	100
	BFT320DE	DE	NC	Fabric Objective Measurement	10	10	10	10	NA	20	40	100
	BFT322DE	DE	NC	Joint Venture and Acquisition	20	20	20	NA	NA	NA	40	100
	BFT324DE	DE	NC	Project Management	10	10	NA	NA	20	20	40	100
	BFT326DE	DE	NC	Training & Development of Supervisors	20	20	20	NA	NA	NA	40	100
	BFT328DE	DE	NC	Corporate Social Responsibility (CSR)	10	30	20	NA	NA	NA	40	100

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VI


(For entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT302II	Industry Internship in Textile Sector	Lecture		96	1.5	NC	PB
		Practical / Workshop	48				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	48				

Objectives:

To understand the concept of spun yarn production, grey fabric (both woven and knitted) production, dyeing, printing and finishing of fabric, textile testing and their quality aspects both technical as well as for commercial purpose.

Contents:

1. Internship Report/ Document submission timeline:
Each Student group needs to submit one hard copy of the document, as a GREEN COLOR (e.g., )
Hardbound report and a soft copy to the department.

2. Nature of the Internship Report/Document:

The report should not be more than a 5000-6000 words typed A4 size document.

It should be divided into following parts:

Part – I

- Certificate for conducting the internship from the respective organization
- Introduction
- Objective of Internship
- Company profile/ Company details
- Organization Chart
- Process Flow of the company with time duration for each activity / process

Part- II, III, IV, etc

The report on each assignment (atleast three) conducted department/section wise as mentioned below must be given as separate parts (e.g., Part II, III, IV, etc)

Part-V

The learning experience with reference to a single most interesting incident during the course of internship should be described in not more than 400 words.

DEPARTMENT/SECTIONWISE GUIDELINES FOR THE TEXTILE INTERNSHIP

Assignment –I (Four Days):

Observations to be made and information to be documented on the Yarn manufacturing and Winding section:

Get the machinery features, machine and material process parameters available in detail in the areas as mentioned below:

A. Raw material storage and inspection section.

Detail documentation of the raw materials (fiber/filament) - Its specifications, bale specifications, storage capacity its area measurement and the brief layout. Fiber inspection and test methods followed in the concerned manufacturing unit.

B. Blow room section.

Detail information on the opening & cleaning methods followed – their timings, type of input/feed system, etc., mixing/blending ratios and the machineries used for this purpose. Detail information on the input material and the output materials' specifications, productions per day per machine, etc.

C. Carding section.

Detail information on the carding machine and process. Machine specifications like draft (carding ratio), input weights, wire pin specifications (angle, material, etc.), different rollers in the carding machines, output material specifications (linear density, productions per day per machine, etc.).

D. Drawing section.

Detail information on the draft and doubling, machine detail, number of draw frames in use in sequence, production per day per machine, etc.

E. Combing section.

Detail information on the combing process and the machines in use with productions.

F. Roving section.

Detail information on the roving process and the machines in use with productions.

G. Spinning section.

Detail information on the spinning process and the machines in use with productions, output yarn count, etc. H. Yarn storing techniques and their testing methods.

I. Winding & Sizing section.

- i) Warp winding section Sectional warping, warp beam and weavers' beam preparation, sizing section- machineries, production techniques, size paste ingredients, etc.
 - ii) Weft winding section Autoconer m/c, Rotoconer m/c, other weft winding m/cs., winding process, production details, etc.
- Students are also advised to observe at least one problem from this section frequently occurring and the plausible solution of that problem as a case.

Assignment –II (Four Days):

Observations to be made and information to be documented on the weaving section:

Get the machinery features, machine and material process parameters available in detail in the areas as mentioned below

J. Weaving section.

Different types of looms and their features and specifications like WIR, rpm, production in length and weight, attachments if any like dobby, types of fabrics produced, fabric designing, efficiency, stop motions, safety measures, product defects, waste percentage, layout of the weaving section etc

Students are also advised to observe at least one problem from this section frequently occurring and the plausible solution of that problem as a case.

Assignment –III (Four Days):

Observations to be made and information to be documented on the Knitted Fabric manufacturing section:

Get the machinery features, machine and material process parameters available in detail in the areas as mentioned below:

K. Knitting section.

Different types of knitting machines & knitting processes, like flat bed and circular bed machines, their features and specifications like gauge, diameter, productivity, product defects, wastages, attachments if any like jacquard, etc., process details, machine layout, warp knitting & warp knitting, machine control and safety measures, product details, knitted designs.

Students are also advised to observe at least one problem from this section frequently occurring and the plausible solution of that problem as a case.

Assignment –IV (Four Days):

Observations to be made and information to be documented on the Dyeing section:

Get the machinery features, machine and material process parameters available in detail in the areas as mentioned below:

L.

- i) Preparatory section. Processes namely, singeing, desizing, scouring, bleaching, mercerization, etc., to be observed and documentation on process parametric controls, chemicals used, machineries used, etc., are to be made.
- ii) Dyeing section. Different stages of dyeing like, Fiber dyeing, Yarn dyeing, Fabric dyeing. Different methods of dyeing like H.T.H.P., Winch, Jigger, etc. Dyeing of various types of blended materials like Polyester-cotton, Polyester-viscose, Polyester-wool, etc., apart from 100% pure textile materials. Documentation on the process detail like chemicals used, process parameters, & control, special features of each type of machineries, productivity, product detail, faults and wastages, safety measures, etc.

Students are also advised to observe at least one problem from this section frequently occurring and the plausible solution of that problem as a case.

Assignment –V (Four Days):**Observations to be made and information to be documented on the Printing section:**

Get the machinery features, machine and material process parameters available in detail in the areas as mentioned below:

M.

- i) Preparatory section. Processes namely, singeing, desizing, scouring, bleaching, mercerization, etc., to be
Observed and documentation on process parametric controls, chemicals used, machineries used, etc., are to be made.
- ii) Printing section. Different styles of printing; printing process detail, print paste ingredients, machineries used, printing screen making techniques, productivity, product detail, faults and wastages, safety measures, etc.

Students are also advised to observe at least one problem from this section frequently occurring and the plausible solution of that problem as a case.

Assignment –VI (Four Days):**Observations to be made and information to be documented on the Testing and Quality control sections:**

N.

Textile testing section. Fiber testing, yarn testing, and fabric testing. Testing of different textile materials- their Physical, Mechanical, Morphological properties, Colour fastness properties, etc. Test method procedural details and the instruments used to be documented. Documentation on yarn defects, fabric defects, dyeing and printing defects commonly found in the industry.

Students are also advised to observe at least one problem from this section frequently occurring and the plausible solution of that problem as a case.

Evaluation Criteria:

Learning Diary	40
Viva	10
Presentation	20
Report/Dissertation	30
Total	100

Learning Outcome:

- Flow process sequence and Technical details on machine particulars of spinning, weaving, knitting, dyeing, printing, finishing, etc sections.
- Particulars of raw material, intermediate products and final product, process details, product quality parameters.
- Particulars of the manufacturing environment.
- Human resource management.
- Productivity analysis for various processes.

NOTE:

- The students are supposed to complete at least three of the abovementioned assignments working in atleast three sections.
- In case any student finds more than three sections available in the factory, the time allocated for carrying out the assignments in each section may be suitably adjusted to cover all the sections available.
- The Project deliverables/results should be quantified as far as possible. Weightage would be given to the facts and statistics during evaluation of the report

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VI

(For entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT304T	Maintenance Management	Lecture	3	48	3	C	TH
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite: None

Course objective:

- To relate the importance and objectives of maintenance management
- To understand the pattern in which failures occur.
- To realize the existence of different systems of maintenance.
- To realize the need for letting unplanned emergency maintenance
- To realize that formal costing and budgeting to encourage prediction and pre- planning of maintenance activities.
- To comprehend the efforts involved in maintenance planning and control.
- To make students understand the concepts of maintenance and safety and their importance in the industry.
- To deal with the planning and control of various maintenance engineering
- To learn the basic and recent trends in maintenance management.
- To deal effectively with the various types of hazards in industry and related safety issues.

Course structure:**Concept domain -**

- Understanding of different type of maintenance system and its application.
- understanding of maintenance procedure of plant, maintenance cost, failure cost and it's impact on profitability

Knowledge domain –

Understanding of relation between production, quality, machine life, failure prevention cost and overall profitability with maintenance

Course Contents:

SrNo	Topic	Keyword	Reference	Lecture	Practical	Filed study/ tutorial	Self study
1	Introduction, objectives, importance of maintenance management. Duties, functions and responsibilities of maintenance department. Organization of maintenance department	Maintenance, System Approach, Maintenance Objective, Responsibility of Maintenance Dept. Plant Management in maintenance work, Maintenance objective v/s Plant Production, Establishments of work order and recording system, implementation of Information based decision making, Adherence to plant maintenance system, planning of maintenance function, Man power for maintenance, Work post control, Quality and arability of spare parts, Training of maintenance force,	Page 1 to 6 (MEM Chapter 1) MEM Chapter 2 Page no. 16 to 19	3			

2	Types of maintenance systems Corrective (or) breakdown maintenance. Scheduled maintenance Preventive maintenance Predictive maintenance Condition monitoring Design-out maintenance	Principle of Maintenance, Break down Maintenance, Plant Maintenance, Schedule Maint., Preventive Maint., Corrective Maint, Condition based Maint Reliability Centered Maint. Balance of cost of Maint. Elements of PPM cost of periodic Maintenance, supporting services, forecasting of maintenance, benefits of PPM, maintenance by objective development of checklist, MTTR, FR, MTBF	Page no 8 to 19 (Chapter 1) page no 20 to 39 (chapter 2) (Chapter 4) page no. 51 to 66	9			
3	Quality, reliability & maintainability (QRM): Introduction, definition, redundancy, mean time between failure and Concepts of availability, maintainability, system +reliability. Maintenance planning, scheduling and control: Preparation, operation, progression Maintenance costing and budgeting Numerical on reliability: parallel and series configuration	Reliability, failure rate estimation, failure pattern of equipment series reliability model, parallel reliability model, series parallel reliability model, reliability model reliability application, reliability evaluation, Gnatt Chart, decentralized, measurement estimates, manpower allocation pert, planning inputs, long range, procedure, short range, techniques, probability, cost control, maintenance break down, replacements policy.	Page no 68 to 81 (chapter 5) page no 98 to 114 (chapter 8)	3	3		

4	Assignment Based on Fundamentals of Maintenance Management to provide better understanding. + Case Study (10)						
5	Maintenance performance indices Plant maintenance schedule Standard data for maintenance Maintenance effectiveness and performance evaluation/ audit. Use of concepts like kaizen and quality circles Defect list generation and defect failure analysis		Page 41 to 50 (chapter 3)	3			
6	Mid Term (20 Marks)						
7	Total productive maintenance: Introduction, definition, applications, basic concepts, evolution, etc. Increase in productivity through TPM Steps in TPM implementation Process or implementation with reference to maintenance management Case study on TPM			9			
	Assignment Based on topic1 to 6 10 marks)						
8	Replacement analysis: Replacement of items that deteriorate Replacement of items that fail suddenly Individual replacement policy Numerical and case study	Equipment maintenance and replacement, lifecycle costing, maintenance cost, budget, replacement vs repair, preventive vs break down maintenance, overall periods, maintenance in time vs time availability maintenance, cost of obsolesces, cost control.	Page no 125 to 133 (Chapter 10)	3			
9	Assignment Based on Topics 5,6,7 & 8 (20 Marks)						

10	TERO technology – latest concepts Training (HRD) of maintenance personnel Safety assessment, work environment, fire prevention and control, management of emergencies.	Tribology practice, tero technology particles, indigenous substitute, reconditioning, advance strategic, maintenance information management system, training of maintenance personnel. Development of problem solving group, life assessment of sum assembly, reduction of maintenance workforces.	Page no.115 to 124 (Chapter 9)	3			
11	Presentation should be based on the practical aspect of Maintenances Engineering for Apparel Manufacturing Plant. TPM Maintenance Performance Indicator QRM Cost of Preventive Maintenance Different Types of Maintenance system application for apparel manufacturing plant Implication of Maintenance on RMG Case Study			6			
12	End Term Exam						

MEM = Maintenance Engineering and Management by R C Mishra & K Pathak

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
10	10	20	NA	NA	20	40	100

Reference Books:

1. Reliability engineering - by I.s.srinath, east west press, 3rd edition
2. Productivity press inc., po box 13390, portland, or97213-0390
3. Robinson, charles.j, ginder, andrew.p- "implementing tpm", productivity press, portland Oregon, 1995
4. Society of manufacturing engineers, p.o.box.6028, dearborn, mi48121
5. Steinbacher, herbert.r, nonna.1- "tpm for america", productivity press, portland, oregon, 1995.
6. Takahashi, yoshikazu and osada takashi- "tpm", asian productivity organisation, Tokyo 1990.
7. Sushil Kumar srivastava, industrial maintenance management, s.chand & company, new Delhi, 1998
8. Kuldeep singh sanghwan & regalla srinivasa prakash, maintenance & safety, dlpd – notes 2004

Learning outcome:

1. The students should know the various functions of maintenance management particularly for Garment industry.
2. The students should know various types of maintenance requirements.
3. The students should know the applications of maintenance techniques.
4. The students should know the various process of maintenance management while planning a maintenance schedule

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VI
(for entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT306T	Apparel Production Planning & Control	Lecture	1.5	72	3.5	C	TH
		Practical / Workshop	3				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	4.5				

Pre Requisite: Production and Operations Management, Spreading and Cutting of Apparel Products

Course Objectives:

1. To Understand the functions, responsibilities and scope of personnel involved in Production Planning & control
2. To learn Planning and Control using simulation exercises in the class room
3. To apply the learning's in the practical environment

Course structure:

- **Concept domain-** Application of PPC in Apparel Industry
- **Knowledge domain-** Production Planning and Control

Course Contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1, 2	3	Overview of Apparel Production Planning and Control Four Activities: Analyzing, Forecasting, Planning & Scheduling and Control	Analyzing, Forecasting, Organizing and Control, Control	Reference 1	1.5	1.5	
3, 4	3	Production Control System What is Production Control system? Why is it required? Effect on Profitability	Production Control System & it's Effect on Profitability	Reference 1	1.5	1.5	
5, 6	3	Factors Responsible for Control Type of Manufacturing, Degree of complexities in the product, skills availability	Manufacturing for stock Manufacturing against order And manufacturing for Mix	Reference 1	1.5	1.5	
7,8	3	Definitions Production, Productivity, Lead Time, WIP, Throughput time, effect of WIP on Throughput	Production, Output Productivity, LEAD Time WIP, Throughput time and its effect	Reference 2	1.5	1.5	

9, 10, 11, 12	6	Analyzing Analyzing order, order size, specifications of the product, specifications of raw materials, production equipment and tools, personnel involved	Order size, specifications of the product, specifications of raw materials, production equipment and tools, personnel involved	Reference 3	1.5	4.5	
13, 14, 15, 16	6	Capacity Study Understanding Capacity, Line capacity, section/Factory capacity, Factoring capacity for attendance and efficiency	Capacity Factoring for attendance Efficiency	Reference 3	1.5	4.5	
17, 18, 19, 20	6	Assignment 1	Capacity Planning			6	
21, 22, 23	4.5	Operation Breakdown Understanding Operation Breakdown, Independent and dependent processes, Flow Diagrams	Operation Breakdown, Dependent and independent processes and flow diagrams	Reference 4	1.5	3	
24, 25, 26, 27, 28	7.5	Requirements Calculation Determining Machine/equipment, Manpower, Floater requirement, Pitch time	Pitch Time and Machine and Manpower calculations	Reference 4	3	4.5	
		MID TERM Theory Exam					
29, 30, 31, 32	6	Line Balancing Concepts and Exercises	Line Balancing	Reference 4	1.5	4.5	
33, 34	3	Push Vs. Pull Production system	Pennville plant game / any other suitable	Reference 5		3	

35, 36	3	Setup time losses Time loss in style variation environment, control parameters	Setup time and Style Variation	Reference 6	1.5	1.5	
37, 38	3	Assignment 2	Line Balancing			3	
39, 40	3	Quantity Vs. Quality Dealing with alterations, Production control point selection	Alterations and Production control point selection	Reference 7	1.5	1.5	
41, 42	3	Line Supervisor Supervisory role in production control	Supervisors role – Balancing, WIP Bundle Control	Reference 8	1.5	1.5	
43, 44	3	Line Supervisor Supervisory role in production control	Supervisory role – operative skills, coaching, reporting, charts	Reference 8	1.5	1.5	
45, 46	3	Layout Effect of Layout on output	Effect of Layout on output	Reference 9	1.5	1.5	
47, 48	3	Preparation for the next day	Planning for next day	Faculty experience	1.5	1.5	
		END Term Theory Exam					

Reference:

S.No.	Session No.	Reference	Page Nos.
1	1 – 6	Annexure 1	1 – 24
2	7 – 8	Apparel Manufacturing Sewn Products Analysis, Ruth E. Glock & Grace I. Kunz	268 – 269
3	9 – 16	Apparel Manufacturing Sewn Products Analysis, Ruth E. Glock & Grace I. Kunz	269 – 276
4	21 – 32	Introduction to Clothing Manufacture, A J Chutter	55 – 93
5	33 – 34	Penville Plant Game	
6	35 – 38	Introduction to Clothing Manufacture, A J Chutter	13 – 22
7	39 – 40	Introduction to Clothing Manufacture, A J Chutter	111 – 141
8	41 – 44	Introduction to Clothing Manufacture, A J Chutter	1 – 12
9	45 – 46	Introduction to Clothing Manufacture, A J Chutter	167 – 183

Suggested references Books & Journals/Periodicals:

1. Apparel Manufacturing Handbook by Jacob Solinger
2. Apparel Manufacturing Journals and Periodicals
3. Handouts by Prof. Prabir Jana

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	NA	NA	NA	20	40	100

Teaching Tools:

- Use of Case Studies/Presentations
- Class room exercises on line balancing – simulation of Balancing exercise

Learning outcome:

- Students get better understanding of Production planning Function in Apparel Industry

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	Students will be given exercises/Case study involving calculation of Machine/Manpower Capacity
Evaluation parameter	Faculty to decide appropriately
Type of assignment	Submission / presentation
Weight age	20 Marks
Assignment 2	
Details/ description of assignment	Students will be given necessary data for line balancing exercise like Product details/ Operation B/d with SAM values, hourly production, Order quantity etc., and students are required to do LINE Balncing
Evaluation parameter	Faculty to choose appropriate weightage
Type of assignment	Submission / presentation
Weight age	20 marks

Pattern for mid term/ final term CEB examination paper

Follow the Standard Format for Question paper setting of CEB.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VI
(for entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT308P	Entrepreneurship Management	Lecture	3	48	2.0	NC	PB
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3.0				

Perquisite: none

Course objective:

- Prepare a ground where the students view entrepreneurship as a desirable and feasible career option
- To build the necessary competencies and motivation for a career in entrepreneurship.

Course structure :

Concept domain- Entrepreneurship as an alternative vocation

Knowledge domain- Use of Project management, financial knowledge to build the competency

Skill domain- To become a successfully Entrepreneur

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs
1	3	Entrepreneurship Basic concepts	History, Cognitive aspects, Marketing		
1	3	Entrepreneurship: An Evolutionary Perspective	Economic Significance of an Enterprise, Enterprise & Knowledge, Contrasting Theories, Managers & Entrepreneurs	I : Chap.3, V:5.1 to 5.8	3
		Cognitive Aspects of Entrepreneurship: Decision-Making and Attitudes to Risk	Cognitive heuristics & Biases, Over-Optimism & related biases, Perceived Self-efficacy, Intrinsic Motivation & Creativity, Intention based models, Factors influencing Entrepreneurship – Entrepreneurial motivation		
		Entrepreneurship and Marketing	Market Process perspective, Marketing perspective, The Entrepreneurial Firm perspective		
		Entrepreneurship Development in India:Progress & Prospects	Indian Scenario	II : Chap.1	
2-3	6	Project Management	Project Idea, Formulation, Managing, Appraisal		

2,3	6	Project Identification, Project Formulation, Project Appraisal : Feasibility studies, Methods of Profitability Appraisal	Feasibility study, formulation, appraisal	III : Chap.6, 7, 9	6
4-6	9	Small Firms	Survival & Growth		
4	3	Determinants of Small firm survival and growth	Gibrat's law, Survival, Growth	I : Chap. 7	3
		Start-ups and Entry Barriers: Small and Medium-Sized Firms Population Dynamics	Business Information Tracking System to explore Entrepreneurship	I :Chap. 8	
5	3	Definitions, Diversity and Development: Key Debates in Family Business Research	Family firms, diversity, culture, society and why history matters, development of family firms	I : Chap. 9	3
6	1.5	Evaluating SME / MSME Policies and Programmes: Technical and Political Dimensions	SME / MSME and Entrepreneurship policy and evaluation	I : Chap. 10	1.5
	1.5	Export & Statutory Regulations	Export promotion measures,steps taken by government to boost exports, Export-Import procedures, problems of entrepreneurs on exports	V : Chap.7.11 to 7.19	1.5
7	3	Innovation	Knowledge Spillover		
7	3	Entrepreneurship, Growth and Restructuring	Where does opportunity come from? Opportunity Exploitation, Knowledge Spillover Theory of Entrepreneurship	I : Chap. 11	3
		Innovation in Large Firms	Innovation & Firm Size, Barriers, Approaches to sustainability	I : Chap. 12	
Assignment #1: Entrepreneurship & Innovation. 10 marks					
Choose a creative industry (like a design (or) gaming (or) multimedia which introduces new products, new firms (like Reliance). Bring out the					

possible factors responsible for the success and sustainability of the products in the market.

Mid Assignment: 20 marks

Project: Students should be asked to choose a successful / failed / turnaround venture, identify the factors contributing to success / failure and suggest methods to make it sustain / bring in success in case of failed ventures.

Objective : To identify problems and opportunities from different sectors and generating business ideas

8-10	9	Finance & Financial Analysis	Funding, Sources		
8	3	Venture Capital	Fund providers, why do they exist? Contracts and Performance of venture capital, value-added & Compensation	I: Chap. 14	3
9	3	Sources of Finances	Institutions for Entrepreneurial development, Institutional finances, Development of SSI, Central & State Incentives and Subsidies	III: Chap. 16, 17, 18, 19, 20; Ref. IV Chap. 11	3
10	3	Financial Analysis	Meaning & Nature, Project Capital Cost Estimates, Budgets, Operational Cost, Revenue Estimates, Profit & Loss statement, Balance Sheet	III: Chap. 12	3
11-12	6	Employment, Self-Employment	Employment creation		
11,12	6	Entrepreneurship, Self-employment and the Labour Market	Self-Employment as Occupational Choice, Labour Market, Human Capital, Labour Supply / Demand, Unemployment, Employment Creation	I: Chap. 16	6
13-14	6	Social and Cultural Aspects	Culture / Minority / Ethnic entrepreneurship		

13	3	The Social Dimensions of Entrepreneurship	An Individual Portrait – culture, Social institutions, Networking, Social Capital	I :Chap. 19	3
		Institutional Obstacles to Entrepreneurship	Entrepreneurial Act, Institutions affecting Entrepreneurship	I :Chap. 20	
14	3	Ethnic Minority Entrepreneurship	Definition of Ethnic Entrepreneurship, Factors influencing business entry, Disparities among Ethnic minority	I :Chap. 21	3
Assignment #2 : Social Entrepreneurship					
10 marks					
Choose an area like Rural Entrepreneurship and explore the potential from different sectors.					
Project Presentation					
20 marks					
Final Jury					
40 marks					

Suggested references Books/ websites:

I The Oxford Handbook Of Entrepreneurship, Mark Casson, Bernard Yeung, Anuradha Basu, Oxford Univeristy Press, 2008, ISBN: 0199546991

II A Complete Guide to Successful Entrepreneurship, G.N.Pandey, Vikas Publishing House P.Ltd., 1993

III Entrepreneurial Development – Principles, Policies & Programmes, P.Saravanel, Ess Pee Kay Publishing House, 2nd Edition reprint

IV Youth Entrepreneurship Everywhere – To turn Job-seekers into Job-creators, Dr.A.Peter, 2004, ISBN 81-902234-1-0

V Entrepreneurial Development – Jayshree Suresh, Margham Publications, Chennai, 2010

VI Case Studies: Successful / Failed / Turnaround Entrepreneurial Ventures (only a suggestion but should be exploratory covering different areas)

http://www.icmrindia.org/casestudies/Case_Studies.asp?cat=Leadership%20and%20Entrepreneurship

http://www.ibscdc.org/entrepreneurship_case_studies.asp

Reference Books:

1. Entrepreneurship Development, Prepared by Colombo Plan Staff College for Technician Education, Manila, Adapted by Centre for Research and Industrial Staff Performance, Bhopal, Tata McGraw-Hill Publishing Co.Ltd, 1998, ISBN: 0-07-463329-5
2. Entrepreneurship, Robert D.Hisrich & Michael P.Peters, Tata McGraw-Hill Publishing Co.Ltd, 5th Edition, ISBN: 0-07-048660-3
3. Entrepreneurship – New Venture Creation, David H.Holt, Prentice Hall of India, 1998, ISBN: 81-203-1281-3
4. The Entrepreneur – An Economic Theory, Mark Casson, Martin Robertson & Co.Ltd, UK, ISBN: 0-85520-306-4
5. Entrepreneurship for the Eighties, Gordon B.Baty, Reston Publishing Co.Inc (Prentice-Hall), ISBN : 0-8359-1745-2

Reference Magazines, Journals and other sources:

1. “Entrepreneur”, Network 18, India
2. “Journal of Entrepreneurship”, Sage Journals

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Mid Assignment	Project Presentation	End – Term Jury	Total
10	10	20	20	40	100

Teaching Tools:

1. Lectures
2. Power point presentations
3. Case Studies / Exercises
4. Minor Project
5. Tie up with a local consultant, National Entrepreneur Network (NEN) for sharing their experiences.

Expected Learning Outcomes:

- After studying this course, the students would be able to build on personal as well as external resources with a view to successfully launching and subsequently managing their enterprises.
- They would have not only a definite idea as to which support/developmental agency to look up to and for what purpose, but also the necessary know-how and wherewithal for accessing their help.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VI
 (for entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT310P	Costing of Apparel Products	Lecture	1.5	48	2.5	C	TH
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Pre requisites:

- Overview of Fashion Industry, Basic costing parameters and costing methods in apparel manufacturing
- To enable students to calculate product cost of various apparel products.

Course objective:

- To acquaint students with basic costing parameters and costing methods in apparel manufacturing
- To enable students to calculate product cost of various apparel products.

Course structure :

- Concept domain-concept of cost elements and their distribution in the cost sheet
- Knowledge domain- the methods of costing, the stages of costing and different types of costs
- Skill domain- to create a cost sheet and also to be able to suggest ways of reducing the cost by the use of the knowledge of cost elements

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	3	Introduction to Cost Accounting <ul style="list-style-type: none"> Use and Objective Difference between Cost accounting, management accounting and financial accounting 	<ul style="list-style-type: none"> Cost Accounting Management Accounting Financial Accounting 	Costing for clothing / Michael Jeffery / Edition 1 / Page 3 & Cost Accounting / Charles T. hamgren, J. Foster, Srikant M. Datar/ Edition 9 / Page 1-3	3.0	-	
2	3	Elements and Classification of cost	<ul style="list-style-type: none"> Direct Cost Indirect cost Overheads 	Costing for clothing / Michael Jeffery / Edition 1 / Page 5-6	1.5	1.5	
3	3	Cost Behavior <ul style="list-style-type: none"> Definition of costing, Difference between costing and pricing Exercise of dividing costs into various classes 	<ul style="list-style-type: none"> Costing Pricing 	Apparel manufacturing / Glock & Kunz / Edition Third / Chapter 10, Page 293-294 & Costing for clothing / Michael Jeffery / Edition 1 / Page 10-11	1.5	1.5	

4	3	Materials costing <ul style="list-style-type: none"> Parameters involving material costing Inventory Inventory control and evaluation Resource optimization, Wastage : Normal and abnormal Accounting for wastage, scrap, defects etc. Depreciation 	<ul style="list-style-type: none"> Direct Material Cost Indirect Material Cost Inventory Management 	Apparel manufacturing / Glock & Kunz / Edition Third / Chapter 10, Page 308 & Costing for clothing / Michael Jeffery / Edition 1 / Page 45	1.5	1.5	
5	3	Material cost parameters for apparel Fabric Costing : Influencing factors Trims cost : Influencing factors	<ul style="list-style-type: none"> Fabric Costing Trim costing 	Predicting Costs in changing environment – AAMA Report / Chapter III	1.5	1.5	
6	3.0	Benchmark Assignment 1-Market research in fabric / trim costing-20 Marks				3.0	
7		Assignment 2 : Written Test at the time of mid sem-20 Marks					
8	3	Labor Costing <ul style="list-style-type: none"> Parameters of labor costing Labor cost budgeting and variances Wage rate and piece rate : Analysis and comparison Incentive Plans Case Studies 	<ul style="list-style-type: none"> Direct Labour cost Indirect Labour Cost Budget Incentive Salary & Wage 	Apparel manufacturing / Glock & Kunz / Edition Third / Chapter 10, Page 310-313 & Costing for clothing / Michael Jeffery / Edition 1 / Page 66-69	1.5	1.5	

9	3	Manufacturing Cost <ul style="list-style-type: none"> Overheads, Classification of overheads Allocation and apportionment Calculation of Prime cost Defining general operating expenses 	<ul style="list-style-type: none"> Overhead Prime Cost CMT Cost 	Apparel manufacturing / Glock & Kunz / Edition Third / Chapter 10, Page 294-296 & Costing for clothing / Michael Jeffery / Edition 1 / Page 8-9 Cost Accounting- A managerial Emphasis / Charles T. Hamgren, George Foster, Srikant M. Datar / Edition Nine/ Page 40-42	1.5	1.5	
10	3	Retail Pricing : Cost plus / Demand pricing <ul style="list-style-type: none"> Markups /Markdown calculation Retail pricing strategies overview Export pricing Incoterms and their application Freight costing Introduction Types of freight cost Freight cost calculations 	<ul style="list-style-type: none"> Mark ups Mark Down Incoterm Export documentation Freight Cost 	Retail Buying from Basics to fashion/ Richard Clodfelter / Edition two / page 422-436 Merchandising (Theory, Principle and Practice) / Grace I Kunz / Edition Second / page 422-423	1.5	1.5	

11	3	Stages of costing <ul style="list-style-type: none"> Precosting, Line adoption, Production costing, Job costing and process costing loses equivalent units construction of process costing 	<ul style="list-style-type: none"> Precosting Line adoption Production costing 	Apparel manufacturing / Glock & Kunz / Edition Third / Chapter 10, Page 304-307	1.5	1.5	
12	3	Costing methods <ul style="list-style-type: none"> Direct Costing Absorption costing Activity based costing Exercises on costing methods	<ul style="list-style-type: none"> Direct Costing Absorption costing Activity based costing 	Apparel manufacturing / Glock & Kunz / Edition Third / Chapter 10, Page 297-304	1.5	1.5	
		Standard costing <ul style="list-style-type: none"> Types of standard costing Procedures variance analysis (material, usage, mix, labor, overhead) Target costing overview 	<ul style="list-style-type: none"> Standard Costing Overhead 	Cost Accounting- A managerial Emphasis / Charles T. Hamgren, George Foster, Srikant M. Datar / Edition Nine/ Page 254-270 & Apparel manufacturing / Glock & Kunz / Edition Third / Chapter 10, Page 296			

13-14	6	Garment Costing			4.5	1.5	
13	4.5	Fabric costing for Woven products <ul style="list-style-type: none"> ▪ Weaving cost ▪ Costing as per Fabric construction ▪ Fabric Cost per meter ▪ Fabric cost / garment 	<ul style="list-style-type: none"> ▪ Weaving cost ▪ Processing cost 	Reference article at- www.indiantextilejournal.com/articles/FAdetails.asp?id=2067	3.0	1.5	
		Fabric costing for Knitted products <ul style="list-style-type: none"> ▪ Yarn costing ▪ Calculations of yarn costing ▪ Fabric construction – Woven ▪ Calculation for GSM ▪ Fabric Cost per Kg. ▪ Fabric cost / garment 	<ul style="list-style-type: none"> ▪ Yarn Costing ▪ Knitting cost ▪ GSM calculation 				

14	1.5	Trims & Accessories cost and other charges <ul style="list-style-type: none">▪ Cost of trims (Labels, tags, buttons etc.)▪ Cost of accessories (Hanger, inner board, poly bag, buttons etc.)▪ CMT charges▪ Other charges (Print, Embroidery etc.)▪ Cost of Garment▪ Price of Garment	<ul style="list-style-type: none">▪ CMT▪ Cost of Trims & Accessories▪ Printing Cost▪ Embroidery cost	1.5		
15	3	Benchmark Assignment 3 - Numerical based exercise-20 Marks			3.0	
End term jury: Garment Costing exercise Analyze various kinds of costing on a single garment -40 Marks						

Suggested references Books: Predicting Costs in changing environment- AAMA Report

Reference Magazines, Journals and other sources: ICAI material- PEII

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Teaching Tools:

1. Class exercises
2. Case Study discussions
3. Lectures

Learning outcome:

1. The students will be sensitive to the importance of costing in apparel industry
2. They would be able to relate various processes in apparel manufacturing and their effect on the cost of product
3. They would be able to analyze various parameters affecting costing of apparel.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1 - Market survey for costing parameters of fabrics and trims	
Details/ description of assignment	Fabric – Rayon, Silk, Georgette, Moss Crepe, Poplin, Cambric, Chambray, Voiles, Wool, Twills, Canvas Sheeting, Cords, Denims, Knits Jersey, Piques, I / Lock, Jacquards, Velours, Novelties etc. Trims- Interlining, Shoulder pads, Buttons, Thread, Labels, Hang Tags, Size disc, Hanger, Hook & Bar, Zippers, Lining, Pocketing, etc.
Evaluation parameter	Collection of data- 5, Authentication of data- 5, Documentation- 10 Presentation- 10
Type of assignment	Group Assignment - Market Survey – presentation and document
Weight age	20
Assignment 2 - Written Test	
Details/ description of assignment	Numerical and concept based questions in question paper
Evaluation parameter	
Type of assignment	Written Test
Weight age	20

Assignment 3 - Numerical Based Assignment	
Details/ description of assignment	Numerical exercise
Evaluation parameter	
Type of assignment	Written
Weight age	20
Assignment 4 / End Term Jury – Costing of a garment – any woven or knitted garment- to be prior approved by the faculty for costing .	
Details/ description of assignment	To do the costing of a garment incorporating all the costing parameters (Direct cost, Indirect cost, Material cost etc.)Calculation of Marker Efficiency, Trims and accessories used , cutting, sewing , finishing printing/emb.(if applicable) cost, overheads calculations etc.
Evaluation parameter	Product selection -5, Documentation- 10 Presentation- 15
Type of assignment	Individual Assignment- Garment Costing exercise, presentation and documentation
Weight age	40

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VI

(For entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT312P	Enterprise Resource Planning	Lecture	1.5	48	2.5	NC	PB
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite: Proper Understanding of:

- Client – server networking
- Integrated Databases (Relational Database Management)
- Business Process re-engineering

Course objective:

To make students aware of the potential and limitations of enterprise systems. This objective will be reached through case studies, lectures and hands-on experience on the ERP software.

The objectives are:

- To develop an understanding of how an ERP systems can improve the effectiveness of Information Systems in an organization.
- Introduce the students to the rationale for acquiring and implementing ERP systems, selection of ERP software, and integration of processes and transactions in the ERP system.
- To understand the challenges associated with the successful implementation of global Supply Chain ERP software.
- Understanding the working of Datatex – NOW Software and its relevance in the Garment Industry.

Course structure:

Concept domain

- To understand the business benefits of Enterprise Resource Planning systems.
- To understand the evolution of enterprise systems - from internally focused client/server systems to externally focused e-business.
- To recognize the interrelationships among business processes supporting Sales and Marketing, Production, Accounting, Finance and Human Resource.

Knowledge domain

- Knowledge of Common solutions provided by the ERP system providers such as for Customer Relationship Management(CRM), Supply Chain Management(SCM), Procurement, Product Life Cycle Management, Business Intelligence, Financial Management, E-commerce, Project Management, Sales and Logistics.
- Learn about different Enterprise Information Systems (products) and their vendors.
- Understanding the factors which could lead to an effective ERP implementation.
- Understanding the key features and working of Datatex-NOW, an ERP solution specific to the Garment Industry.

Skill domain - Handling of DATATEX-NOW, an ERP solution specific to the Garment Industry.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs
1-2	3	Introduction <ul style="list-style-type: none"> • What is ERP? • Evolution of ERP (Transition from MRP to ERP) • Its Advantages and Disadvantages • Common solutions provided by an ERP implementation. • MRP I – Nature of functioning • MRP II – Key elements 	ERP MRP Business benefits Tangible and intangible benefits	R1 – pg 1 – 14	3	-
3	1.5	Planning, Design and Implementation of ERP Systems	Re-engineering versus customizing, Vanilla implementation, Big bang implementation strategy, Phased by module.	R1 – pg 39 – 56	1.5	
4-11	12	Common solutions provided by the ERP system providers	Best Practices and key features of various modules		12	

4-5	3	<p>ERP and BPR</p> <p>ERP and Financial Management</p>	<p>Process Re-engineering, its elements, Re-engineering case studies, How Information Technology facilitates ERP. Management control processes in accounting, How an ERP supports Accounting and Finance? Profit center accounting.</p>	<p>R1 – pg 17 – 38</p> <p>R1 – pg 72 – 86</p>	3	-
6-7	3	<p>ERP and</p> <ul style="list-style-type: none"> • Production and Materials Management(PMM) • Human Resource Management(HRM) 	<p>PMM</p> <ul style="list-style-type: none"> • Capacity planning processes • BOM • Lead Time • Lot sizes • Master Production schedule <p>How ERP supports Production Planning? Material Management modules, Procurement process, MES, APS systems</p> <p>HR</p> <ul style="list-style-type: none"> • Benefits administration • Compensations • Job analysis • Skill inventory • Workforce dev. • Skill inventory 	<p>R1 – pg 87 – 101</p> <p>R1 – pg 102–112</p>	3	-
Bench Marked Assignment 1, Weightage – 20, Marks Document Submission.						

8-9	3	Customer Relationship Management	CRM as a business strategy. Understanding CRM Database The value of customer knowledge. Relationship data management. Data analysis and data mining. Data warehouse and data mart.		3	-
10-11	3	ERP and <ul style="list-style-type: none"> Supply Chain Management(SCM) E-Business Project Management Business Intelligence 	<ul style="list-style-type: none"> Supply Chain Planning Supply Chain Facilities Layout Capacity Planning eProcurement Inventory Optimization Dynamic Routing and Scheduling 	R1 – pg 132 – 150	3	-
12	1.5	Case Study: ERP Success Story, ERP Failure Story		Web Reference	1.5	-
13-14	3	Predominant ERP Vendors	SAP, Baan, J.D.Edwards Datatex, Oracle, Peoplesoft	R2 – pg38 – 58	3	-
15-16	3	Assignment 2:Mid Term Evaluation/ jury – Weight age – 20 Marks – 3 Hours, Presentation				
17-18	3	Introduction to NOW <ul style="list-style-type: none"> Know your working area, Browser setting for NOW Menu Area, Process finder, Process Area Mandatory & Protected fields and Error Message Using the Collection (Sorting and Filtering records from the Collection) Using Lookup Organizer Menu Creation 	Reference material		1	2

19-22	6	Merchandising Module <ul style="list-style-type: none"> ▪ Mapping of Merchandising Process in NOW ▪ Product show image with child products creation. ▪ Creation of Bill of Material (BOM) ▪ Time and action calendar ▪ Sales Order Creation in NOW ▪ Open Order creation ▪ Converting an Open order to a Normal Sales order. 	<ul style="list-style-type: none"> ▪ Creation of Bill of Material (BOM) ▪ Time and action calendar (Activity creation, Activity Group, Creation of TNA, Attach it to product) 		1.5	4.5
23-24	3	Bench Marked Assignment 3 – Weight age – 20 Marks – 3 Hours – practical evaluation			-	3
25-26	3	Purchase Module <ul style="list-style-type: none"> ▪ PR Creation ▪ PR Approvals ▪ PR to PO Cycle ▪ Creation of a PO ▪ Receipt (MRN module) 	Reference material		1.5	1.5
27-28	3	Resource, Plant, Department, Work Center, Operations <ul style="list-style-type: none"> ▪ Creation of Work Center and Operations Attributes (Work Center operations and Attributes) ▪ Routing 	attaching routing to a product		1.5	1.5

29-30	3	Production Module <ul style="list-style-type: none"> Production Demand (Production Demand) Production Order (Production Order) Production Transaction 	Issuing material for Production and Progress		1.5	1.5
31-32	End Term - Presentation – 40 Marks - 3 hours Jury based practical evaluation					

Course Book:

1. **R1**:-Enterprise Resource Planning Author: - Mary Sumner, Pearson Publishers
2. **R2**:- ERP Theory and Practice Author : Rahul V. Altekar, Eastern Economy Edition, Prentice Hall of India

Suggested references Books and Journals:

1. Enterprise Resource Planning (ERP): the Dynamics of Operations Management, by A. Shtub, Kluwer Academic Publishers, 1999.**A**
2. Production and Operations Analysis, 3rd edition, by Steven Nahmias, Irwin, 1997.
3. Production: Planning, Control, and Integration, by D. Sipper and R. L. Bulfin, Jr., McGraw-Hill, 1998.
4. Operations Management, 3rd edition, by R. S. Russell and B. W. Taylor III, Prentice Hall, 2000.
5. Manufacturing Planning and Control Systems, 3rd edition, by T. E. Vollmann, W. L. Berry and D. C. Whybark, Irwin, Boston, 1992.
6. Why ERP? A primer on SAP Implementation, by F. Robert Jacobs and D. Clay Whybark, McGraw-Hill Higher Education, 2000
7. Concepts in Enterprise Resource Planning, Third Edition (Paperback) by Ellen Monk, Bret Wagner Publisher: Course Technology (February 4, 2008)

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100
Document Submission	Case Study Presentation	Practical Evaluation				Supervised Practical Jury Evaluation	

Benchmarked assignment Description (if required to be documented separately)

Assignment 1 - The past, present and future of ERP.	
Details/ description of assignment	How did ERP evolve? MRP I – Nature of functioning, Applications; MRP II – Key elements; Transition from MRP to ERP . Advantages and disadvantages of ERP. What are the next generation enterprise resource planning strategies and applications?
Evaluation parameter	Understanding ERP evolution and future developments.
Type of assignment	Document Submission
Weightage	20
Assignment 2 : Mid Term evaluation/Jury -	
1. Case study: Examine a case in detail where there was a successful ERP implementation and one case where the ERP implementation turned out to be a failure. 2. Student is given any one standard module of ERP (like CRM, SCM or procurement etc...). They are required to prepare the key features of the module.	
Details/ description of assignment	Students also specify the reasons how the module will be useful in a Garment Industry.
Evaluation parameter	A detailed research is done on the implementation of ERP tools in different companies and the effect of ERP implementation on the business is studied. ERP case studies throw lots of insights on practical aspects. This helps to adopt and follow successful strategies, also learn, plan and avoid mistakes from the inferences of the case study. Understanding the ERP module discussed. Examine the key reasons for success or failure of each case of ERP implementation.

Type of assignment	Case Study Presentation
Weightage	20
Assignment 3 – Create Bill of Material (BOM) for a Finished Garment Product as per the specification provided.	
Details/ description of assignment	<p>specification provided for :</p> <ul style="list-style-type: none"> • Packing Material (Size and color independent) • Fabric (Color dependent) • 1 sewing trim (size label) (size dependent) • 1 price tag (color size dependent) <p>Create :</p> <ol style="list-style-type: none"> 1. Activity 2. Activity Group 3. TNA 4. Attach it to product
Evaluation parameter	The student should initiate the process by accurately defining the parent and child items forming the part of BOM.
Type of assignment	Practical
Weightage	20 marks
<p>End Term Jury – Practical Evaluation, Supervised Jury</p> <p>For the selected garment create all the parent and child products, create the BOM, generate the sales order, generate the production demand. Create the production order.</p> <ol style="list-style-type: none"> 1. <ul style="list-style-type: none"> • Receive a Purchase Order • Create WC, Operation, Attribute, Routing • Attach the Routing to the product. 2. <ul style="list-style-type: none"> • Production Order creation at all levels • Issuing material based on the Production Demand • Receiving of finished garment 	

Details/ description of assignment	From BOM, production demand is generated. From Production demand derives the Production Order and from PO, material is issued to production.
Evaluation parameter	Successful creation of production orders based on the production demand.
Type of assignment	Practical Evaluation, Supervised Jury
Weightage	40 marks

Teaching Tools:

1. Lecture, Demonstration
2. Review Cases with ERP implementations, feedback by faculty.

Learning outcome:

1. At the end of the sessions on ERP, students should be able to understand its benefits and build a compelling business case in support of an ERP.
2. Students will be able to understand and appreciate the advantages of an effective ERP implementation such as improved interaction across the enterprise, improved order management, Improved customer relationship management, improved on-time delivery, reduced direct operating cost, and lowered inventory levels, due to ERP implementations. The course also addresses linking of activities of varied functions offered by different departments.
3. The course also provides hands-on experience on the working of the software, Datatex-NOW, an ERP solution specific to the Garment Industry.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VI

(For entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT314P	Computer Aided Production Planning	Lecture		48	2	NC	PB
		Practical / Workshop	3.0				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite: POM

Course objective:

To understand the concept of finite capacity scheduling

To understand how sewing room capacity is planned using software.

To understand the influence of product type, product mismatch, timetable, start up loss, and throughput in sewing room planning.

To understand how to interpret dependent department workload, and financial parameters

Course structure:

Concept domain- Finite Capacity Scheduling

Knowledge domain- Production planning and control

Skill domain – Practitioner skill of operating a production planning software

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1-4	1.5 X 4	Module 1 1. Creating a new product 2. Creating an order 3. Understanding the planning board: Loading an order, moving an order, Re-planning, Change the strip, The status line 4. Update production 5. Planning	Throughput, product, order, customer			6	
5-6	1.5 X 2	Module 2 1. Eliminate late deliveries 2. Review financial results 3. Plan new orders	Calendar, efficiency, timetable			3	
Benchmarked assignment 1 (20 marks)							
7-8	1.5 X 2	Students completing the assignment 1 in class (spot evaluation done in class)				3	

9-10	1.5 X 2	Module 3 1. Eliminate late deliveries 2. Review financial results 3. Setting up: General set up, Allowances, Matrix 4. Planning	General set up			3	
11-12	1.5 X 2	Module 4 1. Eliminate late deliveries 2. Review financial results 3. Setting up start up loss 4. Understanding the load bar charts 5. Planning	late deliveries, start up loss, overload			3	
Benchmarked assignment 2 (20 marks)							
13-14	1.5 X 2	Students completing the assignment 1 in class (spot evaluation done in class)				3	
15-22	1.5 X 8	Module 5 1. Eliminate late deliveries 2. 3. Review financial results 4. Setting up 5. Planning: Loading orders, Checking event targets, Allow an early start 6. Reports: Executive targets, Orders report 7. Update of pre-production actions: By event, By order 8. Understanding the quick				12	

		response lines 9. Late deliveries, what to do: Changing delivery dates 10. Changing capacity 11. Working overtime 12. Avoid unachievable dates					
Benchmarked assignment 3 (20 marks)							
23-24	1.5 X 2	Students completing the assignment 1 in class (spot evaluation done in class)				3	
1-25-32	1.5 X 8	Module 6 1. Set up factory, calendars, timetable, products, orders and customers based on any internship report and learn: 2. How to plan-update orders 3. How to create department wise (cutting-sewing-finishing) report 4. How to create department wise (cutting-sewing-finishing) report				12	
Final Project (40 marks) (jury based evaluation)							
					0	48	0

* All references from Fast React Manual

Suggested references Books:

Apart from ones mentioned with the course curriculum

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	-	-	-	40	100

Teaching Tools:

Lecture, practical, video demonstration, case discussion and assignment

Learning outcome:

Students will be able to appreciate why technology is important for an organization, how to choose right technology, calculate ROI for selected technology, and develop technology index for an organization.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	How to create a product record. How to raise an order for that product. How to plan that order onto the planning board and seen how the strip and status lines change when re-planning. Update production for that order. Plan a whole series of orders onto the factory. How the financial values for these orders can be displayed. When production does not go according to plan, how constant replanning will be required to make optimum use of resources, to minimise late deliveries and gain maximum profit. How to match product types to production lines and the cost to the business of failing to achieve a good match. Learn some of the reports that Fast React can generate. Consequences of manufacturing too far ahead of the customer's delivery requirements.
Evaluation parameter	Understanding of concept and software functionalities
Type of assignment	Spot Evaluation
Weight age	20 marks

Assignment 2 –	
Details/ description of assignment	How to configure Fast React to handle start up losses, How to plan to minimise the costs that these losses do cause, How to apply start up losses manually.
Evaluation parameter	Understanding of concept and software functionalities
Type of assignment	Spot Evaluation
Weight age	20 marks
Assignment 3	
Details/ description of assignment	What pre-production planning means, Why it is so important is most companies, How it can be implemented using Fast React, How it affects production planning. How to interpret the panning board, How to generate reports and what to do with them, How to keep the pre-production planning up to date
Evaluation parameter	Understanding of concept and software functionalities
Type of assignment	Spot Evaluation
Weight age	20 marks
Final Project (jury based evaluation)	
Details/ description of assignment	Students will be divided into groups of 4/5 and each group will be given brief of hypothetical company. Each group is supposed to setup the factory, create 40 orders and show planning of the orders in the planning board with all status reports:
Evaluation parameter	Understanding of concept and software functionalities
Type of assignment	Software demonstration and presentation
Weight age	40 marks

NATIONAL INSTITUTE OF FASHION TECHNOLOGY**Academic Plan for Semester VI**

(For entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT316P	Auto CAD	Lecture	1.5	48	2.5	NC	PB
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Course objective:

- To give a working knowledge and skill on AutoCAD in relation to the different drawing & modeling usages in Apparel Industry
- Integrate drawing skills with Information Technology
- Design and Draft drawing related to apparel industry such as facility design drawing of machine & Equipment
- Design of a new product

Course structure:

Concept domain- To understand engineering drawing concepts and applications

Knowledge domain- To impart working knowledge on AUTO CAD enabling the students to apply the same for Plant layout and facility design

Skill domain- To develop facility layouts

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
1-2	3.0	Introduction and understanding of Engineering Drawing concepts & applications	Isometric, Orthographic & Engineering drawing		1.5	1.5	
3-4	3.0	Screen layout, Co-ordinate Systems, line, Circle, polygon, Ellipse, Erase	Screen layout, Co-ordinate Systems, line, Circle, polygon, Elides, Erase		1.5	1.5	
5-6	3.0	New, Open, Save, Close, Quit, U, Redo, Arc	New, Open, Save, Close, Quit, U, Redo, Arc		1.5	1.5	
7-8	3.0	Moves, Copy, Array, Dsettings, Break, Mirror, Offset	Moves, Copy, Array, Dsettings, Break, Mirror, Offset		1.5	1.5	
Benchmark Assignment 1 give any four objects from the surrounding like class room, machine room, labs, building, furniture which students have to measure and develop the drawings Ensures that the application of the commands 1 to 8 gets cover up in it. Marks: 20							
9-10	3.0	Scale, Rotate, limils, ZOOI]1, Pan, Units, Mtext, Style	Scale, Rotate, limils, 200I]1, Pan, Units, Mtext, Style		1.5	1.5	
11-12	3.0	View, Color, linetype, lineweight, Regen, Trim, Extend, and Stretch	View, Color, linetype, lineweight, Regen, Trim, Extend, and Stretch		1.5	1.5	
13-14	3.0	Bhatch, Pline, pedit, Ex Plode, Fillet, Chamfer, MatchProp	Bhatch, Pline, pedit, Ex Plode, Fillet, Chamfer, Match Prod		1.5	1.5	
15-16	3.0	list, Dist, lengthen, Layer, Spline, Mline, Mistyle, Mledit	list, Dist, lengthen, Layer, Spline, Mline, Mlstyle, Mledit		1.5	1.5	
17-18	3.0	Dimlinear, Dimaligned, Dimdiameter, Dimradius, Dimcenter, Dimbaceline, Dimcontinuous, Qleader, Dimstyle,	Dimlinear, Dimaligned, Dimdiameter, Dimradius, Dimcenter, Dimbaceline, Dimcontinuous, Qleader, Dimstyle,		1.5	1.5	
19-20	3.0	Block, Insert, Divide, Measure, Altdef, Attedit, Altdisp	Block, Insert, Divide, Measure, Altdef, Attedit, Altdisp		1.5	1.5	

21-22	3.0	Group, Xref, Refedit, Plot	Group, Xref, Refedit, Plot		1.5	1.5	
Benchmark Assignment 2 give the assignment in which the topic from 9-10 to 21-22 gets cover up and students develop the drawing. This assignment essentially should be the development/re production of layout of machine lab/computer lab/whole factory/library/faculty cabin area, any other things where students can develop the layout with the furniture and machine. Marks 20							
23-24	3.0	Introduction to 3D, Types of 3D Models, 3dface, flide, Voorts	Introduction to 3D, Types of 3D Mooeds, 3dface, flide, Voorts		1.5	1.5	
25-26	3.0	Rulesurf, Tabsurf, Revsurf, Edgesurf	Rulesurf, Tabsurf, Revsurf, Edgesurf		1.5	1.5	
27-28	3.0	Box, Cylinder, Wedge, Cone, Sphere, Torus, Extrude, Revolve	Box, Cylinder, Wedge, Cone, Sphere, Torus, Extrude, Revolve		1.5	1.5	
29-30	3.0	UCS, Ucsicon, Union, Subtract, Intersect, Interiere	UCS, Ucsicon, Union, Subtract, Intersect, Interiere		1.5	1.5	
31-32 32-33	3.0	3darray, Mirror3d, Rotale3d, Slice, Align, Fillet, Chamfer, Render, Rmat, Rpref, Light, Scene, Lsnew, Lsedit, Export, Import	3darray, Mirror3d, Rotale3d, Slice, Align, Fillet, Chamfer, Render, Rmat, Rpref, Light, Scene, Lsnew, Lsedit, Export, Import		1.5	1.5	
Benchmark Assignment 3: Development of any 3D object like machines, factory/furniture/cupboard etc. In a 3D layout form. Marks 20							

End term Project: develop the one complete layout of any one facility which should have minimum following detailing as per the scale.

1. the layout of the facility
2. Furniture position and details
3. Machine positions and details
4. Tubes and electrical detailing
5. Waterline/dranage line/air line. (This point no 5 is optional on the basis of nature of the layout develop by the students.

Marks: 30

Suggested references Books:

- Harnessing AutoCAD 2004 by Thomas A Stellman A Stellman, G V Krishnan
- AutoCAD 2004: Quick Reference by Ralph Grabowski
- Mastering AutoCAD 2004 by George Omura
- Using AutoCAD 2004: Basics by ralpha Grabowski
- AutoCAD 2004 bible by Ellen Finkelstein
- AutoCAD 2004: a problem solving approach by Sham Tickoo
- AutoCAD 2004 for dummies by Mark Middlebrook
- AutoCAD and its applications: basics 2004 by Terence A Shumakes & David Madsen
- AutoCAD 2004: No experience required by David Frey

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	-	-	-	40	100

Learning outcome:

- Students will be able to design & draft drawings related to Apparel industry such as facility design, drawing of machine & equipment, design of a new products etc.
- Students will learn to integrate their drawing skills with the technology to attain speed and accuracy

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VI
 (For entire curriculum **January - June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT318DE	Sustainable Production	Lecture	1.0	40	2.0	NC	DE
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	2.5				

Course objective:

1. To increase awareness of sustainable design & technology, enabling students to recognise the economic and environmental impacts of the design & technology they choose.
2. To provide a range of examples of sustainable solutions to technology issues from around the world.

Course structure:

Concept domain- sensitization about care for society and environment
 Knowledge domain- carbon footprint, green building

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
1-2	1.5 X 2	Introduction to sustainability, how something can be sustainable, parameters deciding whether the product is sustainable or not. Definitions, key terms and its interpretations	Eco-system, Sustainable, sustainability, environment	SF-1	3.0	--	
3-4	1.5 X 2	Triple bottom-line approaches to sustainability	Economy Society Environment	SF-2	3.0	--	
5-6	1.5 X 2	3R Approaches to Sustainability	Resource, Reuse Recycle	SF-3	3.0	--	
7-8	1.5 X 2	Renewable energy and its sources with possible applications	Renewable energy, Solar energy, Wind power	AD - Chapter 26 Page (342 – 354.)	3.0	--	
9-10	1.5 X 2 1.0 X 1	Sustainable Industrial Development and its relevance in context of Textiles & Fashion Industry		SF-4A, 4B, 4C,	1	3.0	
Benchmarked assignment 1 (20 Marks) Essay writing and Presentation on different aspects of Sustainable Production covering various industries							
11-14	1.5 X 4	Consumption and production patterns and ecological foot prints	Production Patterns, Carbon foot prints	SF-5A	3.0	3.0	
Mid Term Exam (20 Marks)							
15-16	1.5 X 2	Recycled Fashion Case studies		SF-6A, 6B		3.0	
17-20	1.5 X 4	Measuring sustainable production and Sustainability Index		SF-7A		6	
Benchmarked assignment 2 (20 Marks) Survey to measure the sustainability index of Indian apparel organisations							

21-24	1.5 X 4	Green Labels, certifications, regulations and audit systems which are globally followed		SF-8A		6.0	
25-26	1.5 X 2	Sustainable Production in Indian context- Past, Present and Future		SF-9A		3.0	
End term exam (40 Marks)							

Reference:

1. Sustainable Development (Chapter 26 in Arthur, J., Davies, I. & Hahn, C. (eds.) *The Sage Handbook of Education for Citizenship and Democracy*, London, Sage Publications, 2008, pp. 342 – 354.) (AD)
2. Reference Materials SF-1, to SF-9 (inhouse developed handout based on articles, books and website)

Reference Magazines, Journals and other sources:

1. <http://www.stepin.org/index.php?id=aboutstep>
2. BRANDIX- Towards a sustainable industrial system-With recommendations for education, research, industry and policy
3. Artificial Fibre by Biomimetics from www.fibre2fashion.com
4. Environmental Sustainability at Xerox
5. FUJI Xerox case study
6. Implementation of sustainable manufacturing practices in SMEs– Case study of a New Zealand furniture manufacturer
7. Indicators of Sustainable Production- A Case Study on Measuring Sustainability at Stonyfield Farm, Inc
8. Eco-Trends-Conscious Fashion with style from www.fibre2fashion.com
9. Articles on recycling of Fleece, Khadi, Rugs, Kanthe clothes, Organic Cotton, Newspapers, Plastic bottles etc.

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam	End – Term Exam	Total
20	20	--	--	--	20	40	100

Learning outcome:

The students will be enriched with the understanding of their role in the saving and preservation of resources in the work environment and make them updated with the latest practices and activities going on across the world in different manufacturing industries. It will help them to work in the micro and macro surroundings with more responsible manner to the nature.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	Students search literature to prepare an essay of 6000 words on the different sustainable initiatives taken by different organizations in different industries. The students will submit a document as well as present their work to the class.
Evaluation parameter	Extent and depth of research, content of presentation.
Type of assignment	Written submission and presentation
Weight age	20 marks
Assignment 2 –	
Details/ description of assignment	Students survey different organisations of textile and apparel supply chain, collect primary data and calculate sustainability index of an organization.
Evaluation parameter	Extent and depth of research,
Type of assignment	Written submission and presentation
Weight age	20 marks

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VI
 (For entire curriculum **January - June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT320DE	Fabric Objective Measurement	Lecture	2.5	40	2.5	NC	DE
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	2.5				

Perquisite: Fabric Science 1, Fabric Science 2, Dyeing and Printing, Fabric & Garment Finishing

Course objective:

- To develop the understanding of objective & subjective measurement of fabric properties.
- To develop a conceptual understanding of various fabric properties and how they are affected by fabric structure and properties of constituent yarns.
- To study various tools, test and standards those are used for predicting a fabric's performance.

Course structure:

- **Concept domain** - To conceptualize the structure, various handle properties of different types of fabrics and their correlations with garments.
- **Knowledge domain** - To understand how to evaluate the handle properties of different textile fabrics, like stiffness, drape, shrinkage, thickness, tensile property, compression property and its impact on fabric tailorability.
- **Skill domain** - To develop the skill of understanding the correlation between fabric handle property and its performance on sewing floor.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1-2	5	Role of woven fabric mechanics General features of woven fabric mechanical Behavior Study of woven fabric mechanics Significance of Fabric Objective Measurement technology	Significance of Fabric Objective Measurement technology	HU, Jinlian pages: 1-20	5		
3-4	5	The KES system	Configuration of the KES system KES-FB2 Pure bending tester KES-FB3 Compression tester KES-FB4 Surface tester Information obtained from the KES-F system	HU, Jinlian pages:21-27 V.K Kothari Pages:338-350	5		

5-6	5	The FAST system	The FAST system FAST-1 Compression meter FAST-2 Bending meter FAST-3 Extension meter FAST-4 Dimensional stability test Information obtained from the FAST system	HU, Jinlian pages:27-33 V.K Kothari Pages:351-359	5		
7	2.5	Comparison of the KES system & the FAST system		HU, Jinlian pages:33-34	2.5		
8		Mid term exam					
Benchmarked assignment 1- Documentation on any of the above topic ... 10 Marks							
Benchmarked assignment 2 Classroom presentation related to above topics 10 Marks							
9	2.5	Geometrical and surface properties Measurement	Geometrical and surface properties Measurement The VIDS image analysis system Preparation of samples Measurement of geometrical parameters	HU, Jinlian pages: 35-41	2.5		

10-11	5	Scanning electron microscope, FabricEye	Scanning electron microscope Experiment on fabric surface image FabricEye Traditional subjective assessments Overview of the FabricEye® system The principle of FabricEye® Evaluation procedure of FabricEye®	HU, Jinlian pages:41-54	5		
12	2.5	Complex deformation measurement	Complex deformation measurement Cantilever methods Drape meter	HU, Jinlian pages:54-58	2.5		
13	2.5	Thermal comfort properties of fabric.	Thermal comfort properties of fabric. Thermal comfort in humans Thermal transfer process Thermal degradation	V.K Kothari 360-375	2.5		

14 - 15	5	Moisture vapour transfer	Moisture vapour transfer Moisture loss from the body Measurement of M V T Comparison of Thermal comfort properties for different Textile Structures	V.K Kothari 375-385	5		
Benchmarked assignment 3 Documentation on the above topics (13 to 24). 10 Marks							
Benchmarked assignment 4 Classroom presentation on any topic related to above (13 to 24). 10 Marks							
16		End term exam					

Suggested references Books:

1. Structure & Mechanics of Woven Fabrics, 2004 By: HU, Jinlian, Woodhead publishing Limited
2. Progress in Textiles: Science & Tech. Vol. 1 Testing & Quality, Management by V.K Kothari IAFL Publications New Delhi

Reference Magazines, Journals and other sources:

1. Effect of mechanical and physical properties on fabric hand by Hassan M. Behery Published by Woodhead Publishing, 2005
2. Physical testing of textiles by B P Saville. Published by Woodhead Publishing, 1999
3. Fabric testing by Jinlian HU Published by Woodhead Publishing, 2008
4. <http://www.csiro.au/files/files/p92v.pdf>
5. <http://www.csiro.au/resources/SiroFASTreport.html>
6. <http://www.grupomarteam.com/archivos/SiroFast.pdf>
7. http://www.percro.org/siteContents/mediaArchive/pdf/HAPTEX_InflOfPhysParamOnFabricHand.pdf
8. The use of the Kawabata Evaluation System for product development and quality control, by R J Harwood, P J Weedall, C Carr, Journal of the Society of Dyers and Colourists, Volume 106 Issue 2, Pages 64 – 68, Oct 2008

9. Evaluation of mechanical properties of uniform fabrics in garment manufacturing, by C.K. Chan, et.al., Journal of Materials Processing Technology Volume 174, Issues 1-3, May 2006, Pages 183-189
10. Fabric Assurance by Simple Testing, PPT by Vasant R Kothari

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
10	10	10	10	NA	20	40	100

Teaching Tools: PPTs and fabric swatches

Learning outcome: Students will understand the correlation between fabric properties and issues because of it in garment manufacturing.

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	Documentation on any of the above topic
Evaluation parameter	
Type of assignment	Document Submission
Weight age	10 marks
Assignment 2 –	
Details/ description of assignment	Classroom presentation related to above topics
Evaluation parameter	Contents of the topic and presentation skill
Type of assignment	Classroom presentation
Weight age	10 marks
Assignment 3 –	
Details/ description of assignment	Documentation on any of the above topic
Evaluation parameter	
Type of assignment	Document Submission
Weight age	10 marks

Assignment 4 –	
Details/ description of assignment	Classroom presentation related to above topics
Evaluation parameter	Contents of the topic and presentation skill
Type of assignment	Classroom presentation
Weight age	10 marks

Pattern for mid term/ final term examination paper

Paper Pattern for MID TERM (Session # 1-8)

Total Marks – 20 Duration 1.5 hrs

- Objective type answers
 - like Fill in the blanks, Match, true/false, fill in the blanks, etc
 - 50% i.e for 10 marks
 - One question one mark
 - No options in the question
- Short Answers
 - including definitions, Difference between etc.
 - 50% i.e for 10 marks
 - One question 2 marks
 - Word Limit- 100- 150 words
 - Min. 3 questions should be there in option

Paper Pattern for END TERM (Session # 1-16)-

Total Marks – 40 Duration 3 hrs

- Objective type answers
 - like Fill in the blanks, Match, true/false, fill in the blanks, etc
 - 40% i.e for 16 marks
 - One question one mark
 - No options in the question
- Short Answers
 - Including definitions, Difference between etc.

- 40% i.e for 16 marks
 - One question 2 marks
 - Word Limit- 100- 150 words
 - Min. 5 questions should be there in option
- Long Answers
 - Detailed descriptive
 - 20% i.e for 8 marks
 - One question 4 marks
 - Word Limit- 300-500 words
 - Min. 2 questions should be there in option

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VI
 (For entire curriculum **January - June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT322DE	Joint Venture & Acquisition	Lecture	1.5	40	2.5	NC	DE
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Prerequisite: IPR

Course objective: Students will learn about Joint Ventures, Merger and Acquisition in Apparel industry & Retail sector.

Course structure:

- **Knowledge domain** - Students will learn about Joint Ventures, Merger and Acquisition in Apparel industry & Retail sector.
- Students will learn about the types and the legal system in the country in the area of Joint Ventures & Acquisitions.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture		Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs		Hrs
1-2	2.5hrs	The Joint-Venture Concept	Strategic Reasons of One Partner Downsides of a JV JVs and Game Theory Finding the JV Idea or Partners	Ref -1	2.5hrs		
3-4	2.5hrs	Formulating the JV	Selecting the Partner Feasibility Study	Ref -1	2.5hrs		
5-6	2.5hrs		Incorporation of the Company The Shareholders' Agreement	Ref -1	2.5hrs		
7-8	2.5hrs	Types of JVs	Equity JVs Co-operative Joint Ventures Wholly Foreign Owned Enterprises (WFOEs)	Ref -1	2.5hrs		
9-10	2.5hrs	Types of JVs	Foreign Investment Companies Limited By Shares (FICLBS) Investment Companies by Foreign Investors (ICFI)	Ref -1	2.5hrs		
Benchmarked assignment 1- Individual Assignment. Study and compare various types of Joint Ventures in Apparel or in Retail sector. Submit a report. Weightage=20 marks							
11-12	2.5hrs	Joint-Ventures in India	Introduction Liberalization of Policy Automatic licensing and Administered Licensing	Ref -1	2.5hrs		

13-14	2.5hrs	Joint-Ventures in India	Joint Venture Companies Royalty Payments and Capitalization Legal System in the Country Articles of Association Dissolution	Ref -1	2.5hrs		
15-16 Benchmarked assignment 2: Assignment on Joint Venture Group of 2 students should make the PPT on JV in Textile, Garment or Retail Industry Why was the JV made? Why did the company choose Joint Venture versus some other form of growth? Why did the target agree to JV? Why is this JV interesting to study? What is the potential value creation and/or value destruction in this deal? Overall, what is your assessment of this JV? Weight age=20 Marks							
17-18	2.5hrs	Structuring Fundamentals	Basic Corporate Finance Concepts Reasons for Acquisitions Three Basic Acquisition Structures Structuring Considerations: Overview	Page # 1-16 Mergers & Acquisitions: A Step-By-Step Legal And Practical Guide Edwin L. Miller Jr., 2008	2.5hrs		
19-20	2.5hrs	The Acquisition Process	Acquisition Strategy The Basic Acquisition Process Flow The Auction Process Flow Locating and Culling Acquisition Targets The Optimal Target Size Evaluate Acquisition Targets with Alliances	Page # 1 -26 Mergers & Acquisitions A Condensed Practitioner's Guide Steven M. Bragg, 2009	2.5hrs		

21-22	2.5hrs	Valuing an Acquisition Target	<p>Alternative Valuation Methods</p> <p>The Control Premium</p> <p>Synergy Gains</p> <p>The Discounted Cash Flow (DCF) Model</p> <p>Constructing Cash Flow Scenarios</p> <p>The Earn out</p> <p>Qualitative Factors</p> <p>Which Valuation Method is best?</p> <p>The Method of Payment</p>	<p>Page # 57-82</p> <p>Mergers & Acquisitions</p> <p>A Condensed Practitioner's Guide</p> <p>Steven M. Bragg, 2009</p>	2.5hrs		
23-24	2.5hrs	Due Diligence	<ul style="list-style-type: none"> - The Due Diligence Process - Building a Team - What the Buyer Wants to Know - Due Diligence Problems 	<p>Page # 17-30</p> <p>Mergers and Acquisitions: A Guide to Creating Value for Stakeholders by Michael A. Hitt et.al, 2001</p> <p>Page # 153-190</p> <p>Mergers and Acquisitions Basics: The Key Steps of Acquisitions, Divestitures, and Investments</p> <p>MICHAEL E. S. FRANKEL, 2005</p>	2.5hrs		

25-26	2.5hrs	Legal Framework of the country The Purchase Agreement	All Components of a Legal framework & Purchase Agreement	Page # 147-180 Mergers & Acquisitions A Condensed Practitioner's Guide Steven M. Bragg, 2009	2.5hrs		
<p>Benchmarked assignment 3 Assignment on Acquisition Case:</p> <p>There have been many major acquisitions announced in the last 12 months. In this class, student groups will make presentations on any one of the acquisitions they wish to study. Presentations should focus on one deal, and after describing the basic facts, should address the following issues at a minimum.</p> <p>Why was the acquisition made? Why did the acquirer choose acquisition versus some other form of growth? Why did the target agree to be acquired? Why is this acquisition interesting to study?</p> <p>Does the acquirer have a parenting advantage? Does the deal pass the two tests of parenting advantage? What are the sources of parenting advantage, if any? What is the potential value creation and/or value destruction in this deal?</p> <p>What has been done thus far in integrating the acquisition, and does it make sense to you? If the acquisition is still very new, what would you focus on for the integration, and why? What are the major pitfalls to expect in this particular acquisition integration?</p> <p>Is this acquisition likely to enhance the acquirer's competitive advantage? How? Is this advantage sustainable? Overall, what is your assessment of this acquisition?</p> <p>Weight age=20 Marks</p>							

27-28	2.5hrs	Acquiring or Merging Across Borders	<ul style="list-style-type: none"> - Definitions - Environmental Opportunities and Threats - A Global Mindset - Reasons to Complete Cross-Border Mergers and Acquisitions - Horizontal Acquisitions - Vertical Acquisitions 	Page # 143-160 Mergers and Acquisitions: A Guide to Creating Value for Stakeholders by Michael A. Hitt et.al, 2001	2.5hrs		
29-30	2.5hrs	Alternatives to Mergers and Acquisitions	<ul style="list-style-type: none"> - Franchising - Technology and Merchandise Licensing - Distributorships and Dealerships 	Page No 254-282 Mergers & Acquisitions From A To Z Second edition Andrew J. Sherman, 2006	2.5hrs		
31-32 End Term Examination M.Marks = 40							

Suggested references Books:

1. Apart from ones mentioned with the course curriculum
2. Reference material will be provided for the sessions 1-16

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Teaching Tools:

1. Lectures
2. Class room exercises
3. Case studies
4. Industry visit

Learning outcome:

1. Students will learn about Joint Ventures, Merger and Acquisition in an Apparel industry
2. Students will know about the types and the role of Government policies in the above areas.
3. Students will have complete understanding of the topics with proper case studies

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	Individual Assignment. Study and compare various types of Joint Ventures in a Garment or in a Retail sector. Submit a report.
Type of assignment	Report
Weight age	20
Assignment 2	
Details/ description of assignment	Assignment on Joint Venture Group of 2 students should make the PPT on JV in Textile, Garment or Retail Industry Why was the JV made? Why did the company choose Joint Venture versus some other form of growth? Why did the target agree to JV? Why is this JV interesting to study? What is the potential value creation and/or value destruction in this deal? Overall, what is your assessment of this JV?
Evaluation parameter	
Type of assignment	Presentation
Weight age	20

Assignment 3	
Details/ description of assignment	<p>Assignment on Acquisition Case:</p> <p>There have been many major acquisitions announced in the last 12 months. In this class, student groups will make presentations on any one of the acquisitions they wish to study. Presentations should focus on one deal, and after describing the basic facts, should address the following issues at a minimum.</p> <p>Why was the acquisition made? Why did the acquirer choose acquisition versus some other form of growth? Why did the target agree to be acquired? Why is this acquisition interesting to study? Does the acquirer have a parenting advantage? Does the deal pass the two tests of parenting advantage? What are the sources of parenting advantage, if any? What is the potential value creation and/or value destruction in this deal?</p> <p>What has been done thus far in integrating the acquisition, and does it make sense to you? If the acquisition is still very new, what would you focus on for the integration, and why? What are the major pitfalls to expect in this particular acquisition integration?</p> <p>Is this acquisition likely to enhance the acquirer's competitive advantage? How? Is this advantage sustainable? Overall, what is your assessment of this acquisition?</p>
Evaluation parameter	
Type of assignment	Presentation and Viva
Weight age	20

Pattern for End term examination paper

Objectives (e.g., fill ups / multiple choice questions/ true – false / match the following) - 10 marks

Practical based question (case study) - 10 marks

Short theory questions (preferably indirect questions e.g., explain why) and differentiate between

Various terminologies - 10 marks

Long answer questions-10 marks

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
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 (for entire curriculum **January - June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT324DE	Project Management	Lecture	1	40	2.0	NC	DE
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	2.5				

Perquisite: None

Course objectives:

- Discuss the range, scope, and complexity of modern projects.
- Introduce a strategic, system perspective on the management of projects.
- Discuss the role of the modern project manager.
- Practice applying modern project management tools and techniques during the semester.

Course structure:

- **Concept domain** - Project Management : a method of restructuring management, for obtaining better control and use of existing resources
- **Knowledge domain** - Use of Planning, Scheduling and Resource allocation methods
- **Skill domain** - Planning, Organizing, Directing and Controlling of resources of existing systems

Course Contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1-2	5	Overview	Basic concepts /overview of Project management		2	3	
1	2.5	Basic Concepts	Definition, PM's role, risks	I pp 8 ~ 12 II pp 2 ~ 17	1	1.5	
2	2.5	Systems, Product, Life Cycle	Project driven Vs Non-Project, Product Vs Project Management	I pp 13 ~ 18 II pp 36 ~ 45, 58 ~ 82	1	1.5	
3-7	15	Project Initiation	Selection, Managing, Organizing, Planning, Conflict, Negotiation		6	9	
3	2.5	Project Selection	Selection Models	I pp 40 ~ 45	1	1.5	
4	2.5	Project Manager	Duties	I pp 120 ~ 148 II pp 179 ~ 205	1	1.5	
5	5	Project Organization, Conflict & Negotiation	Organizational forms, authority, time management; Managing, principles, nature	I pp 187 ~ 205 II pp 230 ~ 290, pp 317 ~ 341; I pp 298 ~ 315 II pp 343 ~ 372	2	3	

6	5	Project Planning	Strategic project variables, statement of work, Work breakdown structure, Planning Cycle, Types of plans, Total Project Management	II pp 533 ~ 587	2	3	
7-12	15	Project Finalization	Pricing, Cost / Project control, PERT, CPM, Critical Path		6	9	
7	2.5	Pricing & Estimating, Cost Control	Types, overhead, other costs, Estimates, Systems Pricing, Budgets, Control problems	II Chap. 14, 15	1	1.5	
Assignment I : Choose an area (for ex.) “conflicts” and work out a method to find a solution.					10 marks		
Mid Term Exam					20 marks		
8,9	5.0	Scheduling	Networking techniques, PERT, CPM (exercises using software)	I Chap. 8 II Chap. 12	2	3	
10,11	5.0	Resource Allocation	Crashing a Project, Resource Loading / Leveling	I Chap. 9	2	3	
12	2.5	Project Control	Types	I Chap. 11	1	1.5	
13-14	5	Project Termination	Auditing, Termination		2	3	
13	2.5	Project Auditing	Purpose	I Chap. 12	1	1.5	
14	2.5	Project Termination	Process, Final Report	I Chap. 13	1	1.5	

Assignment II : Extend Assignment #1 to include post-midterm portions.	10 marks	
Presentation : Create a case in MS Project and demonstrate the learning.	20 marks	
End Term Exam	40 marks	

Text Books:

1. Project management – A managerial Approach: Jack R Meredith, Samuel J.Mantel, Wiley India, 5th edition.
2. Project Management – A systems approach to planning, scheduling and controlling: Harold Kerzner, CBS Publications, 2nd edition.

Suggested references Books:

1. A guide to the Project Management body of Knowledge, Project Management Institute Publication, ISBN: 1880410230
2. Project Management : K.Nagarajan, New Age International Publishers, 5th Edition
3. Project Management – Case Studies : Harold Kerzner, Wiley India.

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Mid – Term Exam / Jury	Presentation	End – Term Exam/ Jury	Total
10	10	NA	NA	20	20	40	100

Teaching Tools:

1. Lectures
2. Powerpoint Presentations
3. Case Studies / Exercises

Pattern for mid term/ final term CEB examination paperMidterm exam

Part A	Fill in the Blanks / Multiple choice questions	5 questions	10 marks
Part B	Short Answer (not exceeding 50 words)	5/7 questions	10 marks

Final exam

Part A	Fill in the Blanks / Multiple choice questions	5 questions	10 marks
Part B	Short Answer (not exceeding 50 words)	5/7 questions	10 marks
Part C	Long Answer (not exceeding 150 words)	4/6 questions	20 marks

Learning outcome:

Upon completion of the course the students would be able to :

1. describe what project management is, define, describe each of the key phases in the project management life cycle
2. distinguish between project development and product development
3. apply different project selection methods to prioritize and decide on “pending” projects
4. build a Work Breakdown Structure
5. Construct and use Gantt charts and PERT charts for project planning and tracking
6. Describe and apply the different cost estimating techniques
7. Describe various kinds of project documentation

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VI
 (for entire curriculum January - June)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT326DE	Training & Development of Supervisors	Lecture	1	40	2.0	NC	DE
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	2.5				

Perquisite: Pattern Making & Garment Construction

Course objective:

- The course aims to provide supervisory skills
- To prepare them as coach to train/retrain operatives
- To sensitizing them about efficiency and profitability

Course structure :

- **Concept domain** - Conceptualizing a formal scientific training program for supervisors/operatives
- **Knowledge domain** - Scientific Training methods
- **Skill domain** - Training Skills

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	1.5	Overview of Subject - Who is Supervisor? What is his role & responsibilities?	Planning, Organizing, Communication, Leading, Facilitating	Ref. 2. Chapter 1 Page 1-23	1.5 x 1		
2- 7	9.0	Hard Skills of Supervisor Quality Checking, Hourly check performance, Line balancing, Discussions with line manager, Praising good performing machinists, Disciplining poor performing machinists, Operator performance boosting, Instructing operators and giving orders, Passing observation, Off the section, Repairs, Moving work Discussions & Exercises in Lab		Ref. 3. Page 5 - 71	1.5 x 3	1.5 x 3	
8-9	3.0	Soft Skills of Supervisor Technical Skills, Human Resource		Ref. 3 Page 74-82	1.5 x 2		

		Skills, Management Skills, Cost Control Skills, Oratory Skills, Team Building Skills, Leadership Skills, Firm Behavior for maintaining discipline in the workplace					
Assignment 1 – Quiz – 20 Marks – Covering sessions 1 – 11 – Practical 3 Hrs							
12-16	7.5	Human Resource Skills - Operative Training Recruiting - Format for Application, Interview, Selection and Rejection Criteria. Screening & Testing – Dexterity (General & Mental)	Application, Interview, Dexterity	Ref. 1. Chapter 1 & 2	1.5 x 1	1.5 x 4	
17	1.5	Training Concepts - Training Procedure, Learning Principles, Learning Curve, Determination of Training Period	Learning Curve	Ref. 1. Chapter 4	1.5 x 1		
18-21	6.0	Maintaining Quality - Launching a quality control program	Quality Control, Quality Assurance	Ref. 2. Chapter IV Page 1 - 14	1.5 x 1	1.5 x 3	
Assignment 2 – Preparing A quality control program for an apparel manufacturing unit – Submission 20 Marks							
22-25	6.0	Improving Efficiency and Cost Control - Application of Time and Method Study - Line Balancing - Setting Piece Rates - Sensitizing the impact of cost on profitability	Time and Method study, setting piece rate, Cost Control	Ref. 2 Chapter V Page 1- 33	1.5 x 2	1.5 x 2	
Final Assignment - Preparing a program for Supervisory Training (Group of Max 4 students) - submission and presentation – Practical - 3 Hrs. 60 marks							

Suggested references Books: Apart from ones mentioned with the course curriculum

1. Sewing Machine Operators Training Handbook for the Sewn Products Industry, compiled and Edited by Manuel Gaetan, Bobbin Publications, Inc. Comumbia, South Carolina
2. Supervisory Training Manual, Gene Levine Associates
3. Online Electronic Learning Programme for Supervisory Training, GP, Shlok Hariramani, BF(Tech), New Delhi

Reference Magazines, Journals and other sources:

1. Articles by Gene Levine – www.genelevine.com
2. Periodical & Journals
3. Student's Projects

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Teaching Tools:

- Lecture
- Demonstration
- Tutorials
- Videos

Learning outcome:

The subject would prepare students to train/retrain supervisors/operatives to improve the efficiency in apparel manufacturing environment.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VI
 (For entire curriculum **January - June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT328DE	Corporate Social Responsibility	Lecture	1	40	2	NC	DE
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	2.5				

Perquisite: None

Course objective: To be familiar with CSR activities

Course structure:

- **Concept domain** - Understanding of concepts of CSR, triple bottom line concept, ethics and code of conduct related with corporate strategies and stakeholder responsibilities.
- **Knowledge domain** - Students will understand the issues of CSR and their importance in strategic decisions.
- **Skill domain** - Concepts of CSR, skills about planning and designing CSR projects and their theoretical implementation.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
		Chapter heading					
1	2.5	Introduction to CSR	Introduction, Concept of CSR, history, definitions of CSR, the effects of organizational activity, the stakeholder concept, the principles of CSR, arguments for and against CSR, Class discussion on credibility of CSR	Corporate Social Responsibility by David Crowther and Guler Areas, (Page 10 to 18), Corporate Reputation : CSR report.pdf reference material for class discussion	1	1.5	
2	2.5	The principles of CSR	Introduction, the prominence of CSR, Changing emphasis in companies, Sustainability, environmental issues and their effects and implications, the social contract , the triple bottom line	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 2, Reference material TBL.pdf	2.5		

3	2.5	Stakeholders & the social contract	Introduction, concept of stakeholder, multiple stake holding, classification of stakeholder, stakeholder theory, regulation and its implication, risk reducing.	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 3	2.5		
4	2.5	Issues concerning Sustainability	Introduction, defining sustainability, the brundtland report, critiquing brundtland, sustainability and the Cost of Capital, redefining sustainability	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 4	2.5		
5	2.5	CSR and Fashion Industry	Case study discussion, Nike, Gap, Benetton, Arvind Mills, Alok Industries, ITC-e-chaupal			2.5	
Assignment 1							
6	2.5	Ethics, CSR and Corporate Behaviour	What is ethics? The why?, ethical philosophies, the gaia hypothesis, Corporate behavior, corporate reputation,	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 5	2.5		
7	2.5	Performance Evaluation and Performance reporting	Social accounting, aspects of performance, the balanced scorecard, the environmental audit, the measurement of performance, the evaluation of performance, multidimensional	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 6	2.5		

			performance management				
8	2.5	Globalization and CSR	Globalization , how globalization effects CSR, Globalisation , corporate failures and CSR, discussion about Is Globalisation an opportunity or threat for CSR	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 7	2.5		
9	2.5	Balancing Profit with CSR	Introduction, distinguishing features of sector, Types of NFP organizations, motivation for NFP's , implications for managers, available resources, structure of a charity, joint ventures	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 8, Case study discussion on Mass holdings	1	1.5	
10	2.5	CSR and Strategy	Economics of CSR, the role of a business manager, the objectives of a business, the tasks of a manger, the importance of performance measurement, managers and business ethics, corporate governance, corporate governance principles	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 9	2.5		
11	2.5	CSR and Leadership	The concept of leadership, styles of leadership, organizational culture and styles of leadership, motivation, definition of power, strategic planning, corporate planning, Agency	Corporate Social Responsibility by David Crowther and Guler Areas, Chapter 10	2.5		

			theory and limitations.				
12	2.5	CSR Policy & Compliance Standards	Code of conduct, implementing the code, credible stakeholder participation, freedom of association and collective bargaining	"Full package approach to labour codes of conduct" available at www.cleanclothes.org	1	1.5	
Assignment 2							
13	2.5	Case Study Discussion 1	The Problem with Corporate responsibility	Myth of CSR.pdf		2.5	
14	2.5	Case Study discussion 2	The impact of the social responsibility on textile industry	The impact.pdf		2.5	
Assignment 3	2.5	Case Study 3	Ethical Trading	Lessons from CSR initiatives in the apparel and textile industry		2.5	
Benchmarked assignment 1- assignment description with weight age							
		Chapter heading					
1		Submission on CSR practices of retailers and brands		10 Marks			
Benchmarked assignment 2 assignment description with weight age							
		Chapter heading					
2		Submission on Planning and designing CSR projects and their implementation		30 Marks			
Benchmarked assignment 2 assignment description with weight age							
3		Case study discussion (Spot)		20 Marks			
End term exam : 40 Marks							

Suggested references Books:

1. Diet for a Hot Planet: The Climate Crisis at the End of Your Fork and What You Can Do about It , Author: Anna Lappe (Author), Bill McKibben (Introduction)
2. The Responsibility Revolution: How the Next Generation of Businesses Will Win, Author: Jeffrey Hollender and Bill Breen
3. Good for Business: The Rise of the Conscious Corporation, Author: Andrew Benett, Cavas Gobhai, Ann O'Reilly, and Greg Welch

Reference Magazines, Journals and other sources:

1. www.cleanclothes.org
2. Corporate Reputation: CSR report
3. Business Ethics : The magazine of Corporate Social Responsibility
4. The Journal of Corporate Citizenship

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
10	30	20	NA	NA	NA	40	100

Teaching Tools:

1. Lectures,
2. Presentations
3. Case Study Discussion

Learning outcome: The students will get familiar with CSR issues which will be helpful in making strategic decisions.



SEMESTER VII

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July - December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-VII

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT403P	C	PB	Plant Layout	1.5	3	-	-	4.5	72	3.5
BFT405P	C	PB	Apparel CAD & Grading	-	4.5	-	-	4.5	72	3
BFT407P	C	PB	Product Analysis & Development	-	3	-	-	3	48	2
BFT409P	NC	PB	Ergonomics	1.5	1.5	-	-	3	48	2.5
BFT404P	NC	PB	Lean Manufacturing	3	-	-	-	3	48	3
			Total	6	12	-	-	18	288	14

BFT401II	C	PB	Apparel Internship					48	672	12
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Total Hours for Semester with internship	960 (288 +672)
Total Credits for Semester with internship	26 (14+12)
Internship total -Hrs /Duration /credit	48 hours per week for 14 weeks (Total 672 hours), credit=12

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester July - December

Department: Department of Fashion Technology (DFT)
 Programme /Specialization: B.F.Tech- Semester-VII

Evaluation Matrix

Semester Seven	Subject Code	Subject type	Core / Non Core	Subject	Evaluation Matrix								
					Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Benchmark Assignment-6	Mid – Term Exam /Jury	End – Term Exam/ Jury	Total
	BFT401II	PB	C	Apparel Internship	-	-	-	-	-	-	-	-	100
	BFT403P	PB	C	Plant Layout	10	10	20	20	NA	NA	NA	40	100
	BFT405P	PB	C	Apparel CAD & Grading	10	10	10	10	20	NA	NA	40	100
	BFT407P	PB	C	Product Analysis & Development	25	25	30	NA	NA	NA	NA	20	100
	BFT409P	PB	NC	Ergonomics	20	20	20	NA	NA	NA	NA	40	100
	BFT404P	PB	NC	Lean Manufacturing	20	20	20	NA	NA	NA	NA	40	100

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VII
 (for entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT401II	Apparel Internship (14 weeks)	Lecture		672	12	C	PB
		Practical / Workshop	48				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	48				

Perquisite: APPC, Industry Internship

Objectives

The objectives of internship is firstly to gain practical exposure and secondly application of knowledge on real life projects and/or assignments.

This industry internship is aimed towards blending the class room principles with industry application. This internship also helps students to learn and improve their interpersonal communication skills with colleagues, peer group and workers.

What are the students supposed to do?

The students are supposed to study manufacturing process thoroughly, observe and execute (with able guidance from department in charge) different department functions and executes small projects/assignments as per organizational need. They are expected to document the different department functions & working procedures, analyse them thoroughly and write down probable suggestions. ***They must gain hands on experience on various manufacturing processes like cutting, sewing, finishing, checking, data generation, reporting, and use of IT tools in various stages of garment manufacturing. Internees also must work on a mutually identified (with the organization) topic/area/brief as project and/or assignment.***

The internees are expected to [1] adhere to the schedule as advised by the institute. [2] perform duties as assigned by the organization in charge from time to time. [3] concentrate on other manufacturing activities (e.g. embroidery, washing etc.) as may be applicable to the specific organization they

are under going internship. The internee may like to collect fabric swatches, trims, formats, visuals etc. for documentation of report. ***The Internship report prepared by student will be kept confidential for academic and research purpose and will not be displayed in library.***

The internees must complete following studies during the course of internship.

1. Conduct capacity study for spreading & cutting activities, the machines available in the factory from the cutting room to the finishing room and fill up necessary format. Capacity study should be done for minimum 2 styles / 2 fabrics per internee.
2. Operation breakdown and Time & Motion study for sewing operations for at least one complete style per internee, [applicable for factories working on assembly line sewing system]
3. Work Sampling Study
4. Understanding and documenting the factory layout
5. Understanding & documenting of Material flow from stores to warehouse
6. Understanding & documenting Management Information System (MIS) of the organization
7. Understanding material flow within a dept. or between different departments
8. Documenting the cost benefit analysis of Apparel CAD system being used by the organization
9. Conducting an analysis of software features (any module of specialized software like ERP or PDM/PLM or production scheduling etc.) vis a vis organizational requirement
10. Understanding the building shed

Deliverables

While the students learn by doing themselves they contribute in organizational goal by studying, analyzing and documenting various facts and figures which can be used as base document by an organization for various exploratory projects as well as day to day organizational activities like capacity planning, bottleneck management, production scheduling, software requirement analysis etc. The internship document prepared by the student gives any organization a different perspective from a non-institutionalised person.

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
NA	NA	NA	NA	NA	NA	NA	100

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VII
 (for entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT403P	Plant Layout	Lecture	1.5	72	3.5	C	PB
		Practical / Workshop	3				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	4.5				

Prerequisite: APPC, Industry Internship

Course objective:

- To understand the importance of facility design in general and manufacturing unit in particular.
- To analyze the basic principles of effective plant layout and design as these apply to the apparel industry.
- To develop understanding of building typology and indoor environment
- To draw upon specialized knowledge from a number of disciplines including engineering, architecture, business management, and economics, as these relate to plant engineering.
- To learn the planning of layout using simulation exercises in classroom.
- To apply their learning's in practical environment.

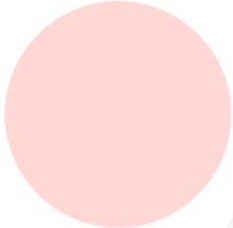
Course structure:

- **Concept domain-**
 Conceptualization of the applications of Plant Layout Design for manufacturing environment
 Developing observation and analyzing capability

- **Knowledge domain** - Understanding of principles of Plant Layout Design and applications using simulation exercises
- **Skill domain** - Development of skills to design layouts for new enterprise/improve existing layouts

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1 - 2	3.0	Introduction to Plant Layout Design <ul style="list-style-type: none"> ▪ The purpose and Importance of Layout Design ▪ Impact of Facility Design to Productivity & Quality 	Layout, Facility Design, Effect On Productivity, Quality	Ref 1. Chapter I Pages 3 - 24	3.0 (1.5 x 2)		
3 - 4	3.0	Types of Layout Reflecting Different Manufacturing Systems <ul style="list-style-type: none"> ▪ Straight Line ▪ Modular Manufacturing ▪ Conveyer etc. 	Straight Line, UPS, Modular, PBU	Anx. 1 Lesson 7	3.0 (1.5 x 2)		
5-8	6.0	Basic Material Flow Pattern in Different Types of Production	Process, Material Flows	Ref 1. Chapter 5& 6 Pages	3.0 (1.5 x 2)	3.0 (1.5 x 2)	

		Systems – Discussion of Assignment on Material Flow (Study of material Flow of one or two sections of manufacturing industries – Garment as well as other industries) - This will be studied by the students during internship.		91–154			
Assignment 1 - Presentation of Material Flow Assignment (on CD with Auto CAD/Corel Draw) Assignment – Flaws in the existing material flow and suggestions. (10 marks) – Practical (3 Hrs.)							
11-12	3.0	Effect of Plant Layout on Building Typology <ul style="list-style-type: none"> Understanding of Architectural Drawings of buildings e.g. how to read drawings and drawing notations Understanding of the Structure e.g. Beams, Pillars, Clearances. Various types of industrial structures. Govt./legal norms w.r.t. Site setbacks, heights, FAR etc. 	Drawings, Understand building structure, types of industrial structures, Government bylaws	Ref 2. a. Pg 146-219 Ref 2. b. Pg 1-445 Ref 5.: City Bylaws	3.0 (1.5 x 2)		
13-14	3.0	Understanding of Good layout: <ul style="list-style-type: none"> Interior spaces in terms of lighting, ventilation, flow patterns, clearances etc. Discussion of Assignment on study of industrial shed 	Lighting, ventilation	Ref 2. a. Pg 146-219	1.5 (1.5 x 1)	1.5 (1.5 x 1)	

Assignment 2 – Study of Industrial Shed, Understanding the building structure, work space in terms of basic amenities, infrastructure etc. – Submission (10 marks) – Practical (6 Hrs.)							
19-20	3.0	Introduction to Services <ul style="list-style-type: none"> ▪ Electrical- Fan & Light ▪ Plumbing- Water Supply, Drainage & Steam Supply ▪ Lighting & Ventilation- Natural ▪ Insulation & Sound proofing ▪ Air Conditioning Understand each of the above as a thumb rule provision.	Electrical how many fittings & what type required, plumbing- size of pipes & layout, sizes of openings, air-conditioning calculation	Ref 4. Ref 2. b. 514-580 744-757	1.5 (1.5 x 1)	1.5 (1.5 x 1)	
The class will be divided into groups of 3 – 4 students and assigned a practical problem of designing a layout of an apparel manufacturing unit. The group will be given all the constraints like, Type of building, Area available, Nature of Business, Required output, Level of Technology etc. As a first step the group has to prepare a brief for Architect stating the space and facilities required for the proposed unit.							
21-23	4.5	Steps in Facility Design <ul style="list-style-type: none"> ▪ Nature of Business – fabricator, In-house Manufacturer (Domestic/Exporter) etc. ▪ Product Analysis – Staple V/s. Fashion ▪ Manufacturing System ▪ Level of Technology ▪ Location 	Product Analysis – Staple V/s. Fashion Manufacturing System Level of Technology	Ref 1. 48-210	1.5 (1.5 x 1)	3.0 (1.5 x 2)	
24-25	3.0	Product and Required Output Analysis <ul style="list-style-type: none"> ▪ Man, Machine & Area calculation ▪ WIP/Storage requirements 	Man, Machine & Area calculation	Ref 1. 248-288 351-415		3.0 (1.5 x 2)	

26	1.5	<p>List of Activities in an Apparel Manufacturing Unit</p> <p>Factory Area</p> <ul style="list-style-type: none"> ▪ Storage of Fabrics to Warehouse ▪ Processes – Checking, Cutting, Sewing, Finishing ▪ Areas for Production Personnel ▪ Utilities ▪ Canteen/Crèche/Toilets/Drinking water etc. ▪ Administrative Area ▪ Reception ▪ Offices- Managers/ Supervisor's Office, Time Office, Excise/Octroi etc. <p>Degree of closeness between the Activities for deciding the location</p> <p>Standards for Area requirements per person, Per Workstation e.g. sewing workstation etc.</p>	Understanding Factory area and administrative area	Ref 1. Pg 288- 321	1.5 (1.5 x 1)		
27-30	6.0	Preparation of Architect Brief				6.0 (1.5 x 4)	
Assignment 3 – Presentation on Architect brief to decide the building plan (20 marks) – Practical (3 Hrs.)							
33-35	4.5	<p>Furniture Requirements</p> <ul style="list-style-type: none"> ▪ Computation of Requirements ▪ Ergonomics 	Furniture sizes & Ergonomics	Ref: Anxe 2: Chapter 5 161-174	1.5 (1.5 x 1)	3.0 (1.5 x 2)	

36	1.5	Introduction to Material Handling <ul style="list-style-type: none"> Importance and objective of material handling Types of material handling equipment Specialized material handling equipment's/systems related to the apparel industry. 	Importance and objective of material handling Types of material handling equipment Specialized material handling equipment's/systems related to the apparel Industry.	Ref 1. Pg 388- 391	1.5 (1.5 x 1)		
37	1.5	Evaluating material handling systems for the assignment			1.5 (1.5 x 1)		
38	1.5	Health & Safety Issues - Guidelines		Ref. 7	1.5 (1.5 x 1)		
39-44	9.0	Preparation of Final Layout				9.0 (1.5 x 6)	
Assignment 4 - Final Presentation – Internal Evaluation (20 marks) – Practical (3 Hrs.)							
Final Jury – External (40 marks) – Practical (3 Hrs.)							
Total					24.0	48.0	

Suggested references Books:

Apart from ones mentioned with the course curriculum

1. Ref 1. Plant Layout & Material Handling by James M Apple, John Willy & Sons, 3rd Edition.
2. Ref 2a .: Architecture & Town Planning by G M Rajkumar
3. Ref 2b .: Building Construction by Rangwala
4. Ref 3.: Indian Practical Civil Engineering Handbook by P N Khanna
5. Ref: Anx 1 Lesson 7-Plant Layout & location by Abha Kumar
6. Ref: Anxe 2. ebook on Facilities & Workplace design by Quarterman Lee
7. Ref 4.: Indian Practical Civil Engineering's Handbook by P N Khanna
8. Ref 5.: City Bylaws
9. Ref. 6.: Mastering AutoCAD 2004 by George Omura
10. Ref. 7: Physical Plant safety Policy – OSHA
 - Harnessing AutoCAD 2004 by Thomas A Stellman A Stellman, G V Krishnan
 - AutoCAD 2004: Quick Reference by Ralph Grabowski
 - Using AutoCAD 2004: Basics by ralph Grabowski
 - AutoCAD 2004 bible by Ellen Finkelstein
 - AutoCAD 2004: a problem solving approach by Sham Tickoo
 - AutoCAD 2004 for dummies by Mark Middlebrook
 - AutoCAD and its applications: basics 2004 by Terence A Shumakes & David Madsen
 - AutoCAD 2004: No experience required by David Frey

Case studies will be provided

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
10	10	20	20	NA	NA	40	100

Teaching Tools:

- Lecture
- Tutorials
- Guidance

Learning outcome:

To observe and understand building plans.

To learn designing facilities for new plants and to redesign existing layouts to improve the productivity and quality.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VII
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hours / Week	Hour / Semester	Credit	(C / NC)	Subject Type (TH/ PB/ DE/CE)
BFT405P	Apparel CAD and Grading	Lecture	-	72	3.0	C	PB
		Practical / Workshop	4.5				
		Tutorial /	-				
		Self Study	-				
		Total	4.5				

Prerequisite:

Understanding of the Basic Pattern Making, Grading & Marker Planning for following Garments -Basic Bodice, skirt, trouser & shirt

Course objective:

- To enable the students to understand the fundamental principles relating CAD/CAM in Apparel Design, Style Variations, Grading and Marker Making.
- Realization of the above principles through hands on working on CAD Software.
- To enable students to develop understanding of theory of grading
- To familiarize them anthropometric concepts
- To familiarize them to Computerized pattern making and grading

Course structure:**Concept domain-**

- To understand theory of grading.
- To acquire the working knowledge of different types of CAD systems

Knowledge domain-

- To understand points of control in each pattern for achieving bigger or smaller size patterns from existing blocks.
- Knowledge of CAD/CAM systems and their use in Apparel Industry
- Understanding of Lectra and TukaCAD in Pattern Making, Grading & Marker planning

Skill domain-

- To be able to generate well fitting pattern in various size ranges through principals and theories of grading.
- Handling & controlling CAD/CAM systems in Garment industry

Course contents:

Session of 3 hrs each	Hrs	Content	Keywords	Reference	Lecture	Practical/ Workshop	Self Study
10	30	Manual Pattern Grading				30	
1	3	Theory Of Grading-- Systems Of Grading (2 D & 3D) & Technique S Of Grading (Draft & Track)		Theory and principle of grading -Patric J Taylor & Martin Shoben chapter 4		3	
				The NIFT book of grading & sizing vol2 1			
1	3	Concepts Of Zero Position , Split Dig , Grade Plan And Grading Process				3	
1	3	Draft And Track Grading Of Basic Skirt (Including Waistband, Pockets, Facing		Theory and principle of grading -Patric J Taylor &		3	

		Etc)And A Line Skirt With Yoke	Martin Shoben chapter 2, 10, 13, 14				
2	6	Assignment 1- nested grading of Skirt for size 8-10-12 & 14 following full process of identifying zero position , making split dig and grade plan followed by grading Marks 10				6	
1	3	3D- &2D Grading of Bodice Block				3	
2	6	Grading of shirt (Including Sleeve, Cuff, One pc collar etc.)	· The nift book of grading &sizing vol2 2-9			6	
2	6	Assignment 2: Manual Grading of Skirt (With all components) in 3 Sizes Marks 10				6	
4	12	Introduction to Lectra CAD			8	4	
0.5	1.5	Introduction to Pattern Design CAD Software, Modaris-F1	Point and lines	R10,R1(51)	1.5	---	---
0.5	1.5	Modaris – F2 & F3	Notches, orientation, modification	R1(231-232)	1.5	---	---
0.5	1.5	Digitization of simple patterns	Digit	R1(65)	1.0	.5	---
0.5	1.5	Digitization of nested patterns	Recover Digit	R1(65,108)	1.0	.5	---
0.5	1.5	Trouser Pattern Making using Modaris	Tools,modification functions	R1(102)	1.5	---	---
0.5	1.5	Trouser Pattern Making using Modaris	---	---	---	1.5	---
0.5	1.5	Modaris – F4 & F5	Seam, Cut, Pivoting Dart	R1(168,233-234)	1.5	---	---
0.5	1.5	Class test (on-line), based on session 1-8 and spot evaluation	---	---	---	1.5	---

Benchmarked assignment 3 Spot evaluation
FULL MARKS FOR THE ASSIGNMENT = 10 (5+5)

A) Digitize back and front of a trouser block using electronic digitization table and mouse. The pattern to be digitized should have following elements specified:

1. notches
2. internal marks,
3. pattern hook hole,
4. grain line
5. internal lines

B) Draft a pattern (front and back) of trouser

Patterns should have all relevant details such as notch, seam allowance, grain line, size specifications.

4	12	Grading & Marker Making using Diamino			4.5	7.5	
0.5	1.5	Modaris – F6	Control, pantograph	R1(127-154)	1.5	---	---
0.5	1.5	Grading of trouser pattern using Modaris	---	---	--	1.5	---
0.5	1.5	Modaris – F7 & F8 and skirt pattern	Evolution system, nest modification	R1(127-154)	1.5	---	---
0.5	1.5	Grading of skirt pattern using Modaris	---	---	---	1.5	---
0.5	1.5	Introduction to Diamino	Tools, marker presentation	R2(1-23)	1.5	---	---
0.5	1.5	Marker Planning using Diamino	---	R2(24-110)	---	1.5	---
0.5	1.5	Marker making (Continued) Bodice / Skirt	---	---	---	1.5	---
0.5	1.5	Class test (on-line), based on session 10-16 and spot evaluation	--	--	--	1.5	--

Benchmarked assignment 4 Spot evaluation
FULL MARKS FOR THE ASSIGNMENT = 10(5+5)

Spot evaluation

A) Develop patterns for various parts of the skirt

Convert the flat pattern into pieces, specify the seam allowance and grain line for each piece.

B) Create and import size table (Total 4 sizes **S, M, L XL**)

Grade each piece as per the specification sheet.

Prepare a two way marker on plain fabric with the following specifications

Table length 8 meters, fabric width 152 cm

3	9	Introduction to TukaCAD			7.5	1.5	
0.5	1.5	Introduction to TukaCAD	Icon, tools, points, lines, notches	R3	1.5	--	--
0.5	1.5	Draft a shirt(Back and front) pattern	Move point, measure, seam	R3	1.5	--	--
0.5	1.5	Draft a shirt(shoulder forward, sleeves and placket) pattern	,Compare length cut parallel, Move parallel	R3	1.5		--
0.5	1.5	Draft a shirt(collar band, collar, Pocket, Cuff) pattern	Multiply fullness, round corner	R3	1.5		--
0.5	1.5	Draft a shirt(pleats, darts) pattern	Pleats, darts	R3	1.5	--	--
0.5	1.5	Class test (on-line), based on session 18-22 and spot evaluation	--	--	--	1.5	--

Benchmarked assignment 5 Spot evaluation

FULL MARKS FOR THE ASSIGNMENT = 20

Spot evaluation

Develop the patterns for various parts of the shirt.

3	9.0	Grading & Marker Making using TukaCAD			3	6	
0.5	1.5	Introduction to Grading Evolution System Grading of shirt using TukaCAD	Grading table	R3	1.5	--	--

0.5	1.5	Introduction to Grading Evolution System Grading of shirt using TukaCAD	--	--	--	1.5	--
0.5	1.5	Introduction to Lay Planning, Marker Making of Shirt	Marker Toolbars	R3	1.5	--	--
0.5	1.5	Introduction to Lay Planning, Marker Making of Shirt	--	--	--	1.5	--
0.5	3.0	Class test (on-line), based on all session and spot evaluation	--	--	--	3.0	--

Benchmarked assignment 6 / external Evaluation Class test (on-line)

Students are required to make the shirt pattern (Back, Front, Sleeves, collar and collar band), grade them into 3 different sizes and make the marker of these pieces

Suggested Reference Books:

1. Lectra Modaris Training Manual phase-I and on-line help
2. Lectra Diamino Customer's Manual and on-line help
3. Tuka CAD manual and Audio-Video On-line help
4. Grading for the Fashion Industry
5. Pattern Grading for men's cloths – Cooklin
6. Pattern Grading for women's cloths – Cooklin
7. CAD for Apparel Industry –Gerry Cooklin
8. Modern Sizing for Women's and Children's Garments – P. Kunick
9. Pattern Making for womens clother :the technology of sizing – G. Cooklin

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Benchmark Assignment-6	Mid – Term Exam / Jury	End – Term Exam// Jury	Total
10	10	10	10	20	-	-	40	100

Teaching Tools:

- Lecture and demonstrations.
- Presentations
- Assignments.
- Review & feedback by faculty

Learning outcome:

- Students will be able to use effectively CAD/CAM system for creation of Patterns, Stylization, Grading and Marker Making Acquire skills to use digital tools in Pattern Making, Grading and Marker Making.
- Ability to understand body growth i.e anthropometric growth
- Ability to understand application of grading
- Ability to select the grading systems and techniques
- Understanding the computer aided patterns

Methodology & Periodicity

Interactive / Continuous evaluation based on specific task based assignments.

Instruments of Evaluation

The evaluation will be based on assignment work done during the course and final work. The students are expected to be present on the day of the spot evaluation.

The course gives importance to learning by doing, the approach is student specific and demands intensive interaction between student & faculty on a day-to-day basis. The learning experience thus is irreplaceable & does not provide similar context every day. Therefore, attendance, self-motivation & consistency have importance in the learning process.

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VII
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT407P	Product Analysis & Development	Lecture		48	2.0	C	PB
		Practical / Workshop	3				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite: PM-I, II, III, IV, GC-I, II, III, Fabric Science-I, II, Fabric & Garment Processing, SPME-I, II, SCAP, ASSQC, Costing of Apparel Products

Course objective:

1. To identify and analyze fabric, prints/embroidery, trims. To identify the sources of raw materials, the minimum order quantity and price.
2. To develop the prototype and control the quality of garment by using correct and effective information of patterns and construction

Course structure:

- **Concept domain** - To understand the sampling procedure for any garment.
- **Knowledge domain** - To understand minimum order quantity, delivery time, costing, fabric testing procedure, flowchart, patternmaking and construction of the sample garment.
- **Skill domain** - To develop analyzing & sourcing skill of raw materials, patternmaking and construction skill.

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	1.5	Importance of Product Analysis and Development in the Industry			1.5		
Take up one Sample Garment. Analyze whatever applicable from below and develop prototype. Students should be grouped with two group members. No group should take up similar garments.							
2 - 16	22.5	Analysis and Development of Fabric with Surface Ornamentation and Trims Note: Following tests are mandatory- Fiber Composition, Yarn Count, Yarn Twist, Fabric Structure, Breaking Strength, Seam Strength, Colour Fastness (Light, Washing, Rubbing).				22.5	
2 - 3	3	Fiber, Yarn, Weave {Analysis (by testing in the lab) and development of Specification Sheet for Fiber contents, Yarn counts, TPI, Type of weave, EPI & PPI, probable m/c used, GSM etc.).				3	
4 - 5	3	Dyeing (Analysis and testing of whether dyeing is done in Fiber/Yarn/Fabric stage, what kind				3	

		of m/c used in dyeing, development of sample (taking similar or nearly similar fabric) with colour matching. Testing of Fastness (As many as possible)					
6 - 7	3	Where that fabric can be sourced (At least two sources) and price keeping in mind the minimum order quantity and deliver time Sourcing/Development of Fabric				3	
8	1.5	Benchmarked assignment 1: Preparation of a portfolio containing the technical information on Fiber composition, Weave, EPI & PPI, GSM of the sample garment (20 Marks)				1.5	
9 - 12	6	Prints (Analysis of type of print used/Technology used/Chemical used etc.). Fastness test. Embroidery (whether hand or m/c, Technology used/materials used etc.). Washes (What kind of washing done/ machine and material/chemical used etc.) Sources (At least two sources) of applicable Surface Ornamentation and price keeping in mind the minimum order quantity and deliver time Sourcing/Development of Similar Fabric with Similar Surface Ornamentation				6	
13 - 15	4.5	Trims (Analysis of Sewing thread,				4.5	

		<p>Buttons, Interlining, Zipper, Lace, Label and Elastic etc.)</p> <p>Determination of what kind of Trims used and development of specification sheet (Ex: Thread-cotton/blend/nylon, count, colour, brand etc. Button-Thermoplastic/metallic/MOP, button size etc., Interlining - Fusible /Non-Fusible, Type of base fabric used, Type of Resin used etc., Zipper-Nylon/metallic, Teeth size, type slider etc. Label - Printed/ Woven, no. of colour used, etc.)</p> <p>Colour fastness and strength test of sewing thread, loop test and flactual rigidity test of sewing thread, Breakage and melting point test of buttons, strength and bending test of zipper, Elastomeric (ZWICK/INSTRON)) test of Elastic</p> <p>SIMILAR ANALYSIS AND TESTS OF ANY OTHER TRIM USED IN THE GARMENT</p> <p>From where that Trims can be sourced (At least two sources) and price keeping in mind the minimum order quantity and deliver time</p> <p>Sourcing/Development of Similar Trims</p>					
16	1.5	Benchmarked assignment 2: Presentation of all Raw Materials (Fabric, trims etc.)				1.5	

		Sourced/Developed and their comparison with the materials of the sample garment (20 Marks).					
17 - 31	22.5	Analysis and Development of Garment				22.5	
17 - 19	4.5	Development of Measurement Specification Chart with Flat Sketch and with important Construction Details Development of Flow Process Chart with Stitch Type, Seam Diagram and M/C details				4.5	
20 - 24	7.5	Development of Pattern, development of muslin fit.					
25	1.5	Benchmarked assignment 3: Submission of Pattern, Test Fit in appropriate fabric, Spec Sheet, Flow Process Chart etc. which is completed in session 17-24 (Marks 20)				1.5	
26 - 31	9	Construction of Prototype. Determination of CMT from at least two sources				9	
32	1.5	Final Jury (Marks 40)				1.5	

Suggested references Books: All Reference Materials from Textile Science, Dyeing & Printing, Survey of Apparel design, Pattern Making and Construction, Federal standard 715A.

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Benchmarked assignment Description (if required to be documented separately)

Assignment 1	
Details/ description of assignment	Preparation of a portfolio containing the technical information on Fiber composition, Weave, EPI & PPI, GSM of the sample garment
Evaluation parameter	Understanding of the entire process of testing and analysis of fabric (any 5 tests :10 marks), Knowledge (variations and properties) about trims used (10 Marks), Also refer <u>Guideline for Product Analysis and Development Final Jury</u>
Type of assignment	
Weight age	20 Marks
Assignment 2 –	
Details/ description of assignment	Presentation of all sourced/developed Raw Materials (Fabric, trims etc.) and their comparison with the materials of the sample garment
Evaluation parameter	Knowledge about place of sourcing, delivery period, price and minimum order quantity of sourced Raw Materials (5 marks for Fabric and 15 marks for any three trims Also refer <u>Guideline for Product Analysis and Development Final Jury</u>
Type of assignment	
Weight age	20 Marks
Assignment 3 –	
Details/ description of assignment	Submission of Test Fit in appropriate fabric, Pattern, Spec Sheet, Flow Process Chart etc.

Evaluation parameter	Test Fit (5), Spec Sheet (5), Flow Chart (5), Pattern (5) Also refer <u>Guideline for Product Analysis and Development Final Jury</u>
Type of assignment	
Weight age	20 Marks

Pattern for mid term/ final term CEB examination paper

For CEB subject (theory) suggested format of CEB question paper to be mentioned

Guideline for Product Analysis and Development Final Jury (Total Marks: 40)

1. Analysis of Raw Material

20 Marks

Fabric

Jury members will try to understand about all possible testing on fabrics taken from garments the students has done to arrive at the conclusion like composition analysis, yarn count and twist, threads densities, dye stuff analysis, computer colour matching, colour fastness etc.

The mandatory tests are **Fibre Composition, Yarn Count, Yarn Twist, Fabric Structure, Breaking Strength, Seam Strength, Dye Stuff Analysis, Colour Fastness** (Light, Washing, Rubbing).

Does the student really understand the entire process of testing and analysis?

The jury members should evaluate the students on the basis of the student's technical knowledge about different physical and chemical tests they have carried out to determine the quality and performance of the fabrics of their garments. Here the jury should also evaluate the student's knowledge about the sampling procedure, test methods, analysis of test results and the technology concerned etc.

The students should be able to source nearly **similar fabric** and analyse the **deviation** between the fabric of the sample garment and the sourced fabric.

The students should have a fair idea about the cost per metre of the fabric (base fabric, dyeing, printing, embroidery, washing etc.). If any processing in garment stage is done then they should also know the per garment cost of that process (ex: washing of jeans, wrinkle free treatment of shirt, embroidery on garment parts etc.).

Trims

The students should have analysed the type of sewing thread used (fibre composition, colour, count etc.), type of zipper used (like its material-metallic/non-metallic, teeth size, type of slider used etc.), the type of label used (like whether it is printed or woven, number of colour used etc.), Students should know the price of label used, how the price of the label varies with the no of colour and raw material used. Type of button used (like its material, button size etc). Type of interlinings used (like fusible/ non-fusible, type of base fabric and resin used, properties of resin etc).

Students should know the minimum order quantity required to place an order for any kind of trims, they also know the delivery period.

But the analysis of trims like composition, colourfastness, strength, flexural rigidity of sewing threads etc., breakage and melting point test and snap resistance of button, strength and bending test of zipper, type of resin used in the interlining fabrics could be analysed depending upon the availability of the instruments/ infrastructure and adequate quantity of testing samples.

2. Analysis and Development of Garment

20 Marks

Development of Measurement Specification Chart

Student should be given marks according to the design, formatting and the content of information in the specification sheet. Is the developed specification sheet is small in size (maximum two pages) but contains optimum information to develop the garment? Does the flat sketch clearly

communicate the proportion and measurement required on the garment? Has the student identified any specific detail (for example-placement of wash care label in a trouser) which has to be specified in the specification sheet without which ambiguity may arise?

The number of measurement listed in the measurement specification sheet should be optimum (read minimum). Jury members should try to understand whether the making of the garment pattern is really possible with the number of measurement listed in the specification sheet, but at the same time listing of too many measurements (surplus measurements) is absolutely undesirable.

Development of Flow Chart

The jury should try to evaluate the correctness of the Flow Process Chart (this chart is a separate chart and not part of the Measurement Specification Sheet), the stitch types and seam diagram (correct seam diagram is more important than the seam types) specified by the student. The jury should try to evaluate the student's understanding of the construction of the garment (whether the student can suggest any application of work aids/specific machine bed/feeding systems to enhance the quality and productivity).

Development of Pattern and Prototype

The jury should try to evaluate the correctness of the pattern generated as per the specification sheet and garment.

CMT

The student should get the CMT from two sources. The student should be able to agree or disagree with the CMT with proper justification. The jury should try to estimate whether the student is aware of the local labour rate and whether the student has a fair idea (may be an intelligent guess) of the productivity of the same garment in cutting, sewing etc.

Teaching Tools:

1. Lecture, Directive and demonstrations
2. Garment making sessions
3. Visit to raw material testing lab, local raw material market and garment manufacturing industry.
4. Learning diary and sample file

Learning outcome:

1. Ability to identify and analyse Fabric, it's properties, sources and price
2. Ability to identify and analyse prints/Embroidery, their properties, sources and price
3. Ability to identify and analyse Trims, their properties, sources and price
4. Quality Control of Raw Material by using correct and effective information
5. Analysing Sample Garments, ability to develop and interpret Specification Sheets and working on patterns with Construction Details with them.
6. Quality Control of Garment by using correct and effective information on Patterns and Construction
7. Ability to source or develop the Product

Pattern for mid term/ final term CEB examination paper

For CEB subject (theory) suggested format of CEB question paper to be mentioned

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VII
 (For entire curriculum July – December)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT409P	Ergonomics	Lecture	1.5	48	2.5	NC	PB
		Practical / Workshop	1.5				
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite: None

Course objective:

- Know how to recognize injury risks
- Understand how the body works
- Realize how to eliminate or reduce injuries

Course structure:

- **Concept domain** - Concepts of Anthropometry, biomechanics and physiology
- **Knowledge domain** - Understanding work related Musculoskeletal Disorders (MSD)
- **Skill domain** - To develop skill to improve the work station in office and industrial environment

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
Details of number of sessions required per chapter/ topic	Total hrs required for one chapter and further breakup per topic	Details of the contents to be taught	Keywords of the chapter to define the depth of the input	detailed referencing with text book/ publishers/ edition with pg no	Hrs	Hrs	Hrs
1	1.5	Introduction of Ergonomics - Applications of Ergonomics	Ergonomics and its applications	Ref. 3, chapter 1, 1 - 32	1.5		
2-3	3.0	Anthropometric principles in workspace and equipment design		Ref. 3, chapter 3, 58-87	3.0		
4-6	4.5	Ergonomics deals with <ul style="list-style-type: none"> • Workplace design <ul style="list-style-type: none"> - Design for the extremes - Design for the average - Design with adjustability • Task design <ul style="list-style-type: none"> - Work smarter – not harder - What tasks are being performed - Who is performing the tasks • Equipment design <ul style="list-style-type: none"> - Adjust the tools to match the task – not the body 	Workplace design, Task design, equipment design	Ref. 1, Pages 22 - 43	4.5		
Assignment 1 : 20 Marks		Paper presentation or seminar or written test or paper submission on work place design					

7-9	4.5	OSHA regulations <ul style="list-style-type: none"> - General Duty Clause - Applies to unregulated hazards - Failure to keep a hazard free workplace - Hazard recognized by employer or employer's industry - Hazard causing death or serious harm - Methods existing to reduce these harms 	OSHA regulations	Ref. 8	3.0	1.5	
10-13	6.0	Work-related Musculoskeletal Disorders (MSD) Risk factors which lead to MSD	MSD	Ref. 3, chapter 5, 121 - 157	3.0	3.0	
Assignment 2- Quiz I: (20 Marks) – Practical 1.5 Hrs.							
15-21	10.5	Risk Factors <ul style="list-style-type: none"> - Environmental Factors - Activity Factors - Psychosocial Issues Environmental Factors <ul style="list-style-type: none"> - Heat - Cold - Lighting - Noise - Vibration - Eye Strain Activity Factors <ul style="list-style-type: none"> • Static or awkward postures 	Risk factors – Environmental, Activity, Psychosocial issues	Ref. 3, chapter 9, 233- 261 Ref. 3, chapter 7, 187-213 Ref. 3, chapter 15, 436-476	6.0	4.5	

		<ul style="list-style-type: none"> • Varicose veins, back stress, pooling of blood, etc. • Weight/load • Improper gripping • Contact stresses • Improper lifting. lowering, carrying • Force/exertion • Repetitive motion • Magnitude/size • Duration • Force/Exertion • Tool design • Material Handling • Lifting • Standing <p>Psychosocial Issues</p> <ul style="list-style-type: none"> • Job Dissatisfaction (friction with supervisor or fellow employees) • Depression/Anxiety, home problems, psychological “distress” • Intensified work load, work pressure, fatigue, rotating Shifts, Increased physical pain from stress with muscle 					
Assignment 3 - Quiz 2: (20 Marks) – Practical 1.5 Hrs.							

23-26	6.0	Basics of Ergonomics <ul style="list-style-type: none"> • Awkward Posture * Chair • Keyboard • Mouse • Monitor • Document Holder • Phone • Amount of Reach • Additional accessories • Tools, equipment and procedures 		Ref. 4	3.0	3.0	
27-30	6.0	Identify a workstation and improving it using Ergonomics principles				6.0	
Final Assignment/End term evaluation: Presentation - Identify a workstation and improving it using Ergonomics principles (40 marks) – Practical 3 Hrs.							
Total					24.0	24.0	

Suggested references Books: Apart from ones mentioned with the course curriculum

1. Notes compiled by Mr. Rajesh Patel, NIFT, Delhi
2. Work study and Ergonomics – Shah, H.S. Dhanpat Rai & Sons-1992.
3. Introduction of Ergonomics – Bridger- Tata McGraw Hill-1995.
4. <http://www.osha.gov/SLTC/etools/computerworkstations/workprocess.html>
5. Work study & Ergonomics, Dalela, Tata McGraw Hill
6. Rodgers, S., 1983, Ergonomic Design for People at Work, Volume, Van, Nostrand Reinhold, New York, NY.
7. Kodak's Ergonomic Design for People at Work ,2004 The Eastman Kodak Company, second edition, John Wiley and Sons, Edition, Inc., Hoboken, New Jersey
8. OSHA Standards – 29 CFR

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Teaching Tools:

- Lecture
- Tutorials
- Videos

Learning outcome:

- Basic understanding of Ergonomic Principles
- To apply these principles in office and industrial environment

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VIII
 (For entire curriculum **January - June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT404P	LEAN Manufacturing	Lecture	3	48	3	NC	PB
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Perquisite:

1. Any student who is willing to work with an aim of continual improvement.
2. The students need to be interactive and ready to learn through sharing the knowledge, experience and ideas.

Course objective:

In the scenario of extreme competition in all the areas of business. With the increase in international competitiveness on the global front, buyers continuously demand price reduction, high quality and better service from manufacturers / service providers. It makes it important for any organization to undergo operational efficiencies to offset the necessary price decreases and improve their services.

Lean management helps to improve internal systems, thereby making the business lean and fit.

Lean organizations are Lean in terms of cost & waste free.

Lean means gradual, orderly, and continual improvement by elimination of the organizational fat – “waste”.

Organizations need to ADD VALUE and remove waste on a continual basis. The focus is on activities on the actual work place. Lean strategy begins and ends with people.

The Lean Business Strategy involves everyone in the organization working together to make improvements “without large capital investments”.

Course structure:

- Concept domain- 60%
- Knowledge domain- 40%

Course contents:

Session	Hrs	Content	Keywords	Reference	Lecture	Practical / Workshop	Self Study
1	1.5	Introduction to the LEAN Management, LEAN Practices, History of LEAN and Basic definitions	LEAN, 5-S , KAIZEN, VA		3.0	--	
2	1.5	Total LEAN Management, Introduction to LEAN Pillars, and Types of Wastes and its impact on organizational Performance	TFM, TPM,TQM, TSM, THM, MUDA, MURI, 7-LEAN Wastes		3.0	--	
3	1.5	Value Addition(VA) in LEAN	VA, VA Ratio		3.0	--	
4	1.5	TFM-Total Flow Management and Importance of VSM- Value Stream Mapping	TFM, FLOW, SCM		3.0	--	
5. Benchmarked assignment 1- Essay Writing and Presentations on LEAN Management Practice in the Business Environment							20 Marks
6	1.5	Introduction to 5-S Practices	5-S,House Keeping		3.0	--	
7 and 8	1.5	LEAN Manufacturing,	SMED, LEAN		6.0	--	

		Introduction to different Manufacturing Systems and Importance of work flow/layout on Process effectiveness	Production, KANBAN, MODULAR SYSTEM				
9	1.5	TPM-Total Productive Maintenance, Concept and Calculations for OEE-Overall Equipment Effectiveness	TPM, OEE, Productivity, Efficiency, Capacity, Capacity Utilization		3.0	--	
Assignment 2 : Written Test: 3:00 Hrs. – 20 Marks							
10. Benchmarked assignment 3 – Presentations on various 5-S Practices In the business Organizations as well as academic institutions 20 Marks							
11	1.5	Introduction to concept of TSM-Total Service Management	TSM		3.0	--	
12	1.5	LEAN Offices, LEAN Supply Chain	LSC, Lean Marketing		3.0	--	
13	1.5	KANBAN Practices in Service Sector	KANBAN		3.0	--	
14	1.5	Introduction to THM- Total Human Management and Its importance	THM, HR		3.0	--	
End term Jury- Based on Minor project covering the entire syllabus - 40 marks							

Suggested references Books:

1. The TOYOTA Way
2. The TOYOTA Field Book
3. Best 5S Practices and KAIZEN
4. Making Break Through Innovations Happen

Reference Magazines, Journals and other sources:

1. Harvard Business Review (HBR)
2. Stitch World

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
20	20	20	NA	NA	NA	40	100

Learning outcome:

1. The students will be able to understand LEAN Practices being followed across the globe and its importance on Business Environment
2. Students will be able to identify waste and its reasons with possible impact on the overall mechanism
3. A habit will be developed in the students for waste minimization by effective utilization of resources



SEMESTER VIII

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)

Programme /Specialization: B.F.Tech- Semester-VIII

Subject Code	Core / Non Core	Subject type Theory (TH) /Process (PB) /Department elective (DE)/ Common Elective (CE)	Subject	Hour / Semester / Week					Total Hrs/ Semester	Credits
				Lecture	Practical / Workshops	Tutorial/ Seminars/ Field Study	Monitored Self Study	Total Hrs / Week		
BFT402P	C	PB	Research Methodology	3	-	-	-	3	48	3
BFT406GP	C	PB	Research Project	-	-	-	-	-	584	18
			Total	6	-	-	-	6	680	21

Total Hours for Semester	632
Total Credits for Semester	21
Internship total -Hrs /Duration /credit	-

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester January - June

Department: Department of Fashion Technology (DFT)

Programme /Specialization: B.F.Tech- Semester - VIII

Evaluation Matrix

Semester Eight	Subject Code	Subject type	Core / Non Core	Subject	Evaluation Matrix							
					Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Continues Evaluation	Mid – Term Exam /Jury	End – Term Exam/ Jury	Total
	BFT402P	PB	C	Research Methodology	10	10	20	20		NA	40	100
	BFT406GP	PB	C	Research Project	-	-	-	-	-	-	-	100

NATIONAL INSTITUTE OF FASHION TECHNOLOGY
Academic Plan for Semester VIII
 (For entire curriculum **January - June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT402P	Research Methodology	Lecture	3	48	3	C	PB
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total	3				

Objectives:

- This course covers all elements of the business research process including data analysis and interpretation using computer packages and reporting results
- It provides a competent Knowledge base in scientific thinking and scientific method as a model for research, Competence in interpretation, summarization and presentation of results.

Course Contents:

Sl. No.	Topic	Key Words	Theory	Practical / Field Study	Self Study	Reference
1	Introduction to Research Methodology	Objectives, Types, Research Process, Research Problem	1.5			Research Methodology – C.R. Kothari, Wishwa Prakashan 2 nd edition, Page 1-38
2	Research Design	Meaning, Research Design for exploratory, descriptive and hypothesis testing research studies				Research Methodology – C.R. Kothari, Wishwa Prakashan 2 nd edition, Page 39-65

3	Sampling Design	Census and sample survey, Probability and non Probability sampling	1.5			Business Research Methods – Donald R. Cooper and Pamela S. Schindler Tata McGrawHill 8 th edition, Page 176-203
4	Minor Project	Decide the topic in consultation with research guide and Synopsis submission, Presentation I (10 marks)		3		
5	Measurement & Scaling	Classification, test of sound measurement, rating and ranking scales, item analysis-cumulative scales	1.5			Business Research Methods – Donald R. Cooper and Pamela S. Schindler Tata McGrawHill 8 th edition, Page 218-276
6	Methods of Data Collection	Primary & secondary data sources, Making of a questionnaire	1.5	1.5		Research Methodology – C.R. Kothari, Wishwa Prakashan 2 nd edition, Page 117- 150
7	Minor Project	Questionnaire Submission (10 marks)				
8	Data Preparation	Editing, coding, data entry, classification, tabulation	1.5			Statistics for Management – Richard I. Levin and David S. Rubin, Prentice Hall of India 7 th edition, page 7 - 68
9	Data Analysis	Measures of central tendency, arithmetic mean & weighted mean, median, mode, measures of dispersion – range, quartile deviation, standard deviation, coefficient of variation, correlation, regression	4.5	4.5		Statistics for Management – Richard I. Levin and David S. Rubin, Prentice Hall of India 7 th edition, page 69-154 and 647- 716
10	Probability distribution	Binomial, poisson, normal distribution	1.5	1.5		Statistics for Management – Richard I. Levin and David S. Rubin, Prentice Hall of India 7 th edition, page 221-292
11	Estimation	Point and Interval estimates – Confidence Intervals – determining sample size	1.5			Statistics for Management – Richard I. Levin and David S. Rubin, Prentice Hall of India 7 th

						edition, page 345-378
12	Testing of Hypothesis	Concepts – errors – power of test – null & alternate hypothesis – level of significance, Testing of means and proportions for small and large samples (1-Sample Test)	3.0	4.5		Statistics for Management – Richard I. Levin and David S. Rubin, Prentice Hall of India 7 th edition, page 401-433
13	Testing of Hypothesis: Two samples Test	Testing of difference between means and proportions for small and large samples	3.0			Statistics for Management – Richard I. Levin and David S. Rubin, Prentice Hall of India 7 th edition, page 453-476
14	Written Test	15 marks		1.5		
15	ANOVA	Inference about a population variance and inference about two population variances	1.5			Statistics for Management – Richard I. Levin and David S. Rubin, Prentice Hall of India 7 th edition, page 591-615
16	Chi-Square Test	Test of Independence, Test of goodness of Fit		1.5		Statistics for Management – Richard I. Levin and David S. Rubin, Prentice Hall of India 7 th edition, page 567-584
	Quiz	10 marks				
17	Minor Project	Survey at least 50 respondents and submit data analysis, Presentation III (15 marks)		4.5		
18	Report Writing	Significance and types of Report Writing Referencing and bibliography Chapterisation	3			Business Research Methods – Donald R. Cooper and Pamela S. Schindler Tata McDraw-Hill 8 th edition, Page 656-702
	Minor Project	Report Submission, Final Jury 40 marks				

Evaluation Matrix:

Benchmark Assignment-1	Benchmark Assignment-2	Benchmark Assignment-3	Benchmark Assignment-4	Benchmark Assignment-5	Mid – Term Exam / Jury	End – Term Exam/ Jury	Total
10	10	15	15	10		40	100

Suggested references Books:

Apart from ones mentioned with the course curriculum

- Research Methodology: C.R. Kothari
- Business Statistics: S.P.Gupta

Teaching Tools:

- Lecture
- Practical's
- Tutorials

Learning outcome:

- To convert a problem statement into a research statement and Research design
- Instrument design for data collection, Analyzing the data and drawing inferences
- Report writing

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

Academic Plan for Semester VIII
 (For entire curriculum **January - June**)

Subject Code	Subject	Sessions	Hrs/Wk	Hrs/Sem	Credit	(C/NC)	Type (TH/ PB/ DE/CE)
BFT406GP	Research project	Lecture		584	18	C	PB
		Practical / Workshop					
		Tutorial / Seminars / Field Study					
		Self Study					
		Total					

Objective

To apply technical, analytical skills acquired during the course in solving a problem in a practical environment.

Scope

- Choose topic for the study displaying innovation and initiative
- Use intellectual skills in the pursuit of research investigation
- Use analytical skills to collect primary and secondary data and communicate the same in oral and written modes.

Sponsorship of Research Project

It is desirable that the students undertake the project that is sponsored by interested organizations / parties. They could be companies / firms, export organization, government institutions, financial institutions, NIFT, departmental faculty etc.

Stages of Research Project

There are four stages of Research Project

Stage I Preliminary

- Identify Topic
- Feedback on topic
- Identify Sponsor
- Develop and submit Concept note
- Feedback on concept note
- Allotment of Faculty guide

Stage II Planning

- Literature Study
- Design and develop Research Methodology
- Submission of documentation of first three chapters

Chapter 1 Introduction

Chapter 2 Review of Literature

Chapter 3 Methodology

Feedback on Report

Stage III Execution

- Field work
- Analysis and report writing
- Submission of draft report – Report will be black bound book with gold embossing and two printing on both the sides

Stage IV Evaluation

Guide	Report & learning diary	40 marks
Faculty Guide	Log Book (weekly reports including emails)/Learning diary – (continuous noting, rough work etc)	10 marks
	Documentation/portfolio	30 marks
1 st Periodic review (Assessment of Progress of Project)	Assessment of Progress of work	60 marks
After 8 weeks of progress of semester Internal department faculty members – core team of 3 faculties evaluating. The guide will not evaluate its own group and will be observer during the presentations of his/her group	Presentation <ul style="list-style-type: none"> ○ Degree of understanding of the problem ○ Approach to problem solving ○ Extent of Review of literature ○ Deliverables till this stage ○ Selection of right methodology ○ Project management (time management/discipline/consistency) 	30 marks
	Documentation <ul style="list-style-type: none"> ○ Research Plan ○ Selection of right methodology ○ Extent of review of literature 	30 marks
2 nd Periodic review (Assessment of Progress of Project)	Assessment of Progress of work	60 marks
After 14 weeks of progress of semester Internal department faculty members – core team of 3 faculties evaluating. The guide will not evaluate its own group and will be observer during the presentations of his/her group	Presentation <ul style="list-style-type: none"> ○ Achieving objectives and implementation ○ Approach to problem solving ○ Findings of the project ○ Analysis and conclusions 	30 marks

	Report <ul style="list-style-type: none"> ○ Findings of the project ○ Analysis and conclusions ○ Recommendations for further work 	30 marks
<p>Project Guide will decide before the end term jury whether the work of the students done in the entire course is satisfactory or not. If found satisfactory, the student will be permitted to appear for the end term jury. In the event of the work not being found satisfactory, the faculty guide can stop the students from appearing in the end term jury. The decision of the guide of debarring the students from appearing in the end term jury has to be supported by documentary evidences in the weekly reports (hard copy or emails). In such cases, students will be given extension and the next jury will be conducted in July out of 100 marks. This jury will be consisted of 2-3 expert guides from industry and 1-2 faculty from the department. (excluding guide)</p>		
End term jury	Assessment of satisfactory completion of report / project	40 marks
It will consist of 3-5 members as follows 1.2-3 expert guides from industry 2.1-2 faculty from the same discipline from different center 3.Faculty guide/mentor to the student as observer	Presentation – clarity / technique / content <ul style="list-style-type: none"> ○ Degree of understanding of the problem ○ Findings of the project & Analysis and conclusions 	20 marks
	Viva-voce <ul style="list-style-type: none"> ○ Approach to problem solving ○ Achieving objectives and implementation 	20 marks
Total		200 marks

Duration of Research Project

- The Research project cycle may be suitably commenced towards the end of 3rd semester to complete the Stage I of the project
- Stage II shall normally commence with the beginning of the final semester and be schedule as follows.

Stage II: 7 weeks

Stage III: 7 weeks

Stage IV: 2 weeks

Learning Outcome

- Develop skills to identify an issue and framework for conducting study
- Develop skills to obtain a feasible solution for the problem
- Improve communication and presentation skills