SONA COLLEGE OF TECHNOLOGY, SALEM-5

(An Autonomous Institution)

B.Tech-Fashion Technology

CURRICULUM and SYLLABI

[For students admitted in 2022-2023]

B.E / B.Tech Regulation 2019

Approved by BOS and Academic Council meetings

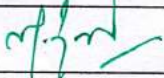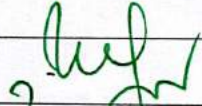# Sona College of Technology, Salem

(An Autonomous Institution)

Courses of Study for B.E/B.Tech. Semester I under Regulations 2019 (CBCS)

Branch: Fashion Technology

S.No.	Course Code	Course Title	L	T	P	C	Category	Total Contact Hours
		Theory						
1.	U19ENG101D	English for Engineers - I	2	0	0	2	HS	30
2.	U19MAT102C	Calculus and Statistics	3	1	0	4	BS	60
3.	U19PHY103D	Engineering Physics - I	3	0	0	3	BS	45
4.	U19CHE104F	Chemistry for Textile Technologists - I	3	0	0	3	BS	45
5.	U19FTY107	Textile Science: Fibres and Yarns	3	0	0	3	PC	45
		Practical						
6.	U19PCL108B	Physics and Chemistry Laboratory	0	0	2	1	BS	30
7.	U19FTL116	Fibre and Yarn Analytical Laboratory	0	0	2	1	PC	30
8.	U19CFTL117	Computer basics for Fashion Technology Laboratory	0	0	2	1	PC	30
9.	U19GE101	Basic Aptitude - I	0	0	2	0	EEC	30
		Total Credits				18		
		Optional Language Elective*						
10.	U19OLE1101	French	0	0	2	1	HS	30
11.	U19OLE1102	German						30
12.	U19OLE1103	Japanese						30

*Students may opt for foreign languages viz., German/French/Japanese with additional one credit (Not accounted for CGPA calculation)

Approved By

Chairperson, Science and Humanities BoS	Chairperson, Fashion Technology BoS	Member Secretary, Academic Council	Chairperson, Academic Council & Principal
Dr. M. Renuga	Dr. D. Raja	Dr. R. Shivakumar	Dr. S. R. R. Senthil Kumar

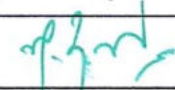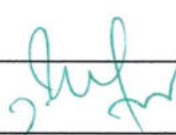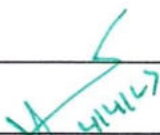Copy to:-HOD/ Fashion Technology, First Semester B.Tech. FT Students and Staff, COE

Sona College of Technology, Salem – 636 005
(An Autonomous Institution)
Courses of Study for BE/B.Tech Semester II under Regulations 2019 (CBCS)
Branch: Fashion Technology

S.No	Course Code	Course Title	L	T	P	C	Category	Total Contact Hours
		Theory						
1	U19TAM201	தமிழர் மரபு / Heritage of Tamils	1	0	0	1	HSMC	15
2	U19MAT202E	Probability and Statistical Quality Control	3	1	0	4	BSC	60
3	U19PHY203E	Engineering Physics - II	3	0	0	3	BSC	45
4	U19CHE204C	Chemistry for Textile Technologists - II	3	0	0	3	BSC	45
5	U19BEE206A	Basics of Mechanical and Electrical Engineering	3	0	0	3	ESC	45
6	U19FT201	Woven Fabric Manufacture and Structure	3	0	0	3	PCC	45
7	U19EGR206B	Engineering Graphics for Fashion Designing	1	0	2	2	ESC	45 (15L+30P)
		Practical						
8	U19ENL215	English for Engineers - II	0	0	2	1	HSC	30
9	U19FT202	Woven Fabric Structure and Textile CAD Laboratory	0	0	2	1	PCC	30
10	U19GE201	Basic Aptitude – II	0	0	2	0	EEC	30
					Total Credits	21		
		Optional Language Elective*						
11	U19OLE1201	French						
12	U19OLE1202	German	0	0	2	1	HSMC	30
13	U19OLE1203	Japanese						

*Students may opt for foreign languages viz., German/French/Japanese with additional one credit (Not accounted for CGPA calculation)

Approved by

Chairperson, Science and Humanities BoS	Chairperson, Fashion Technology BoS	Member Secretary, Academic Council	Chairperson, Academic Council & Principal
Dr. M. Renuga	Dr. D. Raja	Dr. R. Shivakumar	Dr. S. R. R. Senthil Kumar

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Sona College of Technology, Salem
(An Autonomous Institution)
Courses of Study for B.E/B.Tech. Semester III Regulations 2019
Branch: Fashion Technology

S. No	Course Code	Course Title	Lecture	Tutorial	Practical	Credit	Total Contact Hours
Theory							
1	U19MAT301E	Operations Research and Statistical Methods	3	1	0	4	60
2	U19FT301	Knitted Fabric Manufacture and Structure (Lab Integrated)	3	0	2	4	75
3	U19FT302	Chemical Processing of Textiles and Garments (Lab Integrated)	3	0	2	4	75
4	U19FT303	Fashion Art and Design	3	0	0	3	45
5	U19FT304	Pattern Making and Garment Construction - I	3	0	0	3	45
6	U19TAM301	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	1	0	0	1	15
7	U19GE304	**Mandatory Course:** Constitution of India	2	0	0	0	30
Practical							
8	U19FT305	Pattern Making and Garment Construction Laboratory - I	0	0	2	1	30
9	U19FT306	Digital Fashion Design Laboratory	0	0	4	2	60
10	U19ENG301	Communication Skills Laboratory	0	0	2	1	30
11	U19GE301	Soft Skills and Aptitude – I	0	0	2	1	30
					Total Credits	**24**	

Approved By

Chairperson, Fashion Technology BoS
Dr.D.Raja

Member Secretary, Academic Council
Dr.R.Shivakumar

Chairperson, Academic Council & Principal
Dr.S.R.R.Senthil Kumar

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HOD/Fashion Technology, Third Semester B.Tech FT Students and Staff, COE

05.07.2023

Regulations-2019

Sona College of Technology, Salem
(An Autonomous Institution)
Courses of Study for B.E/B.Tech. Semester IV Regulations 2019
Branch: Fashion Technology

S. No	Course Code	Course Title	Lecture	Tutorial	Practical	Credit	Total Contact Hours
		Theory					
1	U19GE402	**Mandatory Course:** Environment and Climate Science	2	0	0	0	30
2	U19FT401	Pattern Making and Garment Construction - II	3	0	0	3	45
3	U19FT402	Garment Production Machinery and Equipment (Lab Integrated)	3	0	2	4	75
4	U19FT403	Problem Solving using Python Programming (Lab Integrated)	3	0	2	4	75
5	U19FT404	Textile and Apparel Quality Evaluation	3	0	0	3	45
6	U19FT405	Textile Materials for Fashion Design	3	0	0	3	45
		Practical					
7	U19FT406	Pattern Making and Garment Construction Laboratory – II	0	0	2	1	30
8	U19FT407	Textile and Apparel Quality Evaluation laboratory	0	0	2	1	30
9	U19GE401	Soft Skills and Aptitude – II	0	0	2	1	30
10	U19FT408	Mini Project - I	0	0	2	1	30
11	U19FT409	In-Plant Training		2 Weeks		1	2 Weeks
					Total Credits	22	

Approved By

Chairperson, Fashion Technology BoS
Dr.D.Raja

Member Secretary, Academic Council
Dr.R.Shivakumar

Chairperson, Academic Council & Principal
Dr.S.R.R.Senthil Kumar

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HOD/Fashion Technology, Fourth Semester B.Tech FT Students and Staff, COE

22.12.2023

Regulations-2019

Sona College of Technology, Salem-5

List of Professional Electives B.E/B.Tech under Regulation 2019

Department: - Fashion Technology

S.No	Course Code	Course Name	L	T	P	C
1.	U19FT901	Fashion Evolution and Traditional Indian Textiles	3	0	0	3
2.	U19FT902	Apparel Work Study	3	0	0	3
3.	U19FT903	Total Quality Management in Apparel Industry	3	0	0	3
4.	U19FT904	Principles of Management	3	0	0	3
5.	U19FT905	Digitalization in Fashion Industry	3	0	0	3
6.	U19FT906	Intimate Apparel	3	0	0	3
7.	U19FT907	ERP and MIS in Apparel Industry	3	0	0	3
8.	U19FT908	Sourcing and Sampling	3	0	0	3
9.	U19FT909	Fashion Advertising and Sales Promotion	3	0	0	3
10.	U19FT910	Home Textiles	3	0	0	3
11.	U19FT911	Fashion Forecasting	3	0	0	3
12.	U19FT912	Value Engineering in the Apparel Industry	3	0	0	3
13.	U19FT913	Apparel Logistics and Supply Chain Management	3	0	0	3
14.	U19FT914	Fashion Brand Management	3	0	0	3
15.	U19FT915	Wearable Technology	3	0	0	3
16.	U19FT916	Design of Leather Wear and Accessories	3	0	0	3
17.	U19FT917	Advances in Garment Production	3	0	0	3
18.	U19FT918	Apparel and Fashion Marketing	3	0	0	3
19.	U19FT919	Fashion Retail Store Operations	3	0	0	3
20.	U19FT920	Sustainability in Apparel Industry	3	0	0	3
21.	U19FT921	Fashion Photography	3	0	0	3
22.	U19FT922	Lean Manufacturing in Apparel Industry	3	0	0	3
23.	U19FT923	Global Trade and export documentation	3	0	0	3
24.	U19FT924	Luxury Brand Management	3	0	0	3
25.	U19FT925	Leather Technology	3	0	0	3
26.	U19FT926	Fashion styling	3	0	0	3
27.	U19FT927	Entrepreneurship Development and Management of Apparel Industry	3	0	0	3
28.	U19FT928	Social Compliance in Apparel Industry	3	0	0	3
29.	U19FT929	Digital Fashion Marketing	3	0	0	3
30.	U19FT930	Industrial Safety and Human Resource Management	3	0	0	3

SONA COLLEGE OF TECHNOLOGY, SALEM-5

DEPARTMENT OF FASHION TECHNOLOGY

LIST OF PROFESSIONAL ELECTIVES FOR HONORS DEGREE

Date: 11.05.2023

S.No	Vertical 1: Fashion Design and Product Development	Vertical 2: Advanced Apparel Manufacturing	Vertical 3: Fashion Brands and Retail Management	Vertical 4: Apparel Merchandising and Marketing	Vertical 5: Functional Garments
1.	High Fashion Designing	Production Improvement Techniques and Low Cost Automation	Fashion Brand Management	Sourcing and Vendor Management	Textile Materials for Functional Garments
2.	Boutique Management	Lean Manufacturing in Apparel Industry	Fashion Retail Store Operations	Apparel Logistics and Supply Chain Management	Design and Engineering of Functional Garments
3.	Jewellery Design	Value Engineering in the Apparel Industry	E-Commerce in Fashion	Apparel and Fashion Marketing	Protective Clothing
4.	Sustainable Fashion Designing	Knitwear Manufacturing Technology	Fashion Retail Management	Apparel Sampling Process	Sports Clothing
5.	Fashion Styling	ERP and MIS in Apparel Industry	Pricing and Finance Management	Total Quality Management in Apparel Industry	Medical Textiles
6.	Knitwear Design and Product Development	Sustainable Manufacturing	International Business Management	Global Trade and Export Documentation	E- Textiles
7.	Leatherwear and Accessories	Automation and Robotics in Apparel Industry	Supply Chain Management	Social Compliance in Apparel Industry	Basics of Wearable Electronics
8.	Project Work - Fashion Design	Project Work - Advanced Apparel Manufacturing	Project Work - Fashion Brands and Retail Management	Project Work - Apparel Merchandising and Marketing	Project Work - Functional Garments

SONA COLLEGE OF TECHNOLOGY, SALEM-5
DEPARTMENT OF FASHION TECHNOLOGY
<u>Honours Degree- Verticals & Courses</u>

<u>(Offered to UG students admitted during AY 2021- 2022 onwards, Regulation 2019)</u>

Vertical 1. Fashion Design

S.No	Course code	Course Name	L	T	P	C
1	U19FT2001	High Fashion Designing	2	0	2	3
2	U19FT2002	Boutique Management	3	0	0	3
3	U19FT2003	Jewellery Design	2	0	2	3
4	U19FT2004	Sustainable Fashion Designing	3	0	0	3
5	U19FT926	Fashion Styling	3	0	0	3
6	U19FT2005	Knitwear Design and Product Development	2	0	2	3
7	U19FT2006	Leatherwear and Accessories	2	0	2	3
8	U19FT2007	Project Work - Fashion Design	0	0	6	3
Maximum of two SWAYAM courses in Fashion Design vertical identified by Department consultative committee						

Vertical 2 - Advanced Apparel Manufacturing

S.No	Course code	Course Name	L	T	P	C
1	U19FT2008	Production Improvement Techniques and Low Cost Automation	3	0	0	3
2	U19FT922	Lean Manufacturing in Apparel Industry	3	0	0	3
3	U19FT912	Value Engineering in the Apparel Industry	3	0	0	3
4	U19FT2009	Knitwear Manufacturing Technology	3	0	0	3
5	U19FT907	ERP and MIS in Apparel Industry	3	0	0	3
6	U19FT2010	Sustainable Manufacturing	3	0	0	3
7	U19FT2011	Automation and Robotics in Apparel Industry	3	0	0	3
8	U19FT2012	Project Work - Advanced Apparel Manufacturing	0	0	6	3
Maximum of two SWAYAM courses in Advanced Apparel Manufacturing vertical identified by Department consultative committee						

Vertical 3: Fashion Brands and Retail Management

S.No	Course code	Course Name	L	T	P	C
1	U19FT914	Fashion Brand Management	3	0	0	3
2	U19FT919	Fashion Retail Store Operations	3	0	0	3
3	U19FT2013	E-Commerce in Fashion	3	0	0	3
4	U19FT2014	Fashion Retail Management	3	0	0	3
5	U19FT2015	Pricing and Finance Management	3	0	0	3
6	U19FT2016	International Business Management	3	0	0	3
7	U19FT2017	Supply Chain Management	3	0	0	3
8	U19FT2018	Project Work - Fashion Brands and Retail Management	0	0	6	3
Maximum of two SWAYAM courses in Fashion Brands and Retail Management vertical identified by Department consultative committee						

Vertical 4: Apparel Merchandising and Marketing

S.No	Course code	Course Name	L	T	P	C
1	U19FT2019	Sourcing and Vendor Management	3	0	0	3
2	U19FT913	Apparel Logistics and Supply Chain Management	3	0	0	3
3	U19FT918	Apparel and Fashion Marketing	3	0	0	3
4	U19FT2020	Apparel Sampling Process	3	0	0	3
5	U19FT903	Total Quality Management in Apparel Industry	3	0	0	3
6	U19FT923	Global Trade and Export Documentation	3	0	0	3
7	U19FT928	Social Compliance in Apparel Industry	3	0	0	3
8	U19FT2021	Project Work - Apparel Merchandising and Marketing	0	0	6	3
Maximum of two SWAYAM courses in Apparel Merchandising and Marketing vertical identified by Department consultative committee						

Vertical 5: Functional Garments

S.No	Course code	Course Name	L	T	P	C
1	U19FT2022	Textile Materials for Functional Garments	3	0	0	3
2	U19FT2023	Design and Engineering of Functional Garments	3	0	0	3
3	U19FT2024	Protective Clothing	3	0	0	3
4	U19FT2025	Sports Clothing	3	0	0	3
5	U19FT2026	Medical Textiles	3	0	0	3
6	U19FT2027	E- Textiles	3	0	0	3
7	U19FT2028	Basics of Wearable Electronics	3	0	0	3
8	U19FT2029	Project Work - Functional Garments	0	0	6	3
Maximum of two SWAYAM courses in Functional Garments vertical identified by Department consultative committee						

SONA COLLEGE OF TECHNOLOGY, SALEM-5

DEPARTMENT OF FASHION TECHNOLOGY
Minor Degree- Verticals & Courses

(Offered to UG students admitted during AY 2021- 2022 onwards, Regulation 2019)

S.No	Course code	Course Name	L	T	P	C
Minor Vertical 1. Fashion Design						
1	U19FT1001	Fundamentals of Fashion Design	3	0	0	3
2	U19FT2030	Fashion Illustration	1	0	4	3
3	U19FT2031	Surface Ornamentation	2	0	2	3
4	U19FT2032	Fashion Accessories	2	0	2	3
5	U19FT2033	CAD in Fashion	1	0	4	3
6	U19FT921	Fashion Photography	3	0	0	3
7	U19FT2034	Jewellery Making	3	0	0	3
8	U19FT2035	Fashion Portfolio and Product Development	1	0	4	3
Maximum of two SWAYAM courses in Fashion Design vertical identified by Department consultative committee						

S.No	Course code	Course Name	L	T	P	C
Minor Vertical 2. Apparel Industrial Automation						
1	U19FT1002	Garment Manufacturing Technology	3	0	0	3
2	U19FT2036	Basics of Garment Production Machinery and Equipment	3	0	0	3
3	U19FT2037	Advanced Manufacturing Technology	3	0	0	3
4	U19FT2038	Computer Integrated Manufacturing	3	0	0	3
5	U19FT2039	Basics of Smart Textiles and Garments	3	0	0	3
6	U19FT2040	Design and Development of Smart Garments	3	0	0	3
7	U19FT2041	Apparel Production System	3	0	0	3
8	U19FT2042	Project Work - Apparel Industrial Automation	1	0	4	3
Maximum of two SWAYAM courses in Apparel Industrial Automation vertical identified by Department consultative committee						

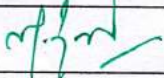## Sona College of Technology, Salem
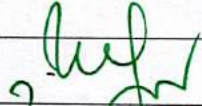
(An Autonomous Institution)

Courses of Study for B.E/B.Tech. Semester I under Regulations 2019 (CBCS)

Branch: Fashion Technology

S.No.	Course Code	Course Title	L	T	P	C	Category	Total Contact Hours
		Theory						
1.	U19ENG101D	English for Engineers - I	2	0	0	2	HS	30
2.	U19MAT102C	Calculus and Statistics	3	1	0	4	BS	60
3.	U19PHY103D	Engineering Physics - I	3	0	0	3	BS	45
4.	U19CHE104F	Chemistry for Textile Technologists - I	3	0	0	3	BS	45
5.	U19FTY107	Textile Science: Fibres and Yarns	3	0	0	3	PC	45
		Practical						
6.	U19PCL108B	Physics and Chemistry Laboratory	0	0	2	1	BS	30
7.	U19FTL116	Fibre and Yarn Analytical Laboratory	0	0	2	1	PC	30
8.	U19CFTL117	Computer basics for Fashion Technology Laboratory	0	0	2	1	PC	30
9.	U19GE101	Basic Aptitude - I	0	0	2	0	EEC	30
		Total Credits				18		
		Optional Language Elective*						
10.	U19OLE1101	French	0	0	2	1	HS	30
11.	U19OLE1102	German						30
12.	U19OLE1103	Japanese						30

*Students may opt for foreign languages viz., German/French/Japanese with additional one credit (Not accounted for CGPA calculation)

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30.06.2022   B.E/B. Tech Regulations-2019

U19ENG101D – **English for Engineers – I**

First Year I semester

Common to FT

Course Outcome: At the end of course, the students will be able to
1. Frame sentences correctly with accuracy.
2. Write emails and formal letters
3. Prepare reports and proposals
4. Draft memos for professional purposes
5. Recommend suggestions / solutions to problems, give instruction, make notes, prepare checklists

	COURSE OUTCOMES	PROGRAMME OUTCOMES												Ps o1	Ps o2
		1	2	3	4	5	6	7	8	9	10	11	12		
1	Frame sentences correctly with accuracy	2	1	1	1	1	2	3	2	2	3	3	3	3	3
2	Write emails and formal letters	3	2	2	3	3	3	3	2	3	3	3	3	3	3
3	Prepare reports and proposals	3	3	2	3	3	3	3	2	3	3	3	3	3	3
4	Draft memos for professional purposes	1	1	1	2	2	1	2	2	1	3	1	1	1	1
5	Recommend suggestions / solutions to problems, give instruction, make notes, prepare checklists	2	1	1	3	2	2	3	3	3	3	2	3	3	3

UNIT –I

- General Vocabulary- Parts of speech, Prefixes and Suffixes, Active and Passive voices
- Email, fixing an appointment, Cancelling appointments, conference details, hotel accommodation, order for equipment, training programme details, paper submission for seminars and conferences

UNIT – II

- Adjectives, comparative adjectives, Prepositions and dependent prepositions
- Letter Writing, Business communication, quotations, placing orders, complaints, replies to queries from business customers, inviting dignitaries, accepting and declining invitations
- Resume / CV

UNIT – III

- Tenses, Modal verbs and probability

- Proposal: establishing a lab, introducing a subject in the curriculum, training programme for students

UNIT – IV
- Concord, If conditionals Collocations
- Technical report writing, feasibility reports, accident reports, survey reports

UNIT - V
- Cause and effect expressions, Pronouns, Adverbs
- Technical Writing: recommendations, checklists, instructions, note making and memo

TOTAL: 30 hours

TEXT BOOK:
Technical English I & II, Dr. M. Renuga et al. Sonaversity, 2016

HOD

Humanities and Languages

Dr. M.RENUGA,
Professor & Head,
Department of Humanities & Langu...ns,
Sona College of Technology,
SALEM - 6...

B. TECH / FASHION TECHNOLOGY

SEMESTER – 1	CALCULUS AND STATISTICS	L	T	P	C
U19MAT102C		3	1	0	4

COURSE OUTCOMES

At the end of the course, the students will be able to
1. apply the various differentiation techniques to the algebraic and transcendental functions
2. apply the various integration techniques to the algebraic and transcendental functions
3. represent the data in the form of diagram and graph and analyze them
4. apply the concepts of measure of central tendency, dispersion and skewness to the given data and analyze the results
5. apply the concepts of correlation and regression to the data and analyze the result.

CO / PO, PSO Mapping
(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak

COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3		3								2			3
CO2	3	3		3								2			3
CO3	3	3		3								2			3
CO4	3	3		3								2			3
CO5	3	3		3								2			3

UNIT – I   DIFFERENTIAL CALCULUS   12

Ordinary Differentiation: Rules of differentiation – Derivatives of elementary functions – Differentiation of inverse functions – Logarithmic differentiation – Differentiation of implicit functions – Successive differentiation of simple functions.

Partial Differentiation: Total derivative – Euler's theorem – Differentiation of implicit functions.

UNIT – II   INTEGRAL CALCULUS   12

Definite and indefinite integrals – Substitution rule – Integration by parts – Bernoulli's formula – Integration of rational functions by partial fraction – Double integral in Cartesian coordinates – Change of order of integration.

UNIT – III   COLLECTION AND REPRESENTATION OF DATA   12

Collection of data – Primary and secondary data – Diagramatic representation – Simple, subdivided and multiple bar diagrams – Pie diagram – Pictograph – Graphs of frequency distribution – Histogram – Frequency polygon – Frequency curve – Cumulative frequency curve.

UNIT – IV   MEASURES OF CENTRAL TENDENCY, DISPERSION AND   12
              SKEWNESS

Measure of central tendency (Simple arithmetic mean, median, mode) – Quartile's – Measure of dispersion (range, inter-quartile range, quartile deviation, mean deviation, standard deviation, coefficient of variation) – Skewness – Karl Pearson's coefficient of skewness.

UNIT – V   CORRELATION AND REGRESSION   12

Simple and rank correlations – Multiple and partial correlations – Linear regression – Multiple and partial regressions – Curve fitting (straight line and parabola).
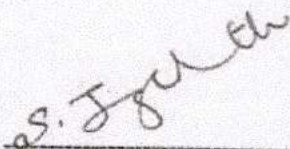
Theory: 45 Hours   Tutorial: 15 Hours   Total: 60 Hours
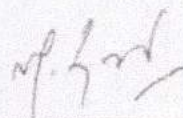
TEXT BOOKS:

1. S. Narayanan and T. K. Manicavachagom Pillay, "Calculus – volume I and II", S.Viswanathan Publishers, 2016.
2. S. P. Gupta, "Statistical Methods", Sultan Chand and Sons Publishers, 15th Edition, 2012.

REFERENCE BOOKS:

1. J. Stewart, "Calculus", Cengage Publishers, 8th Edition, 2016.
2. G. B. Thomas, "Calculus", Pearson Publishers, 14th Edition, 2018.
3. S. C. Gupta and V. K. Kapoor, "Fundamentals of Mathematical Statistics", Sultan Chand and Sons Publishers, 11th Edition, Reprint, 2019.
4. R. A. Johnson and C. B. Gupta, "Miller and Freund's, Probability and Statistics for Engineers", Pearson Publishers, 9th Edition, 2018.
5. P. G. Hoel, S. C. Port and C. J. Stone, "Introduction to Probability Theory", Universal Book Stall Publishers, Reprint, 2003.

Prof. S. JAYABHARATHI
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Salem – 636 005

Dr. M. RENUGA
BoS - Chairperson
Science and Humanities
Sona College of Technology
Salem – 636 005

Course Code:	U19PHY103D	L T P C
Course Name:	ENGINEERING PHYSICS I	3 0 0 3 100

(For I Semester B.Tech. Fashion Technology)

COURSE OUTCOMES:
At the end of the course, the students will be able to,

CO1 Discuss the dual nature of matter and radiation and the application of wave nature of particles.

CO2 Describe the basic components of lasers.

CO3 Analyse the relation between arrangement of atoms and material properties.

CO4 Deduce Maxwell's equations using the fundamentals of electromagnetism.

CO5 Elucidate the different modes of heat transfer.

CO / PO, PSO Mapping														
(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
COs, POs PSOs Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO – 1	3	2	-	-	-	-	-	-	-	-	2	2	-	3
CO – 2	3	2	-	-	-	-	-	-	-	-	2	2	-	3
CO – 3	3	2	-	-	-	-	-	-	-	-	2	2	-	3
CO – 4	3	2	-	-	-	-	-	-	-	-	2	2	-	3
CO – 5	3	2	-	-	-	-	-	-	-	-	2	2	-	3

Unit 1 Quantum Physics   9

Origin of quantum mechanics – Limitations of classical theory - Dual nature of matter and radiation.

Particle nature of radiation - Compton effect - Explanation based on quantum theory - Expression for Compton shift (no derivation).

Wave nature of matter - de Broglie waves - Schrödinger's time independent and time dependent wave equations - Physical significance of wave function - Energy and wave function of an electron trapped in one dimensional box.

Application of wave nature of particles - Electron microscope - Comparison of optical and electron microscope - Scanning electron microscope - Limitations of electron microscope.

Unit 2 Lasers   9

Basic terms - Energy level - normal population - Stimulated absorption - population inversion - meta stable state - spontaneous emission - stimulated emission.

Basic components of a laser - Active medium - pumping technique - optical resonator

Einstein's theory - stimulated absorption - spontaneous emission and stimulated emission.

Types of lasers - Solid lasers (Nd:YAG) - Gas lasers (CO_2 laser) - semiconductor laser (homojunction and hetero junction laser).

Holography - Construction and reconstruction of hologram.

Unit 3 Crystal Physics   9

Importance of crystals - Types of crystals - Basic definitions in crystallography (Lattice – space lattice - unit cell - lattice parameters – basis - crystallographic formula) - Seven crystal systems and fourteen Bravais lattices – Lattice planes and Miller indices – Interplanar distance - d spacing in cubic lattice - Calculation of number of atoms per unit cell - Atomic radius - Coordination number and Atomic Packing factor for SC, BCC, FCC and HCP Structures - Polymorphism and allotropy.

Crystal imperfections - Point, line and surface defects - Burger vector.

Unit 4 Electromagnetism   9

Electrostatics - Electric field - Electric field intensity – Field due to discrete and continuous charges – Electric lines of forces – Electric flux – Gauss's law – Divergence of E – Applications of Gauss's law – Curl of E.

Magnetostatics – Magnetic fields – Magnetic Lorentz force – Force experienced by current carrying conductor in magnetic field – Steady currents – Magnetic field due to steady current - Biot - Savart Law - Straight line currents – Ampere's circuital law – Divergence and curl of B – Applications of Ampere's circuital law - Comparison of Magnetostatics and Electrostatics.

Unit 5 Thermal Physics   9

Heat and temperature - Modes of heat transfer (Conduction, convection and radiation) - Specific heat capacity - thermal capacity and coefficient of linear thermal expansion.

Thermal conductivity - Measurement of thermal conductivity of good conductor - Forbe's method - Measurement of thermal conductivity of bad conductor - Lee's disc method - Radial flow of heat - Cylindrical flow of heat - Practical applications of conduction of heat.

Thermal radiations - Properties of thermal radiations - Applications of thermal radiations

Lecture: 45, Tutorial: 00, Total: 45 Hours

Text Book:

1. M.N.Avadhanulu, 'Engineering Physics' S.Chand & Company Ltd, New Delhi (2015)

2. D. K. Bhattacharya, Poonam Tandon "Engineering Physics" Oxford University Press 2017.

References:

1. Engineering Physics, Sonaversity, Sona College of Technology, Salem (Revised Edition 2018).

2. B. K. Pandey and S. Chaturvedi, Engineering Physics , Cengage Learning India Pvt. Ltd., Delhi, 2019

3. Rajendran, V, and Marikani A, 'Materials science' TMH Publications, (2004) New Delhi.

4. Palanisamy P.K, 'Materials science', SciTech Publications (India) Pvt. Ltd., Chennai, Second Edition (2007)

Dr. C. Shanthi
HOD / Science

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Professor of Physics
Head, Department of Sciences
Sona College of Technology (Autonom:
SALEM-636 005

I SEMESTER (FT)

COURSE CODE	U19CHE104F	LTPC
COURSE NAME	CHEMISTRY FOR TEXTILE TECHNOLOGISTS - I	3 0 0 3

Course outcome:

At the end of the course the students will be able to

CO1 Analyze the types of impurities of water, their removal methods and explain the conditioning methods for domestic and industrial uses.

CO2 Analyze the various types of chemical bonding and impacts on materials.

CO3 Recognize the role applications of surface chemistry and catalysis in engineering and technology.

CO4 Understand the basics of nano chemistry and nano material fabrication on fibers and its role.

CO5 Apply the various instrumental methods of analysis on numerous engineering materials and their significances.

CO / PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
COs, POs PSOs Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO – 1	3	3												2
CO – 2	3	3												2
CO – 3	3	3												2
CO – 4	3	3												3
CO - 5	3	3												2

UNIT I: WATER TECHNOLOGY   9

Introduction - Characteristics – hardness – estimation of hardness by EDTA method, alkalinity and its estimation - Boiler feed water – requirements – disadvantages of using hard water in boilers – internal conditioning (colloidal, phosphate, calgon and carbonate conditioning methods) – external conditioning – zeolite process, demineralization process, desalination of brackish water by reverse osmosis.

UNIT II: CHEMICAL BONDING   9

Types of bond – van der Waals (or) intermolecular forces – types – hydrogen bond – types, Valence Bond Theory (VBT) – VSEPR Theory - Molecular Orbital Theory – Linear Combination of Atomic Orbitals (LCAO method)- energy level diagram of molecular orbitals (nitrogen and oxygen only) – coordinate bond – metallic bond.

UNIT III: SURFACE CHEMISTRY AND CATALYSIS   9

Adsorption-types-physical and chemical adsorption – adsorption of gases on solids-adsorption isotherms-Freundlich and Langmuir isotherms-adsorption of solutes from solution – applications of adsorption - role of adsorption in catalytic reactions – basic principles in adsorption chromatography – adsorption in pollution abatement (granular

activated carbon and powdered activated carbon) – catalysis - types - characteristics of catalysts - autocatalysis - definition and examples.

UNIT IV: APPLICATIONS OF NANO CHEMISTRY IN TEXTILES   9

Basics - distinction between molecules, nanoparticles and bulk materials – size dependent properties – Synthesis: precipitation – thermolysis – hydrothermolysis – solvothermolysis –sol-gel technique – Potential applications of Nanoparticles in textiles - Fabrication Process – Electrospinning- Self Cleaning Fabrics - Water Repellency Property- UV-Protection Property - Anti-Bacterial Property - Anti-Static Property - Wrinkle Resistance Property - Flame Retardant Finish- Nanotextiles – Properties, Types, Functionalities and Processes.

UNIT V: INSTRUMENTAL METHODS OF ANALYSIS   9

Beer-Lambert's law – UV-Visible spectroscopy, Colourimetry – principles and instrumentation - Estimation of Iron - IR and FT-IR spectroscopy – principles and instrumentation (block diagram only) - Thermoanalytical methods – principles and applications of Thermogravimetry (TGA), Differential thermal analysis (DTA) and Differential Scanning Calorimetry (DSC).

Total: 45 Hours

TEXT BOOKS

1. P.C.Jain and Monica Jain, "Engineering Chemistry" Dhanpat Rai Pub, Co., New Delhi, 2018 (17th Edition).
2. N. Panneer Selvam et al., "Chemistry For Textile Technologists - I", Sonaversity, Sona College of Technology, Salem, 2019.

REFERENCE BOOKS

1. O.G. Palanna "Engineering Chemistry" Tata McGraw-Hill Pub.Co.Ltd, New Delhi, 2017.
2. Kannan P., Ravikrishnan A., "Engineering Chemistry", Sri Krishna Hi-tech Publishing Company Pvt. Ltd., Chennai, 2016.
3. H.K. Chopra, A. Parmer, "Chemistry for Engineers", Narosa Publishing House, New Delhi, 110 002, 2016.

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U19FTY107 - TEXTILE SCIENCE: FIBRES AND YARNS

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Course Outcomes: At the end of the course, the students should be able to,

- Classify textile fibres, define the basic terms used, outline fundamental concepts of fibre structure, describe the properties of an ideal fibre and state the properties and uses of major natural fibres.
- Describe the common man-made fibre spinning techniques and explain the properties and uses of major natural-polymer, synthetic and special fibres.
- Describe the identification methods of common fibres and define the common linear density terms used for man-made fibres.
- Outline the objectives and working principles of the different processes in spun yarn production.
- Describe sewing thread types, fibres used, quality requirements, outline of production and state the characteristics and uses of fancy yarns and certain special yarns.

	CO/PO, PSO Mapping														
	(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	3		3	1					3	1	2	2
CO2	3	3	2	2	2	2	2					3	3	2	2
CO3	3	2	2	2	2	1						3	2	1	2
CO4	3	3	3	3	2	3	3	3				3	3	2	2
CO5	2	3	2	2	2	2	2	3				3	2	2	2

UNIT I - GENERAL INTRODUCTION AND NATURAL FIBRES   10

Definitions: Textile fibre, staple fibre, filament; yarn: spun, continuous filament, monofilament and multifilament, flat and textured yarn; single, ply and cabled yarns; thread; fabric: woven, knitted and non-woven

Classification of textile fibres: Main classes and sub-classes with examples for each class / sub-class

Basic concepts of fibre structure: Definition of orientation, types, schematic representations and examples; definition of crystallinity, schematic representation of fibre with crystalline and amorphous contents, outline of influence of crystallinity on fibre properties; crystallinity values of some common natural and man-made fibres

Properties expected of a Textile Fibre: Definitions of fibre length, fineness, strength, flexibility, elongation, elasticity, moisture content, moisture regain, crimp, fibre uniformity, lustre, fibre modulus, Tm and Tg,; Essential and desirable properties of a textile fibre

Natural Fibres: Definition and source, properties and uses of cotton, flax, silk and wool

UNIT II - MAN MADE FIBRES   09

Introduction to man-made fibre spinning: Principles of wet-spinning, dry-spinning and melt-spinning of man-made fibres, principle of drawing and its importance.

19/10/22

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Raw materials, properties and uses of natural-polymer and synthetic fibres: Viscose rayon, modal, bamboo, polyester, nylon 6, acrylic and elastomeric fibre. **High performance fibres:** Definition, characteristics, types, properties and uses of Nomex and Kevlar. Climate yarn; latest developments in fibres to attain comfort properties.

UNIT III - LINEAR DENSITY AND IDENTIFICATION OF FIBRES   08

Linear density: Definition, denier and tex systems, decitex, millitex, kilotex and English cotton count; Conversion formulae and simple calculations of linear density **Definition, properties and uses:** Micro, nano fibres and bio polymers

Identification of common textile fibres: Microscopic test, burning test, solubility test and density test

UNIT IV - OUTLINE OF YARN PRODUCTION   10

Preparatory processes: Objects of ginning, names of machines used; Objects of mixing and blending; Objects of blow room, common sequence of machines used for processing of cotton, manmade fibre and blends; Objects of carding, outline of working principle of high production card; Objects of combing, difference between carded and combed yarns; Objects of draw frame, outline of working principle of draw frame; Objects of speed frame, outline of working principle of simplex

Yarn production: Objects of ring spinning outline of working principle of ring frame; yarn count and TPI; Objects of doubling, difference between single and double yarn; Outline of principles of compact spinning. **New spinning system:** Types and its needs, principle of rotor and air jet spinning system.

UNIT V - SEWING THREADS, FANCY YARNS AND SPECIAL YARNS   08

Sewing thread: Definition, quality requirements, fibres used, types, properties, production process, selection of sewing thread, ticket number, leading brands of sewing threads

Fancy yarns: Definition, brief study of slub yarn, snarl yarn, melange yarn, and spotted yarn. End uses of fancy yarn

Other special yarns: Brief study of core spun yarn, metallic yarn, hollow yarn and applications of these yarns

TOTAL: 45 Hours

TEXT BOOKS

1. Mishra S.P., "Fibre Science and Technology", New Age International Publishers, New Delhi, 2000
2. Lord P. R., "Yarn Production: Science Technology and Economics", The Textile Institute, Manchester, U.K., 2003

REFERENCES

1. Bernard P. Corbman, "Textiles: Fibre to Fabric", McGraw Hill International Edition, New Delhi, 1983
2. Srinivasamoorthy H. V., "Introduction to Textile Fibres", The Textile Association India, Mumbai, 1993
3. Cook, J. Gordon, "Hand Book of Textile Fibres: Man-Made Fibres", Vol. 1 and 2, Merrow Publishing Co. Ltd., England, 2005
4. Moncrief R.W., "Manmade Fibres", John Willey & Sons, New York, 2004
5. Klein W. " A practical guide to opening and carding", Vol 2, The Textile Institute, Manchester, 1987
6. Klein W. " A practical guide to combing and drawing ",Vol 3, The Textile Institute, Manchester, 1987
7. Klein W. " A practical guide to ring spinning",Vol 4, The Textile Institute, Manchester, 1987

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U19PCL108B	PHYSICS AND CHEMISTRY LABORATORY [For FT]	L	T	P	C
		0	0	2	1

	Course Outcomes
	After successful completion of this course, the students should be able to
CO1:	Apply the principles of Optics, Thermal Physics, Electricity and Elasticity to determine the Engineering properties of materials.
CO2:	Identify hardness and suggest the quality of water suitable for domestic purpose and analyze the concentration of carbonate, bicarbonate and hydroxide present in the given sample of water.
CO3:	Determine the thermal conductivity of the given fabric used in day today life and determine the amount of pH of house hold water sample and suggest the remedial measures.

Pre-requisite: Capable of using Screw guage, Vernier calliper, Travelling microscope and Spectrometer

CO/PO, PSO Mapping

(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak

COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12	PSO1	PSO2
CO1	3			1		1					1			2
CO2	3			1		1					1			2
CO3	3			1		1					1			2

Course Assessment methods

Direct		Indirect
Mean of 1ˢᵗ half of Experiment (10)	Quiz on 2ⁿᵈ half (5)	Course end

Quiz on 1st half (5)	Internal test II (10)	survey
Internal test I (10)	RTPS (10)	
Mean of 2nd half of Experiment (10)	End semester Examination (40)	

List of Experiments (Physics part) (Any five experiments from the below list)

1	Determination of velocity of ultrasonic waves and compressibility of the given liquid using ultrasonic interferometer.
2	Determination of dispersive power of the prism for various pairs of colors in the mercury spectrum using a spectrometer.
3	Determination of rigidity modulus of the material of wire using torsion pendulum
4	Determination of coefficient of viscosity of liquid by Poiseuille's method.
5	Determination of the thermal conductivity of a bad conductor using Lee's Disc apparatus.
6	Determination of band gap of the given semiconductor diode.

List of Experiments (Chemistry part) (Any five experiments from the below list)

7	Estimation of hardness of water sample by EDTA method.
8	Estimation of alkalinity of water sample by indicator method.
9	Estimation of HCl by pH metry.
10	Estimation of HCl by conductometry. (HCl vs NaOH)
11	Estimation of ferrous ion by potentiometric titration.
12	Evaluate the iron content of the water by spectrophotometry.
	Total Hours: 30 Hrs

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HOD / Sciences

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U19FTL116 – FIBRE AND YARN ANALYTICAL LABORATORY

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Course Outcomes: At the end of the study of this course the students will be able to,
1. Identify the common textile fibres and determine the blend proportion of binary blends
2. Determine the physical properties like moisture regain, linear density, swelling behaviour of fibre and yarn / sewing thread characteristics like yarn type, yarn count and ticket number
3. Solve real time problems in fibre identification, fibre and yarn properties

	CO/PO, PSO Mapping														
	(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	3	3					3	3	2	3
CO2	3	3	2	3	3	3	3					3	3	2	3
CO3	3	3	2	3	2	3	3					3	2	2	2
CO4	3	3	2	3	2	3	3					3	2	2	2

LIST OF EXPERIMENTS
1. Identification of fibres by microscopy: longitudinal views of fibres
2. Identification of fibres by microscopy: cross-sectional views of fibres
3. Confirmation of fibres by means of the burning test
4. Confirmation of fibres by means of the solubility test
5. Identification of a textile fibre of unknown identity using microscopic, burning and solubility tests
6. Determination of blend proportion in fibre mixture / blended yarn / fabric.
7. Determination of the atmospheric conditions in the lab and the amount of moisture in given samples of conditioned and unconditioned fibre
8. Estimation of the crimp of man-made staple fibre and the denier by length and mass measurements
9. (a) Identification of yarn type and twist direction and determination of yarn count of given spun yarn
   (b) Identification of fibre type and determination of number of filaments and yarn linear density of given continuous filament yarn
   (c) Identification of filament yarn and spun yarn
10. Identification of type of given sewing thread and determination of its ticket number and linear density

DEMONSTRATION
11. Identification of fibre by density test using density gradient column
12. Examination of the diametric swelling behaviour of cotton and viscose rayon fibres in water and alkali solution

SAMPLE COLLECTION
13. Collection of various fibre and yarn samples

<div align="right">

TOTAL: 30 hours

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U19FTL116 FIBRE AND YARN ANALYTICAL LABORATORY

List of equipment required for a batch of 30 students for U.G

S. No.	Name of the equipment / software	Quantity Required
1.	Microscope	3
2.	Electronic Balance (1 mg. accuracy)	1
3.	Hot-Air Oven	1
4.	Wrap reel	1
	Total	**6**

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U19CFTL117 - COMPUTER BASICS FOR FASHION TECHNOLOGY LABORATORY

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L  T  P  C
0  0  2  1
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Course Outcomes: At the end of a study of this course the students will be able to,
1. Apply MS Excel tools in the analysis of apparel-production data.
2. Develop basic fashion sketches using fashion-CAD software and compile information on ancient fashion and latest fashion trends
3. Generate fashion ideas for garments using stated requirements and information related to ancient and current trends in the fashion industry

COs	CO/PO, PSO Mapping														
	(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	1	2				2	2	3	2	2	3
CO2	3	3	3	2	3	2	2			1		3	2	3	3
CO3	3	3	3	3	1	2	2			2		2	2	3	3

BASICS OF MS EXCEL
1. Datasheet – Manipulating tools
2. Built-in functions
3. Basic analysis options for apparel-production data

BASICS OF CAD - FASHION ILLUSTRATOR SOFTWARE
4. CAD Tools I
5. CAD Tools II
6. Development of basic fashion sketches and simple designs

COLLECTION OF VARIOUS FASHION-DESIGN RELATED DATA
7. Collection of details about the origin and evaluation of costumes
8. Analysis of motifs, design, colour and materials used in Indian, Egyptian, Roman, French and English costumes
9. Collection of profiles of at least three popular Indian/International designers and their design collections (for two seasons)

TOTAL: 30 hours

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Department of Fashion Technology
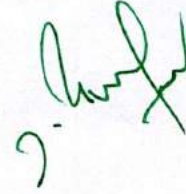Sona College of Technology
Salem - 636 005. Tamil Nadu

U19CFTL117 COMPUTER BASICS FOR FASHION TECHNOLOGY LABORATORY

List of equipment required for a batch of 30 students for U.G

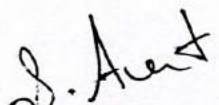| S. No.	Name of the equipment / software	Quantity Required
1.	Open Source software - Ink Scape	30
	Hard Ware	
2.	Pentium IV / higher PCs Configuration to Support the Software	30
3.	Printer	1
4.	Scanner	1
	Total	**62**

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Semester-I U19GE101	**Basic Aptitude – I** (Common to All Departments)	**L**	**T**	**P**	**C**	**Marks**
		0	0	2	0	100

U19GE101

Course Outcomes

At the end of the course the student will be able to:

1. Solve fundamental problems in specific areas of quantitative aptitude

2. Solve basic problems in stated areas of logical reasoning

3. Demonstrate rudimentary verbal aptitude skills in English with regard to specific topics

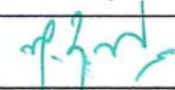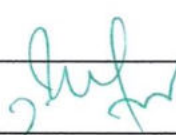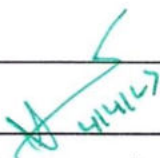|	
1.Quantitative Aptitude and Logical Reasoning	**Solving simple problems with reference to the following topics:** a. Numbers – HCF & LCM b. Decimal fractions c. Simplification d. Square roots & cube roots e. Surds & indices f. Ratio and proportion g. Averages h. Area and volume i. Coding and decoding & artificial language
2. Verbal Aptitude	**Demonstrating plain English language skills with reference to the following topics:** a. Synonyms b. Antonyms c. Verbal analogy d. Editing passages e. Sentence filler words

30 hours

Dr.S.Anita

Head/Training

**Department of Placement Training
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1

Sona College of Technology, Salem – 636 005
(An Autonomous Institution)
Courses of Study for BE/B.Tech Semester II under Regulations 2019 (CBCS)
Branch: Fashion Technology

S.No	Course Code	Course Title	L	T	P	C	Category	Total Contact Hours
		Theory						
1	U19TAM201	தமிழர் மரபு / Heritage of Tamils	1	0	0	1	HSMC	15
2	U19MAT202E	Probability and Statistical Quality Control	3	1	0	4	BSC	60
3	U19PHY203E	Engineering Physics - II	3	0	0	3	BSC	45
4	U19CHE204C	Chemistry for Textile Technologists - II	3	0	0	3	BSC	45
5	U19BEE206A	Basics of Mechanical and Electrical Engineering	3	0	0	3	ESC	45
6	U19FT201	Woven Fabric Manufacture and Structure	3	0	0	3	PCC	45
7	U19EGR206B	Engineering Graphics for Fashion Designing	1	0	2	2	ESC	45 (15L+30P)
		Practical						
8	U19ENL215	English for Engineers - II	0	0	2	1	HSC	30
9	U19FT202	Woven Fabric Structure and Textile CAD Laboratory	0	0	2	1	PCC	30
10	U19GE201	Basic Aptitude – II	0	0	2	0	EEC	30
					Total Credits	21		
		Optional Language Elective*						
11	U19OLE1201	French						
12	U19OLE1202	German	0	0	2	1	HSMC	30
13	U19OLE1203	Japanese						

*Students may opt for foreign languages viz., German/French/Japanese with additional one credit (Not accounted for CGPA calculation)

Approved by

Chairperson, Science and Humanities BoS	Chairperson, Fashion Technology BoS	Member Secretary, Academic Council	Chairperson, Academic Council & Principal
Dr. M. Renuga	Dr. D. Raja	Dr. R. Shivakumar	Dr. S. R. R. Senthil Kumar

Copy to:-HOD/ Fashion Technology, Second Semester BE FT Students and Staff, COE

03.03.2023

B.E/B.Tech Regulations-2019

U19TAM201 **HERITAGE OF TAMILS** **L T P C**
1 0 0 1

UNIT I   LANGUAGE AND LITERATURE   **3**
Language Families in India - Dravidian Languages – Tamil as a Classical Language - Classical Literature in Tamil – Secular Nature of Sangam Literature – Distributive Justice in Sangam Literature - Management Principles in Thirukural - Tamil Epics and Impact of Buddhism & Jainism in Tamil Land - Bakthi Literature Azhwars and Nayanmars - Forms of minor Poetry - Development of Modern literature in Tamil - Contribution of Bharathiyar and Bharathidhasan.

UNIT II   HERITAGE - ROCK ART PAINTINGS TO MODERN ART – SCULPTURE   **3**
Hero stone to modern sculpture - Bronze icons - Tribes and their handicrafts - Art of temple car making - - Massive Terracotta sculptures, Village deities, Thiruvalluvar Statue at Kanyakumari, Making of musical instruments - Mridhangam, Parai, Veenai, Yazh and Nadhaswaram - Role of Temples in Social and Economic Life of Tamils.

UNIT III   FOLK AND MARTIAL ARTS   **3**
Therukoothu, Karagattam, Villu Pattu, Kaniyan Koothu, Oyillattam, Leather puppetry, Silambattam, Valari, Tiger dance - Sports and Games of Tamils.

UNIT IV   THINAI CONCEPT OF TAMILS   **3**
Flora and Fauna of Tamils & Aham and Puram Concept from Tholkappiyam and Sangam Literature - Aram Concept of Tamils - Education and Literacy during Sangam Age - Ancient Cities and Ports of Sangam Age - Export and Import during Sangam Age - Overseas Conquest of Cholas.

UNIT V   CONTRIBUTION OF TAMILS TO INDIAN NATIONAL MOVEMENT AND INDIAN
**   CULTURE**   **3**
Contribution of Tamils to Indian Freedom Struggle - The Cultural Influence of Tamils over the other parts of India – Self-Respect Movement - Role of Siddha Medicine in Indigenous Systems of Medicine – Inscriptions & Manuscripts – Print History of Tamil Books.

TOTAL : 15 PERIODS

TEXT-CUM-REFERENCE BOOKS
1. தமிழக வரலாறு – மக்களும் பண்பாடும் – கே.கே. பிள்ளை (வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்).
2. கணினித் தமிழ் – முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
3. கீழடி – வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருநை – ஆற்றங்கரை நாகரிகம். (தொல்லியல் துறை வெளியீடு)
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: International Institute of Tamil Studies.
7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City Civilization on the banks of river Vaigai' (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
10. Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

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அலகு I   <u>மொழி மற்றும் இலக்கியம்:</u>   **3**

இந்திய மொழிக் குடும்பங்கள் – திராவிட மொழிகள் – தமிழ் ஒரு செம்மொழி – தமிழ் செவ்விலக்கியங்கள் – சங்க இலக்கியத்தின் சமயச் சார்பற்ற தன்மை – சங்க இலக்கியத்தில் பகிர்தல் அறம் – திருக்குறளில் மேலாண்மைக் கருத்துக்கள் – தமிழ்க் காப்பியங்கள், தமிழகத்தில் சமண பௌத்த சமயங்களின் தாக்கம் – பக்தி இலக்கியம், ஆழ்வார்கள் மற்றும் நாயன்மார்கள் – சிற்றிலக்கியங்கள் – தமிழில் நவீன இலக்கியத்தின் வளர்ச்சி – தமிழ் இலக்கிய வளர்ச்சியில் பாரதியார் மற்றும் பாரதிதாசன் ஆகியோரின் பங்களிப்பு.

அலகு II   மரபு – பாறை ஓவியங்கள் முதல் நவீன ஓவியங்கள் வரை – சிற்பக் கலை:   **3**

நடுகல் முதல் நவீன சிற்பங்கள் வரை – ஐம்பொன் சிலைகள்– பழங்குடியினர் மற்றும் அவர்கள் தயாரிக்கும் கைவினைப் பொருட்கள், பொம்மைகள் – தேர் செய்யும் கலை – சுடுமண் சிற்பங்கள் – நாட்டுப்புறத் தெய்வங்கள் – குமரிமுனையில் திருவள்ளுவர் சிலை – இசைக் கருவிகள் – மிருதங்கம், பறை, வீணை, யாழ், நாதஸ்வரம் – தமிழர்களின் சமூக பொருளாதார வாழ்வில் கோவில்களின் பங்கு.

அலகு III   <u>நாட்டுப்புறக் கலைகள் மற்றும் வீர விளையாட்டுகள்:</u>   **3**

தெருக்கூத்து, கரகாட்டம், வில்லுப்பாட்டு, கணியான் கூத்து, ஒயிலாட்டம், தோல்பாவைக் கூத்து, சிலம்பாட்டம், வளரி, புலியாட்டம், தமிழர்களின் விளையாட்டுகள்.

அலகு IV   <u>தமிழர்களின் திணைக் கோட்பாடுகள்:</u>   **3**

தமிழகத்தின் தாவரங்களும், விலங்குகளும் – தொல்காப்பியம் மற்றும் சங்க இலக்கியத்தில் அகம் மற்றும் புறக் கோட்பாடுகள் – தமிழர்கள் போற்றிய அறக்கோட்பாடு – சங்ககாலத்தில் தமிழகத்தில் எழுத்தறிவும், கல்வியும் – சங்ககால நகரங்களும் துறை முகங்களும் – சங்ககாலத்தில் ஏற்றுமதி மற்றும் இறக்குமதி – கடல்கடந்த நாடுகளில் சோழர்களின் வெற்றி.

அலகு V   இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பு:   **3**

இந்திய விடுதலைப்போரில் தமிழர்களின் பங்கு – இந்தியாவின் பிறபகுதிகளில் தமிழ்ப் பண்பாட்டின் தாக்கம் – சுயமரியாதை இயக்கம் – இந்திய மருத்துவத்தில், சித்த மருத்துவத்தின் பங்கு – கல்வெட்டுகள், கையெழுத்துப்படிகள் – தமிழ்ப் புத்தகங்களின் அச்சு வரலாறு.

                                    TOTAL : 15 PERIODS

TEXT-CUM-REFERENCE BOOKS

1. தமிழக வரலாறு – மக்களும் பண்பாடும் – கே.கே. பிள்ளை (வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்).
2. கணினித் தமிழ் – முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
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4. பொருநை – ஆற்றங்கரை நாகரிகம். (தொல்லியல் துறை வெளியீடு)
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: International Institute of Tamil Studies.
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8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City C ivilization on the banks of river Vaigai' (Jointly Published by: Department ofArchaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
10. Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

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B. TECH. / FASHION TECHNOLOGY

SEMESTER – II	PROBABILITY AND STATISTICAL	L	T	P	C
U19MAT202E	QUALITY CONTROL	3	1	0	4

COURSE OUTCOMES

At the end of the course, the students will be able to,

1. apply the concepts of probability, random variable and their properties to generate the moments.
2. fit the suitable distribution and its properties to the real world problems and interpret the results.
3. apply the concepts of joint probability distribution and its properties to find the covariance and transformation of random variables.
4. apply the various designs of experiments to find cause-and-effect relationships.
5. apply the process control techniques to control and maintain the quality of the product.

<table>
<tr><td colspan="16">CO / PO, PSO Mapping
(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak</td></tr>
<tr><td rowspan="2">COs</td><td colspan="15">Programme Outcomes (POs) and Programme Specific Outcome (PSOs)</td></tr>
<tr><td>PO1</td><td>PO2</td><td>PO3</td><td>PO4</td><td>PO5</td><td>PO6</td><td>PO7</td><td>PO8</td><td>PO9</td><td>PO10</td><td>PO11</td><td>PO12</td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr>
<tr><td>CO1</td><td>3</td><td>3</td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2</td><td></td><td></td><td>3</td></tr>
<tr><td>CO2</td><td>3</td><td>3</td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2</td><td></td><td></td><td>3</td></tr>
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<tr><td>CO4</td><td>3</td><td>3</td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2</td><td></td><td></td><td>3</td></tr>
<tr><td>CO5</td><td>3</td><td>3</td><td></td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>2</td><td></td><td></td><td>3</td></tr>
</table>

UNIT – I   RANDOM VARIABLES   12

Discrete and continuous random variables – Moments – Expectation – Moment generating function and its properties.

UNIT – II   PROBABILITY AND DISTRIBUTIONS   12

Binomial, Poisson, Geometric, Uniform, Exponential and Normal distributions.

UNIT – III   TWO DIMENSIONAL RANDOM VARIABLES   12

Joint distributions – Marginal and conditional distributions – Covariance – Correlation – Central limit theorem.

UNIT – IV   DESIGN OF EXPERIMENTS   12

Analysis of variance – One way classification – Completely randomised design – Two way classification – Randomised block design – Latin square.

UNIT – V   STATISTICAL QUALITY CONTROL   12

Control charts for measurements ($\bar{X}$ and R charts) - Control charts for attributes, p, c and np Charts – Examples of application of statistical control charts in garment industry.

Theory: 45 Hours   **Tutorial: 15 Hours**   **Total: 60 Hours**

TEXT BOOK:

1. T. Veerarajan, "Probability, Statistics and Random Processes with Queueing Theory and Queueing Networks", McGraw Hill Publishers, 4th Edition, 7th reprint, 2018.

REFERENCE BOOKS:

1. S. C. Gupta, V. K. Kapoor, "Fundamentals of Mathematical Statistics", Sultan Chand and Sons Publishers, 11th Edition, Reprint, 2019.
2. S. P. Gupta, "Statistical Methods", Sultan Chand and Sons Publishers, 15th Edition, 2012.
3. R. A. Johnson and C. B. Gupta, "Miller and Freund's, Probability and Statistics for Engineers", Pearson Publishers, 9th Edition, 2018.
4. S. Ross, "A first course in probability", Pearson Publishers, 9th Edition, 2019.
5. P. G. Hoel, S. C. Port and C. J. Stone, "Introduction to Probability Theory", Universal Book Stall Publishers, Reprint, 2003.
6. W. Feller, "An Introduction to Probability Theory and its Applications", Vol. 1, 3rd Edition, Wiley Publishers, 2008.

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10. 05. 2019

B. E. / B. Tech. Regulations 2019

Course Code:	U19PHY203E	**L T P C**
Course Name:	Engineering Physics II	**3 0 0 3 100**

(for Fashion Technology)

COURSE OUTCOMES:
At the end of the course, the students will be able to,

CO1 Differentiate the electrical and thermal conductivity of metals.

CO2 Discuss the three moduli of elasticity in detail.

CO3 Apply hydrodynamic principles for the flow of liquids.

CO4 Elucidate the elastic, anelastic and visco-elastic behaviour of materials.

CO5 Evaluate the novel properties of phase change materials, shape memory polymers and nanomaterials.

CO / PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
COs, POs PSOs Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO – 1	3	2	-	-	-	-	-	-	-	-	2	2	-	3
CO – 2	3	2	-	-	-	-	-	-	-	-	2	2	-	3
CO – 3	3	2	-	-	-	-	-	-	-	-	2	2	-	3
CO – 4	3	2	-	-	-	-	-	-	-	-	2	2	-	3
CO - 5	3	2	-	-	-	-	-	-	-	-	2	2	-	3

Unit 1 Conducting materials   9

Usage of conducting materials– basic definitions (electrical resistance-conductance-resistivity-conductivity).

Classical free electron theory of metals - postulates of classical free electron theory - microscopic form of Ohm's law - Electrical conductivity - definition and expression for electrical conductivity - thermal conductivity - definition and expression for thermal conductivity – Wiedemann - Franz law and Lorentz number - Success and failure of classical free electron theory.

Quantum free electron theory - Drawbacks of quantum free electron theory - origin of energy bands - band theory of solids (qualitative treatment only) - Fermi energy and Fermi distribution function – Effect of temperature on Fermi function - Density of energy states - carrier concentration in metals - Electrically conductive textiles.

Unit 2 Elastic properties of materials   9

Stress-Strain - Hooke's law - Modulus of elasticity - Young's modulus - Rigidity modulus - Bulk modulus - Poisson's ratio – stress - strain diagram - applications of stress - strain diagram - factors affecting elasticity.

Bending of beams –expression for bending moment – elevation produced at the midpoint of the beam-Measurement of Young's modulus by uniform bending- Cantilever depression produced at the loaded end of the beam-depression produced at the midpoint of the beam-Measurement of Young's modulus by non uniform bending- I shaped girders.

Torsion pendulum - Work done in twisting a wire - Expression for couple per unit twist - Determination of rigidity modulus of thin wire by torsion pendulum.

Unit 3 Hydrodynamics   9

Viscosity - Stream line motion - Turbulent motion - Reynold's number - Determination of viscosity of fluids - Poiseuille's method.

Surface Tension - Molecular forces - Surface energy and surface tension - Rise of liquids in a capillary tube - Determination of surface tension by capillary rise method - Applications: Detergents and surface tension.

Moisture absorption in fibres - Humidity and its importance in Textiles - definition of humidity, Absolute humidity, Relative humidity, Recommended allowance, Regain and moisture content.

Unit 4 Elastic, Inelastic and Viscoelastic behavior   9

Elastic behavior: Atomic model of elastic behavior - Modulus as a parameter in design, stiffness - Rubber like elasticity: Elastomers - coiling and uncoiling of an elastomer chain - Stress strain curve for elastomer molecule.

Anelastic behavior - Relaxation processes-damping capacity - Visco-elastic behavior - Spring dashpot models - Maxwell element - Voigt-Kelvin element - Four parameter model, Retarded elasticity, Entropy elasticity.

Unit 5 New engineering materials   9

Phase change materials - Basic information of phase change materials - Phase change technology-PCM in textiles - Shape memory polymers (SMPs) - Introduction ,Features, properties, classifications and applications.

Nanoscience and Nanotechnology - significance of the nanoscale - different types of nanostructures (Confinement Dimensions 0-D, 1-D, 2-D and 3-D) - Categories of nanomaterials - Fabrication of nonomaterials - Ball milling method and Chemical vapour deposition technique - Applications.
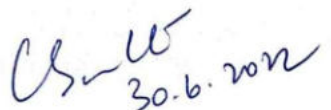
Lecture: 45, Tutorial: 00, Total: 45 Hours

Text Book:

1. M.N.Avadhanulu, 'Engineering Physics' S.Chand &Company Ltd, New Delhi (2015)

2. Subramaniam. N, Brijlal, ' Properties of Matter', S. Chand Group, New Delhi (2007) (Unit II)

References:

1. 'Applied Physics', Sonaversity, Sona College of Technology, Salem (Revised edition, 2015).

2. Physics for Mechanical Engineering, Sonaversity, Sona College of Technology, Salem (Revised Edition 2016).

3. Rajendran, V, and Marikani A, 'Materials science' TMH Publications, (2004) New Delhi.

4. Palanisamy P.K, 'Materials science', SciTech Publications (India) Pvt. Ltd., Chennai, Second Edition (2007)

30.6.2022

Dr. C. Shanthi
HOD / Science

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II SEMESTER (FT)

COURSE CODE	**U19CHE204C**	L T P C
COURSE NAME	**CHEMISTRY FOR TEXTILE TECHNOLOGISTS –II**	3 0 0 3

Course outcome:

At the end of the course the students will be able to

CO1 Compare the various types of organic material used in textile industry and their structure activity relationship and also can replace alternative environmental organic substituents.

CO2 Analyze various types of inorganic materials used in textile industry and their mechanistic way in those application and preparation, uses in textile industry.

CO3 Analyze the types of fibre forming polymers, polymerization and characteristics of Polymers.

CO4 Discuss topics related to various types of modern washing machines and highlight the importance of using industrial cleaning agents and label care.

CO5 Give an account of the principles and practices of stain removal in textiles / garments and describe the applications of stiffening agents to textiles.

CO / PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
COs, POs PSOs Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO – 1	3	2												3
CO – 2	3	2												3
CO – 3	3	2												3
CO – 4	3	2												3
CO - 5	3	2												3

UNIT I: ORGANIC COMPOUNDS FOR TEXTILE INDUSTRY   9

Cellulose – structure of cellulose – derivatives of cellulose – carboxymethyl cellulose and Gun cotton – structural aspects of cellulose –waxes - classification of waxes - Organic dyes – introduction – colour and chemical constitution – classification of dyes by structure – examples only– classification of dyes by methods of application – direct dyes – vat dyes – mordant dyes - azo dyes – disperse dyes – reactive dyes – examples only - chemistry of reactive dyes – Textile auxiliaries – dying auxiliaries – optical brighteners – printing auxiliaries – synthetic softeners – wetting agents, etc.

UNIT II: INORGANIC COMPOUNDS FOR TEXTILE INDUSTRY   9

Zeolites – types – applications – ion exchange properties of pigments – white pigments-titanium dioxide – lithophone – zinc oxide – coloured pigments - iron oxide – ultramarine – bleaching agents – Oxidizing bleaching agents, calcium hypochlorite, hydrogen peroxide, Reducing bleaching agents- sulphur dioxide and sodium hyposulphite, Applications of Chemistry in textile technology.

UNIT III: POLYMERS   9

Polymers: Terminology related to fibre molecules-classification of polymers; polymer-monomer-copolymer-types of fibre forming polymers; homo polymer-copolymer-alternating copolymer-random copolymer-block copolymer-graft copolymer-types of polymerization: addition-condensation and copolymerization-properties of polymers.

UNIT IV: LAUNDRY EQUIPMENT WITH CARE LABELS AND LAUNDRY REAGENTS 9

Washing Machines: Methods of washing, manual and machine washing. Study of modern/industrial washing machines: Rotary, swirling, pressure, tumble type washing machines laundering specialty fabrics and Care Labels: Importance of care label, various systems of care labelling, placement of labels on garments.

Laundry reagents: Soaps, detergents, cleaning action of soaps, indigenous cleaning agents, industrial cleaning agents, application of perchloroethylene, acetone and petrol. Study on modern cleaning agents.

UNIT V: STAIN REMOVAL AND STIFFENING 9

Stain Removal: Principles of stain removal, classification of stains and stain removers, various solvents for removing stains like blood, tea, rust, oil/grease, ink, candle wax, fruit juice, gum and other handling stains, stain removal procedure in garment industries.

Stiffening: Stiffening agents, purpose of stiffening and classification of stiffening agents, preparation and uses of stiffeners, steps in stiffening process.

Total: 45 Hours

TEXT BOOKS

1. P.C.Jain and Monica Jain, "Engineering Chemistry" Dhanpat Rai Pub, Co., New Delhi, 2018 (17th Edition).
2. N. Panneer Selvam et al., "Chemistry For Textile Technologists – II" by Sonaversity, Sona College of Technology, Salem, 2019.

REFERENCE BOOKS

1. O.G. Palanna "Engineering Chemistry" Tata McGraw-Hill Pub.Co.Ltd, New Delhi, 2017.
2. Kannan P., Ravikrishnan A., "Engineering Chemistry", Sri Krishna Hi-tech Publishing Company Pvt. Ltd., Chennai, 2016.
3. H.K. Chopra, A. Parmer, "Chemistry for Engineers", Narosa Publishing House, New Delhi, 110 002, 2016.
4. Gowariker V.R. , Viswanathan N.V. and Jayadev Sreedhar, "Polymer Science", New Age International P (Ltd.,), Chennai, 2006
5. Gurdeep R. Chatwal, "Synthetic Organic Chemistry", Himalaya Publishing House, Mumbai, 1994.
6. Dr. C.V. Koushik and Antao Irwin Josico, "Chemical Processing of Textiles Preparatory Processes and Dyeing", NCUTE Publication, New Delhi – 110 016.
7. Dantyagi S., "Fundamentals of Textile and Their Care", Oriental Longmans Ltd, New Delhi, 1996.
8. Noemia D'Souza, "Fabric Care", New Age International (P) Ltd. Publishers, Chennai, 1998.
9. Shenai V. A., "Technology of Textile Finishing", Sevak Publications, Bombay, 1995.
10. Davis, "Laundry and Clothing Care", Drama Book Publishers, 1995.

Dr. C. Shanthi
HOD / Sciences
Dr. C. SHANTHI, M.Sc., M.E., Ph.D.,
Professor of Physics
Head, Department of Sciences
na College of Technology (Autonomous)
SALEM-636 005.

30.06.2022   B.E / B.Tech Regulation 2019

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Course Outcome: At the end of the course, the students will be able to

1. Summarize the principle of operation of various conventional power plants and explain the components
2. Determine the working principles of Refrigerators and Air conditioner used in domestic purposes
3. State the fundamental laws of electrical circuits and explain the basic principles related to DC and AC electrical circuits
4. Explain the constructional features and principles of operation of DC and AC motors
5. Explain the different types of electrical drives and its heating and cooling curves.

CO / PO, PSO Mapping
(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak

COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	-	2	2	3	-	2	2	2	3	2	2
CO2	3	2	2	-	2	2	3	-	2	2	2	3	2	2
CO3	2	2	1	1	1	2	1	-	2	2	2	2	1	1
CO4	2	2	1	1	1	2	1	-	2	2	2	2	1	1
CO5	2	2	1	1	2	1	1	1	2	2	2	2	1	1

UNIT I - POWER PLANT ENGINEERING   9

Introduction, Classification of power plants-working of steam, gas, diesel, hydroelectric, nuclear power plants; Pumps-working principle of reciprocating and centrifugal pumps. Boilers: types, applications of Cochran, Lamont, Benson, BabcockWilcox boilers; Properties of steam; Dryness fraction, latent heat, Total heat of wet steam, Superheated steam; Use of steam tables; Volume of wet steam; Volume of superheated steam.

UNIT II - REFRIGERATION AND AIR CONDITIONING   9

Terminology of refrigeration and air conditioning; Principle of vapour compression and absorption system-window and split type air conditioner Compressor – Classification, Working of reciprocating and rotary air compressors, Applications

UNIT III - DC AND AC CIRCUITS   10

DC Circuits: Ohm's law, Kirchoff's laws, Series and Parallel circuits, Star – Delta transformation – Simple Problems.

AC Circuits: AC waveform standard terminologies, Single phase RL, RC, RLC series circuits – Simple Problems. Introduction to three phase circuits.

S. Padma 31.3.23

Dr. S. PADMA, M.E., Ph.D
Head of the Department
Department of EEE,
Sona College of Technology,
SALEM-636 005

UNIT IV - DC AND AC MOTORS

DC motors: Construction - Principle of operation - Torque equation - Types - Characteristics - Applications.

Three Phase Induction Motor: Construction- Principle of operation- Torque Equation - Slip - Torque vs Slip characteristics - Applications.

UNIT V - ELECTRICAL DRIVES

Basic Electrical Drives – Types of Electric Drive – Types of Load – Classes of Duty – Factors Affecting Selection of Electric Drives – Heating and Cooling Curve.

TOTAL: 45 Hours

TEXT BOOKS

1. Shunmagam G, Ravindran S, "**Basic Mechanical Engineering**", Tata McGraw Hill, 2011.

2. V.K. Mehta and Rohit Mehta, "**Principles of Electrical Engineering and Electronics**", S. Chand publishers, 2015.

REFERENCES

1. Venugopal K, Prabhuraja V, " **Basic Mechanical Engineering**", Anuradha Agencies, 2014

2. S.R.J. Shantha Kumar, "**Basic Mechanical Engineering**", 2nd Edition, HiTech Publications, 2000.

3. S.K. Bhattacharya, "**Basic Electrical and Electronics Engineering**", Pearson publishers, 2016

4. D.P. Kothari and I.J. Nagrath, "**Electric Machines**", Tata McGraw Hill, 2010.

5. B.L. Theraja, "**Fundamentals of Electrical Engineering and Electronics**", S. Chand publishers, 2008.

6. SudhakarA and Shyam Mohan SP, "**Circuits and Network Analysis and Synthesis**", Tata McGraw Hill, 2015.

S. Padma
31.3.23

Dr. S. PADMA, M.E., Ph.D
Head of the Department
Department of EEE,
Sona College of Technology.
SALEM-636 005

U19FT201   **WOVEN FABRIC MANUFACTURE AND STRUCTURE**   **3 0 0 3**

Course Outcome:
At the end of the course, the students will be able to

1. Explain the winding, warping, sizing, drawing-in, denting and knotting process.
2. Describe the working principles of various loom mechanisms.
3. Explain the various principles of weft insertion in shuttle less looms and modern weaving.
4. Explain the elementary features of woven design and explain the construction of different elementary weaves with appropriate diagrams
5. Illustrate the design of dobby, jacquard, mock leno and pile fabrics.

COs	CO/PO, PSO Mapping															
	(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak															
	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)															
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	3	2	2							2	2	2	2
CO2	3	3	3	3	3	2	2			2	3	2	3	3	2
CO3	2	3	3	3	3	2					2	2	3	2	2
CO4	2	3	3	3	3					2	2	2	3	3	2
CO5	2	3	3	3	3	2					2	2	3	3	2

UNIT I   Weaving Preparatory Processes   9

Winding: Objectives and yarn passage in cone winding machines, Objectives and yarn passage in pirn winding machine. **Warping machine:** Objectives, types and material passage. **Sizing:** Objects of sizing and list of sizing ingredients; drawing-in, denting and knotting.

UNIT II   Basics of Loom Mechanisms   10

Looms: Types of looms. **Basic motions:** Primary, secondary and auxiliary motions.

Primary mechanisms: Principles of Shedding: Dobby and Jacquard. Principle of Picking and beat up.
Secondary mechanisms: Principle of take-up and let-off motions.
Objectives of Auxiliary mechanisms: Warp protector mechanism, Warp stop motion, weft stop motion, temples and brakes.

UNIT III   Shuttleless Looms   8

Shuttleless weaving machines: Principles of weft insertion by projectile, rapier, air jet and water jet. Types of selvedges, Multi-phase weaving and 3D fabrics.

UNIT IV   Elementary Weaves   9

Elements of woven design: Design, Draft and its types, Peg plan and Repeat

Construction of elementary weaves: Plain weave and its derivatives: warp rib, weft rib and matt rib, Twill weave and its derivatives: ordinary twill, herringbone twill and zigzag twill, Satin, Sateen and their derivatives; Honeycomb, Ordinary and Brighton honeycomb, huck a back, Crepe weave and its modifications.

Dr. D. RAJA, M.Tech., Ph.D.,
Professor & Head
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Sona College of Technology
Salem - 636 005. Tamil Nadu

Spot figuring: Basic dobby, Jacquard designs, Arrangement of motifs in dobby and Jacquard designs; Extra-warp and extra-weft figuring.

Mock leno: Perforated mock leno design; Pile fabrics: plain velveteen and corduroys; Colour and weave effects; Principle of Double cloth construction; Fabric structures and its commercial name.
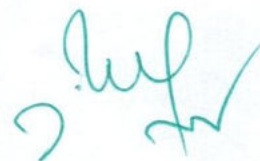
TOTAL: 45 Hours

TEXT BOOKS

1. Talukdar M. K., Sriramulu P. K. and Ajgaonkar D. B., "Weaving: Machines, Mechanisms, Management", Mahajan Publishers Pvt Ltd, 2004
2. Gokarneshan N., "Fabric Structure and Design", New Age International (P) Limited, 2009

REFERENCE:

1. W.S. Murphy, "Textile weaving and Design", Abhishek Publications, 2007.
2. H. Nisbet, "Grammar of Textile Design", Taraporewala and Sons Co. Pvt. Ltd., 1994
3. Grosicki, Watson's Textile design and colour, Elementary weaves and figured fabrics, Butterworth & Co publishers ltd.

Dr. D. RAJA, M.Tech., Ph.D.,
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Salem - 636 005. Tamil Nadu

U19EGR206B – ENGINEERING GRAPHICS FOR FASHION DESIGNING

	L	T	P	C
	1	0	2	2

Course Outcome: At the end of the course, the students will be able to

1. predict the construction of various curves in civil elevation plan and machine components.
2. draw the projection of three dimensional objects representation of machine structure and explain standards of orthographic views by different methods.
3. analyze the principles of projection of various planes by different angle to project points, lines and planes and simple solids.
4. study the development of simple solids and surfaces
5. create fabric print design, garment designs and illustrate the human figures.

CONCEPTS AND CONVENTIONS (Not for Examination)   9
Importance of graphics in engineering applications, Use of drafting instrument, BIS conventions and specifications - Size, layout and folding of drawing sheets, Lettering and dimensioning.

COMPUTER AIDED DRAFTING (Not for Examination)   9
Importance 2d Drafting, sketching, modifying, transforming and dimensioning.

UNIT I – PLANE CURVES (Free hand sketching)   9
Curves used in engineering practices Conics – Construction of ellipse – Parabola and hyperbola by eccentricity method – Construction of cycloid – construction of involutes of square and circle – Drawing of tangents and normal to the above curves.

UNIT II – ISOMETRIC TO ORTHOGRAPHIC VIEWS (Free Hand Sketching)
9

Representation of three dimensional objects – General Principles of Orthographic projection – Need for importance of multiple views and their placement – First angle projection – layout of views – Developing visualization skills through free hand sketching of multiple views from pictorial views of objects.

UNIT III – PROJECTION OF POINTS, LINES PLANE SURFACES (Free hand sketching and 2D Software)   9

Projection of points- All 4 quadrants, lines- Perpendicular to H.P and parallel to V.P, Perpendicular to V.P and parallel to H.P ,Inclined to H.P parallel to V.P, inclined to V.P and parallel to H.P, Planes – inclined to any one of the reference plane, Solids – prism, pyramid, cylinder and cone – resting on H.P and resting on V.P-simple positions.

UNIT IV – SECTION OF SOLIDS AND DEVELOPMENT OF SURFACES (Free hand sketching and 2D Software)   9

Sectioning of simple solids like prisms – pyramids, cylinder and cone in simple vertical position by cutting planes inclined to one reference plane and perpendicular to the other, Development of lateral surfaces of simple and truncated solids – Prisms – pyramids – cylinders and cones.

UNIT V - FASHION DESIGNING   9
(2D CAD software) Creation of fabric print design - garment design - Illustration ofthree different poses of fashion figure.

(**Not for Examination**)-Paper craft models preparation of simple and truncated solids – Prisms – pyramids – cylinders and cones.

TEXT BOOK

1. P. Suresh, "Engineering Graphics and Drawing", Sonaversity, Sona Collegeof Technology, Salem, Revised edition, 2012.

REFERENCES

1. Manmeet sodhia, "Fashion Illustration", Kalyani publishers, Ludhiana, Newdelhi, 2008.
2. Caroline Tatham and Julian Seaman, "Fashion Designing and Drawingcourse" Thames and Hudson Publishers, 2003.

Dr. D. SENTHIL KUMAR, M.E.,Ph.D
PROFESSOR & HEAD
DEPT. OF MECHANICAL ENGG.
SONA COLLEGE OF TECHNOLOGY
JUNCTION MAIN ROAD, SALEM-5.

TOTAL: 45 Hours

U19ENL215 - English for Engineers – II

First year II semester

FT

Course Outcomes: At the end of the course, the students will be able to

1. Demonstrate effective listening skills for academic and professional purposes.
2. Draw conclusions on explicit and implicit oral information.
3. Develop effective reading skills and reinforce skills required for grammar and building vocabulary.
4. Read for gathering and understanding information, following directions and giving responses
5. Introduce themselves, initiate and participate in conversations, deliver speeches and technical presentations

	COURSE OUTCOMES	PROGRAMME OUTCOMES													
		1	2	3	4	5	6	7	8	9	10	11	12	Ps o1	Ps o2
1	Demonstrate effective listening skills for academic and professional purposes	2	2	2	2	1	2	3	3	3	3	2	3	3	3
2	Draw conclusions on explicit and implicit oral information	3	3	2	3	3	2	3	3	3	3	3	3	3	3
3	Develop effective reading skills and reinforce skills required for grammar and building vocabulary	3	3	2	3	2	3	3	3	3	3	3	3	3	3
4	Read for gathering and understanding information, following directions and giving responses	2	3	2	3	2	3	3	3	3	3	3	3	3	3
5	Introduce themselves, initiate and participate in conversations, deliver speeches and technical presentations	1	2	2	3	2	2	3	2	3	3	2	3	3	3

LISTENING   10

- Listening to conversations, welcome speeches, lectures and description of equipment. •
  Listening to different kinds of interviews (face-to-face, radio, TV and telephone

interviews). Understanding short conversations or monologues. • Taking down phone messages, orders, notes etc. • Listening for gist, identifying topic, context or function.

- Listening comprehension, entering information in tabular form. • Intensive listening exercises and completing the steps of a process.
- Listening exercises to categorise data in tables.
- Listening to extended speech for detail and inference.

READING   10

- Understanding notices, messages, timetables, advertisements, graphs, etc.
- Reading passages for specific information transfer.
- Reading documents for business and general contexts and interpreting graphical representations.
- Error correction, editing mistakes in grammar, vocabulary, spelling, etc.
- Reading passage with multiple choice questions, reading for gist and reading for specific information, skimming for comprehending the general idea, meaning and contents of the whole text.

SPEAKING   10

- Self-introduction, personal information, name, home background, study details, area of interest, hobbies, strengths and weaknesses, projects and paper presentations, likes and dislikes in food, travel, clothes, special features of home town.
- Welcome address, vote of thanks, special address on specific topics.
- Mini presentation in small groups of two or three regarding, office arrangements, facilities, office functions, sales, purchases, training recruitment, advertising, applying for financial assistance, applying for a job, team work, discussion, presentation
- Situational role play between examiner and candidate, teacher and student, customer and sales manager, hotel manager and organiser, team leader and team member, bank manager and candidate, interviewer and applicant, car driver and client, industrialist and candidate, receptionist and appointment seeker, new employee and manager, employee and employee, P.A. and manager, schedule for training, asking for directions, seeking help with office equipment, clarifying an error in the bill, job details, buying a product, selling a product, designing a website, cancelling and fixing appointments, hotel accommodation, training facilities, dress code, conference facilities.

Extensive Reading
1. You Can Win by Shiv Khera - Macmillan *Publishers* India
2. Who Moved my Cheese? – Spencer Johnson-G. P. Putnam's Sons
3. Discover the Diamond in You – Arindham Chaudhari – Vikas publishing House Pvt.
4. The Story of Amazon-com – Sara Gilbert, published by Jaico
5. The Story of Google – Sara Gilbert, published by Jaico

TOTAL: 30 hours

HOD
Dr. M.RENUGA,
Professor & Head,
Department of Humanities & Languages,
.....a College of Technology.
SALEM - 636 005.

Course Outcome:

At the end of the course, the students will be able to

1. Analyse the common woven fabrics and develop the related design, draft and peg plan
2. Determine the cloth particulars for given fabrics
3. Utilise effectively the different tools in textile CAD software and create/develop different textile design and prepare their 2D simulations

COs	CO/PO, PSO Mapping															
	(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak															
	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)															
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	2	2	2	2								2	2	2
CO2	2	2	2	2	2	2					2		2	2	2
CO3	2	2	2	2		3							2	2	2
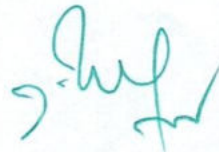
List of Experiments

Analyse the structures of woven fabric Designs
1. Plain, Twill, Satin.(2 session)
2. Huck a back and Honey comb.(1 session)
3. Dobby cloth analysis. (1 session)
4. Jacquard cloth (1 session)
5. Extra warp and extra weft figuring. (1 sessions)
6. Pile fabrics – corduroy fabrics. (1 session)

Study and practice of
1. Different tools used in textile CAD software. (1 session)
2. Development of striped, checked and print design and preparation of its 2D simulation. (1 session)
3. Development of dobby design and preparation of its 2D simulation. (1 session)
4. Development of jacquard design and preparation of its 2D simulation. (1 session)

TOTAL: 30 Hours

Dr. D. RAJA, M.Tech., Ph.D.,
Professor & Head
Department of Fashion Technology
Sona College of Technology
Salem - 636 005. Tamil Nadu

U19FT202 WOVEN FABRIC STRUCTURE AND TEXTILE CAD LABORATORY
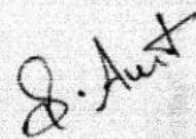
List of equipment required for a batch of 30 students for U.G

S. No.	Name of the equipment / software	Quantity Required
1.	**Module (Software)**	
	Dobby Design	15
	Jacquard Design	15
	Print design	15
2.	**Hard Ware**	
3.	Pentium IV / higher PCs Configuration to Support the Software	30
4.	Printer	1
5.	Scanner	1
6.	GSM Cutter and Scale	2
7.	Beesley Balance	4
8.	Counting Glass	30
9.	Electronic Balance	1
	Total	**114**

Dr. D. RAJA, M.Tech., Ph.D.,
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Sona College of Technology
Salem - 636 005. Tamil Nadu

Semester-II	Basic Aptitude – II - U19GE201 (Common to All Departments)	L	T	P	C	Marks
		0	0	2	0	100

Course Outcomes

At the end of the course the student will be able to:

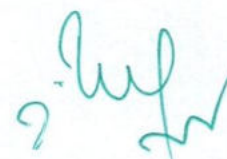| |
|---|
| 1. Solve more elaborate problems than those in BA-I* in specific areas of quantitative aptitude |
| 2. Solve problems of greater intricacy than those in BA-I in stated areas of logical reasoning |
| 3. Demonstrate higher than BA-I level verbal aptitude skills in English with regard to specific topics |

1.Quantitative Aptitude and Logical Reasoning	Solving quantitative aptitude and logical reasoning problems with reference to the following topics: a. Profit & loss b. Partnership c. Chain rule d. Numbers e. Ages f. Percentages g. Logarithms h. Geometry i. Direction sense j. Symbols and series
2.. Verbal Aptitude	Demonstrating verbal aptitude skills in English with reference to the following topics: a. Jumbled sentences b. Reconstructions of sentences (PQRS) c. Sentence fillers two words d. Idioms and phrases e. Spotting errors f. Writing captions for given pictures

Dr.S.Anita

Head/Training

Dr. S. ANITA
Professor and Head
Department of Training,
SONA COLLEGE OF TECHNOLOGY,
SALEM-636 005.

French Language A1 Level 2/A2
First year II semester

Course code: U19OLE1201   **0 0 2 1**

Course Outcomes : At the end of completion of this course, students will be able to,

1. Accept and refuse of an invitation, give some instruction of do's and don'ts, converse in commercial centres, write an invitation

2. Describe a city, locate a place in a city, ask further details, describe one's hometown

3. Talk about things around us, recite a past event, identify sign boards, express agree and disagree, express obligation and prohibition, sell an object in online

4. Talk about one's goals, express one's feelings, write a list of things to do, express an opinion, talk about weather, draft a mail response

5. Express one's interest and wish, describe a pet animal, express one's aversions, encourage others, write to ask for a help, narrate a past event, write a biography

Unit-I Gouter à la campagne   **6 hours**

Hr 2: City shopping and services, conjugation: payer, manger and acheter, negative sentence

Hr 4: Imperative sentence, food and beverages, utensils, cutleries, corckeries

Hr 6: Quantitative articles, quantities, pronoun 'en', express appreciation, write an invitation

Unit-II Voyager dans sa ville   **6 hours**

Hr 8: City and localities, Conjugation: prendre, adjectives of place, pronoun 'y'

Hr 10: Transport, leisure activities, preposition of place, degrees of comparison

Hr 12: Asking information about a new place, describe a city

Unit-III Faire du neuf avec du vieux   **6 hours**

Hr 14: Things in a store, conjugation : faire, imparfait 2, passé composé

Hr 16: Things in a repairing shop, computer, relative pronouns: que and qui

Hr 18: Imperative negative, express obligation and interdiction, online sale and response

Unit-IV Changer d'air   **6 hours**

Hr 20: Professions, conjugation: croire, voir, recent past tense

Hr 22: Traveling formalities, expressing about health condition, future tense

Hr 24: Pronoun COD, talk about weather condition, write about one's plans and projections

Unit-V Devenir éco-citoyen   **6 hours**

Hr 26: Citizenship and solidarity, conjugation: connaitre and savoir, depuis vs pendant
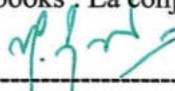
Hr 28: Imparfait vs passé composé, nature and environment, indirect pronouns COI

Hr 30: Animals, conditional, talk on supporting others, write a biography

                                                                    Total : 30 hours

Text Books

1. The course faculty will provide relevant audios, videos, handouts and notes.

2. Books : Saison (Méthode de français, cachier d'activités)

3. Reference books : La conjugaison, Dondon, Echo

Dr. M. Renuga
BoS – Chairperson,
Science & Humanities
HOD / H&L

German Language Course

First year II semester

Course Code: U19OLE1202

LTPC
0021

Course Outcomes: At the end of the course, students should be able to,
1. Use grammatical expressions appropriately in day-to-day conversation.
2. Make them frame simple sentences /questions.
3. Accentuate to start and sustain basic conversation
4. Helps them articulate thoughts in German
5. Identify the different forms of the verb.

UNIT – I   6
- Nominative/accusative case, adjectives

UNIT – II   6
- Modes of transportation, orientation, giving/understanding simple directions

UNIT – III   6
- Food and beverages, Modal verbs, Separable verbs

UNIT – IV   6
- Simple sentences using modal / separable verbs

UNIT – V   6
- Articles of clothing

Total : 30 hours

Text Book
Netzwerk A1

Dr. M. Renuga
BoS – Chairperson,
Science & Humanities
HOD / H&L

Dr. M.RENUGA,
Professor & Head,
Department of Humanities & Languages,
Sona College of Technology,
SALEM - 63b

Course Outcomes: At the end of completion of this course, students will be able to,

1.0   Use verbs in polite conversation or for dissuasion and describe two different activities
2.0   Demonstrate the application of causative verbs and those that express ability or possibility, and describe experiences
3.0   Use plain-style expressions, those that state opinions, and verbs and adjectives that go with nouns
4.0   Express sentences that use 'when' and 'if' and those that describe how services are given and received
5.0   Read 126 letters of Kanji, and demonstrate adequate knowledge of the lessons learnt in Levels I and II to pass the Japanese Language Proficiency Test (JLPT) for the N5 Level

•••

Unit-I   **6 hours**

Hr 1-2: Words and verbs expressing requests / Kanji 1-10

Hr 3-4: Asking for permission; making statements to prohibit something / Kanji 11-20

Hr 5-6: Describing two activities / Kanji 21-30

Unit-II   **6 hours**

Hr 7-8:   Verbs that express 'I have to ...' / Kanji 31-40

Hr 9-10:   Verbs which express ability or possibility / Kanji 41-50

Hr 11-12: Describing experience / Kanji 51-60

Unit-III   **6 hours**

Hr 13-14: Plain-style expressions / Kanji 61-70

Hr 15-16: Expressions like 'I think that ...' / Kanji 71-80

Hr 17-18: Qualifying nouns with verbs and adjectives / Kanji 81-90

Unit-IV   **6 hours**

Hr 19-20: Expressions using 'When ...' / Kanji 91-100

Hr 21-22: Describing the giving and receiving of services / Kanji 101-110

Hr 23-24: Expressions using 'If ...' / Kanji 111-126

Unit-V   **6 hours**

Hr 25-26: Preparing for JLPT N5
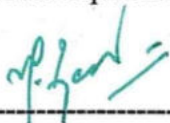
Hr 27-28: Preparing for JLPT N5

Hr 29-30: Preparing for JLPT N5

Total : 30 hours

Text Books

1. The course faculty will provide handouts / notes / course material.

2. Books on Basic Japanese language available in the college library.

Dr. M. Renuga
BoS – Chairperson,
Science & Humanities
HOD / H&L

Dr. M.RENUGA,
Professor & Head,
Department of Humanities & Languages,
 ona College of Technology,
SALEM - 636 005.

Sona College of Technology, Salem
(An Autonomous Institution)
Courses of Study for B.E/B.Tech. Semester III Regulations 2019
Branch: Fashion Technology

S. No	Course Code	Course Title	Lecture	Tutorial	Practical	Credit	Total Contact Hours
		Theory					
1	U19MAT301E	Operations Research and Statistical Methods	3	1	0	4	60
2	U19FT301	Knitted Fabric Manufacture and Structure (Lab Integrated)	3	0	2	4	75
3	U19FT302	Chemical Processing of Textiles and Garments (Lab Integrated)	3	0	2	4	75
4	U19FT303	Fashion Art and Design	3	0	0	3	45
5	U19FT304	Pattern Making and Garment Construction - I	3	0	0	3	45
6	U19TAM301	தமிழரும் தொழில்நுட்பமும் / Tamils and Technology	1	0	0	1	15
7	U19GE304	**Mandatory Course:** Constitution of India	2	0	0	0	30
		Practical					
8	U19FT305	Pattern Making and Garment Construction Laboratory - I	0	0	2	1	30
9	U19FT306	Digital Fashion Design Laboratory	0	0	4	2	60
10	U19ENG301	Communication Skills Laboratory	0	0	2	1	30
11	U19GE301	Soft Skills and Aptitude – I	0	0	2	1	30
					Total Credits	**24**	

Approved By

Chairperson, Fashion Technology BoS
Dr.D.Raja

Member Secretary, Academic Council
Dr.R.Shivakumar

Chairperson, Academic Council & Principal
Dr.S.R.R.Senthil Kumar

Copy to:-

HOD/Fashion Technology, Third Semester B.Tech FT Students and Staff, COE

B. TECH / FASHION TECHNOLOGY

SEMESTER – III	OPERATIONS RESEARCH AND	L	T	P	C
U19MAT301E	STATISTICAL METHODS	3	1	0	4

COURSE OUTCOMES

At the end of the course, the students will be able to,

1. solve the linear programming problem using suitable methods.
2. apply the optimization technique to the transportation and assignment problems.
3. analyze project management problems using critical path method and project evaluation and review technique.
4. test the hypothesis for proportions, mean and standard deviation using Z – test.
5. test the significance of the hypothesis using t, χ^2 and F distributions.

CO / PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PS03
CO1	3	3		3								2			3
CO2	3	3		3								2			3
CO3	3	3		3								2			3
CO4	3	3		3								2			3
CO5	3	3		3								2			3

UNIT – I   LINEAR PROGRAMMING PROBLEM   12

Linear programming problem - Mathematical formulation – Graphical solution method – Canonical and standard forms of Linear Programming Problem – Simplex method (using slack variables only) – Use of artificial variables – Big-M method.

UNIT – II   TRANSPORTATION AND ASSIGNMENT PROBLEMS   12

Transportation problem – Initial basic feasible solution – North west corner rule – Least cost method – Vogel's approximation method – Modified distribution method – Assignment problem – Hungarian method.

UNIT – III   CPM AND PERT   12

Network construction – Critical Path Method (CPM) – Computations of total, free and independent floats – Project Evaluation and Review Technique (PERT) Analysis – Computation of expected time and standard deviation.

UNIT – IV   TESTING OF SIGNIFICANCE FOR LARGE SAMPLES   12

Parameter and statistic – Null and alternative hypothesis – Errors in sampling, critical region and level of significance – One tailed and two tailed tests – Testing of hypothesis for proportions, mean, and standard deviation using Z – test.

UNIT – V   EXACT SAMPLING DISTRIBUTIONS   12

t-test for single mean, difference between means and paired t-test - χ^2-tests for independence of attributes, goodness of fit – χ^2-test for population variance – F-test for variance.
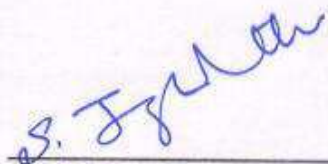
Theory: **45 Hours**   Tutorial: **15 Hours**   Total: **60 Hours**

TEXT BOOKS:

1. P. K. Gupta and D. S. Hira, "Problems in Operations Research", Sultan Chand and Sons Publishers, 4th Edition, 2015.
2. T. Veerarajan, "Probability, Statistics and Random Processes with Queueing Theory and Queueing Networks", McGraw Hill Publishers, 4th Edition, 7th reprint, 2018.

REFERENCE BOOKS:

1. H. A. Taha, "Operation Research: An Introduction", Pearson Publishers, 10th Edition, 2019.
2. P. K. Gupta and Manmohan, "Problems in Operations Research", Sultan Chand and Sons Publishers, 8th Edition, 2003.
3. S. P. Gupta, "Statistical Methods", Sultan Chand and Sons Publishers, 15th Edition, 2012.
4. S. C. Gupta and V. K. Kapoor, "Fundamentals of Mathematical Statistics", Sultan Chand and Sons Publishers, 11th Edition, Reprint, 2019.
5. R. A. Johnson and C. B. Gupta, "Miller and Freund's, Probability and Statistics for Engineers", Pearson Publishers, 9th Edition, 2018.

Prof. S. JAYABHARATHI
Head / Department of Mathematics
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Salem – 636 005

Dr. M. RENUGA
BoS - Chairperson
Science and Humanities
Sona College of Technology
Salem – 636 005

20. 05. 2020

B. E. / B. Tech. Regulations 2019

U19FT301   **KNITTED FABRIC MANUFACTURE AND**
                   STRUCTURE (Lab Integrated)   **3 0 2 4**

COURSE OUTCOMES

At the end of the study of this course the students will be able to,
1. Describe the basic terms, specifications and functions of weft and warp knitting machines.
2. Develop a clear understanding of different stitches and pattern mechanisms used for the production of weft knitted fabrics
3. Identify the different structures of the basic weft knitted structures and its derivatives
4. Identify and explain the representation of weft and warp knitted fabrics
5. Analyse the methods of production and the applications of common types of nonwoven fabrics
6. Analyse the knitted fabrics and develop the design
7. Analyse the geometrical properties for given fabrics
8. Experiment on Settings of machine parameters

CO/PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak															
COs	**Programme Outcomes (POs) and Programme Specific Outcome (PSOs)**														
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO1	2	2	1	2	2						1	1	3	2	2
CO2	1	2	3	2	3	2				1		2	2	2	1
CO3	2	3	3	3	3	2	2			1		3	3	3	1
CO4	1	2	3	3	2	1	2			1		3	3	3	1
CO5	2	3	2	1	3		2					2	3	2	2
CO6	2	3	3	3	3		2					3	3	3	1
CO7	2	3	3	3	3		2					1	3	3	1
CO8	2	3	3									1	3	3	1

UNIT I   Weft Knitting   10

Introduction: Introduction and basic concepts of Knitting, Principles of weft and warp knitting – comparison of weft and warp knitting
Weft Knitting: Functional Elements: Needles, Loop forming sequence, Sinkers, Cylinder, Dial, Cams, Creel, Feeder, Fabric Spreader, Take down and winding Mechanism. Machine description - Single Jersey, Rib, Purl and Interlock machine –Fully fashioned garments: socks, gloves, sweaters

UNIT II   Knit Stitches, Basic weft Knit Structures and Pattern Mechanism   14

Knit stitch, float stitch, tucks stitch: Properties, Symbolic and diagrammatic representation of stitches.
Basic Weft Knitted Structures: Single Jersey, Rib, Purl and Interlock. Line, Symbolic and diagrammatic notations of basic weft knitted structures, Characteristics and application areas of basic weft knit structures.
Patterning mechanism: Pattern wheel, Pattern drum, Peg drum machine, pattern jack,

computerized jacquard knitting machines, Electronic devices for needle selection

UNIT III   Derivatives of Plain Jersey, Rib and Interlock Structures   14

Derivatives of plain knit: Pique, honeycomb, Lacoste, cross tuck, satin, Knitted twill, Jersey blister, Plaiting, seer sucker effect, accordion fabrics.
Derivatives of Rib knit: 2x2 Rib, 3x2 Rib, 5x1 Derby rib, Regular and irregular rib fabrics, half cardigan, Full cardigan Milano rib, Waffle, Flat backrib.
Derivatives of Purl knit: 2x2 Purl, 4x2 Purl, and BasketPurl
Derivatives of Interlock Structure: Eight lock, Ponte-di-roma, Texi-pique, Milano rib, plated structure
Striped patterns: Horizontal stripe patterns, Vertical stripe patterns, Square patterns.
Fabric structure and its commercial name.

UNIT IV   Warp knitting and Structures   14

Warp knitting: Classification, Functional Elements: Overlap and Underlap, Machine elements: Needle bar, Sinker bar, Guide bar, Presser bar, Warp beam, Pattern wheel, Chain links, Latch wire, Trick plate, Knitting Cycle of Tricot and Raschel machine.

Principle stitches of warp knitting: 1 and 1 lapping – pillar or chain stitch – in lay stitch – blind stitch – 2 and 1 lapping – longer lapping – atlas stitch.
Study and representation: Full Tricot, Locknit, Reverse Locknit, Satin, Shark Skin, Queen's cord. Fabric structure and its commercial name. Application areas of warp knit structure

UNIT V   Interlining Fabrics(Non-Woven Fabric)   9
Interlining: Types (Woven, knit and non-woven), Properties, and end uses. Non-woven Interlining: Method of non-woven fabric manufacture: Mechanical bonded, Chemical bonded, Thermal bonded, Spun bonded and Melt blown. Applications of non-woven fabrics.
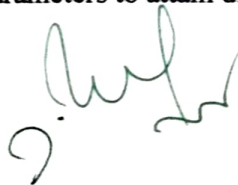
Total: 75 hours (45 L + 30 P)

LIST OF EXERCISES
Analysis of KNIT FABRIC PARAMETERS: CPI, WPI, LOOP LENGTH, GSM, YARN COUNT, FABRIC THICKNESS for the following knit samples.

Analyse the given single jersey structure and its derivatives (2 session)
1. Analyse the given rib structure and its derivatives (2session)
2. Analyse the given interlock structure and its derivatives (2session)
3. Analyse the given jacquard knitted structure (1session)
4. Analyse the basic geometrical properties of knitted fabrics (1session)
5. Experiment on Settings of machine parameters to attain different GSM of knitted fabric

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05.07.2023   Regulation - 2019

TEXT BOOK:
1. Anbumani N., Knitting-Fundamentals, Machines, Structures and Developments, New Age International Publishers, 2007.

REFERENCE:
1. Ajgaonkar D.B., Knitted Technology, Universal Publishing Corporation, Mumbai, 1998.
2. Spencer D.J., Knitting Technology: A Comprehensive Handbook, Woodhead Publishing Limited, England, 3rd Edition,2001.

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05.07.2023

Regulation - 2019

KNITTED FABRIC MANUFACTURE AND STRUCTURE
(LAB INTEGRATED)

List of equipment required for a batch of 30 students for U.G

S. No.	Name of the equipment / software	Quantity Required
1.	GSM Cutter and Scale	2
2.	Beesley Balance	4
3.	Course length tester	1
4.	Counting Glass	30
5.	Electronic Balance	1
6.	Fabric Thickness Tester	1
	Total	**39**

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05.07.2023

Regulation - 2019

COURSE OUTCOMES

At the end of the study of this course the students should be able to,
1. Explain the various grey preparatory processes for woven and knitted fabrics.
2. Describe the process of dyeing of cotton with direct, reactive and vat dyes.
3. Analyse the process of dyeing of Polyester and PC Blends with disperse dyes.
4. Explain various methods and styles of printing.
5. Describe the evaluation procedure of dyed and printed materials.
6. Prepare the grey fabric for dyeing and printing
7. Dye and print the fabric with suitable dyes
8. Test the dyed and printed fabrics for its fastness

<table>
<tr><td colspan="16">CO/PO, PSO Mapping
(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak</td></tr>
<tr><td rowspan="2">COs</td><td colspan="15">Programme Outcomes (POs) and Programme Specific Outcome (PSOs)</td></tr>
<tr><td>PO1</td><td>PO2</td><td>PO3</td><td>PO4</td><td>PO5</td><td>PO6</td><td>PO7</td><td>PO8</td><td>PO9</td><td>PO10</td><td>PO11</td><td>PO12</td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr>
<tr><td>CO1</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td>1</td><td>1</td><td></td><td></td></tr>
<tr><td>CO3</td><td>2</td><td>1</td><td></td><td></td><td></td><td></td><td>3</td><td>1</td><td></td><td></td><td></td><td>1</td><td>1</td><td>1</td><td></td></tr>
<tr><td>CO4</td><td>3</td><td>2</td><td>2</td><td></td><td></td><td></td><td>3</td><td>1</td><td></td><td></td><td></td><td>1</td><td>1</td><td>1</td><td></td></tr>
<tr><td>CO5</td><td>2</td><td></td><td>2</td><td></td><td>1</td><td></td><td></td><td>1</td><td></td><td>2</td><td></td><td>1</td><td>3</td><td></td><td>1</td></tr>
<tr><td>CO6</td><td>3</td><td>2</td><td>2</td><td></td><td></td><td></td><td>3</td><td>1</td><td></td><td></td><td></td><td>1</td><td>1</td><td>1</td><td></td></tr>
<tr><td>CO7</td><td>3</td><td>2</td><td>2</td><td></td><td></td><td></td><td>3</td><td>1</td><td></td><td></td><td></td><td>1</td><td>1</td><td>1</td><td></td></tr>
<tr><td>CO8</td><td>3</td><td>2</td><td>2</td><td></td><td>2</td><td>2</td><td>3</td><td>1</td><td></td><td>2</td><td></td><td>1</td><td>2</td><td>1</td><td></td></tr>
</table>

UNIT-I   Grey Preparation   9
Singeing: Objectives of singeing.
Desizing: Objectives, enzyme desizing, their relative advantages and disadvantages.
Principle and working of machines used in grey preparation: padding mangles, jigger, winch, J-box.
Scouring: Purpose and process, continuous methods of scouring.
Bleaching: Bleaching of cotton goods with hydrogen peroxide.
Mercerisation: Objective and principle of fabric mercerisation; outline of pad-less chainless fabric mercerisation.

UNIT-II   Dyeing of Natural Fibres   9
Fundamentals: Classification of colorants, difference between dye and pigment, common terms used in textile colouration.
Direct dyes: Properties and classification, dyeing of cotton with direct dyes.
Reactive dyes: Properties and classification, dyeing of cotton with M and VS reactive dyes
Acid Dyes: Dyeing of silk and wool.

UNIT-III   Dyeing of Polyester and PC Blends   9
Disperse dyes: Properties and classification, dyeing of polyester with disperse dyes using Jet dyeing machine and continuous methods.
Dyeing of PC Blends: Polyester/cellulosic blends dyeing by one and two bath process.
Dyeing equipment: Principles of working of soft-overflow jet dyeing machine, garment

dyeing machines.

UNIT-IV   Printing   9
Methods of printing: Principles of block, batik, flat-bed, rotary screen and transfer printing; study of chest printing machine for knitted goods, Digital printing.
Styles of printing: Principles of direct, discharge and resist styles of printing; printing with reactive dyes and pigments.

UNIT– V   Fabric finishes, Dyeing, Printing and Quality Evaluation   9
Computer colour matching: Principles of computer colour matching system; pass/fail decision making.
Colour fastness: Assessment of colour fastness of dyed goods to washing, rubbing, light and perspiration.
Banned dyes and Chemicals.
Dyeing and Printing faults: Dyeing and printing faults.
Fabric Finishes: Basic principles of calendaring, raising, sanforising, compacting of knitted fabric and softening finish.

LIST OF EXERCISES
1. Bleaching of cotton using hydrogen peroxide. (1session)
2. Dyeing of cotton with M brand reactive dyes. (1session)
3. Dyeing of silk / wool with acid dyes (1sessions)
4. Printing of fabric (Screen, block and resist) (1session)
5. Printing of fabric (tie & dye, batik, transfer) (1session)
6. Determination of colour fastness to washing, rubbing and light fastness. (2 sessions)
 fabric – To be added in testing laboratory.

Total: 75 hours (45 L + 30 P)

TEXTBOOKS:
1. Koushik C. V., and Antao Irwin Josico, "Chemical Processing of Textiles – Grey Preparation and Dyeing" – NCUTE Publication, New Delhi, 2004 (Units 1, 2 and5)
2. Shenai V. A., "Technology of Finishing", Sevak Publications, Mumbai, 1995, Nitra, "Pollution Control inTextile"
3. D G Dugg and S Sinclair, "Giles's Laboratory Course in Dyeing", Woodhead Publishing Limited (Fourth edition) December 1989

REFERENCE:
1. Shenai V. A., "Technology of Textile Processing – Vol. III, IV, V, VII and VIII", Sevak Publications, Mumbai,1995
2. Palmer John W., "Textile Processing and Finishing Aids: Recent Advances", Mahajan Book Distributors,1996
3. Ronald James W., "Printing and Dyeing of Fabrics and Plastics", Mahajan Book Distributors, 1996
4. Sivaramakrishnan C. N. " A compilation of 10 papers",Colorage
5. L. W. C Wiles, "Textile Printing", Merrow Monographs. TextileTechnology.

05.07.2023

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Regulation - 2019

CHEMICAL PROCESSING OF TEXTILES AND GARMENTS (LAB INTEGRATED)

List of equipment required for a batch of 30 students for U.G

S. No.	Description of Equipment / software	Quantity Required
1.	Water bath	10
2.	Pilot Curing Chamber (Hot-air Oven)	1
3.	Electronic Balance (0.01g to 300 g)	2
4.	Stirrer	1
5.	Printing screen	6
6.	Printing table	1
7.	Squeegee	1
Total		**22**

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05.07.2023

Regulation - 2019

U19FT303   FASHION ART AND DESIGN   3 0 0 3

COURSE OUTCOMES:
At the end of the study of this course the students will be able to,

1. Classify and define the fashion, art and design related terms.
2. Describe different types of fashion and life cycles of fashion.
3. Design the elements and principles of the design, with the effects in the apparel.
4. Stretch an account of the various concepts of colour theory and the applications of colours.
5. Develop a theme and prepare a portfolio.

	CO/PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
COs	**Programme Outcomes (POs) and Programme Specific Outcome (PSOs)**														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1		2						1	3	1	3	3	3	1
CO2	1	1	1					2				3	2	1	
CO3	1		3		2						2	1		3	
CO4	2		3			1	3	2				3	1	2	1
CO5	1	1	2		2			1		1	1	3	1	1	

UNIT I   INTRODUCTION TO FASHION ART DESIGN   9
Definition: Fashion, Art, Design, Costume and Clothing
Origin and history: Fashion, Art, Design, Clothing and costumes; Importance of Clothing; Types of clothing, Factors to be considered in the selection of clothing.

UNIT II   CLASSIFICATION AND TYPES OF FASHION   9
Nature of Fashion: Principles of Fashion, Classification of fashion
Movements on Fashion: Fashion cycle, Stages of fashion cycle, Length of fashion cycle business of fashion, theories of Fashion; Fashion trends, Boutique, Haute Couture
Study of leading fashion designers: French, Italian, American, Indian and English, Role of Fashion Designers, Types of designers

UNIT III   ELEMENTS OF DESIGN   9
Introduction: Garment Design: structural t design and decorative t design
Elements of design: Line, Size, Shape, Texture, Form, Colour and light - effects of elements in the apparel. Silhouettes, types and their application
Principles of Design: Introduction to principles of designs - Balance, Proportion, Emphasis, Rhythm, Harmony. Illusion effects, Principles on functionality and aesthetics

UNIT IV   COLOUR   9
Colour Theories: Primary, secondary, tertiary, intermediate colours
Color Scheme: colour contrast and colour harmony
Dimensions of colours: Hue, Value and intensity, Warm and cool colours, psychology of colours, application of colours to different components and seasons.

UNIT V   PORTFOLIO DEVELOPMENT   9
Fashion Illustration: Illustration techniques, strokes, hatching, shading.
Colouring techniques: Media for colouring, Rendering techniques for different fabrics

(Plain, Chambrey, Satin, Denim, Velvette, Fur).
Portfolio presentation: Designer boards, Mood board, Fabric board, Colour board, Illustration board, accessory board practicalities and style of presentation.

Total: 45 Hours

TEXT BOOKS:

1. Marian L Davis, "**Visual Design and Dress**", Third edition, Prentice Hall, New Jersey, 1996.
2. Elaine Stone, "**Fashion Merchandising – An Introduction**", McGraw-Hill 5th Edition, 1990.

REFERENCE:

1. Anderson B and Anderson C, "**Costume Design**", Harcourt Brace Second Edition, 1990.
2. Caroline Tatham and Julian Seaman, "**Fashion Designing and Drawing course**" Thames and
Hudson Publishers, 2003.
3. HarroldCarr,"**Fashion Design and Product Development**" John Wiley and Sons Inc. NewYork, 1992.
4. Ralph Lauren, "**In His Own Fashion**", Alan Flusser2019.

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05.07.2023

Regulation - 2019

U19FT304   PATTERN MAKING AND GARMENT CONSTRUCTION - I   3 0 0 3

COURSE OUTCOMES

At the end of the study of this course the students will be able to,
1. Describe the various pattern making tools in the workroom and the measuring techniques
2. Explain the method of drafting basic body slopers and types of fullness
3. Apply the various types of seams, seam finishes, stitches and sewing threads
4. Draft the pattern drafting and construction procedure for different types sleeves and collars
5. Analyse the types and techniques involved in the construction of garment closures

CO/PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak															
COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	3	3	3	1				1	1	1	2	3	1
CO2	3	3	3	3	3	1				1	2	1	3	3	1
CO3	1	3	3	3	3		1				2	1	3	3	1
CO4	3	3	3	3	3	1	1			1	2	1	3	3	
CO5	2	3	3	3	3						1	1	3	2	1

UNIT I   Measurements and Workroom Practices   8
Flow process chart of garment manufacturing.
Pattern: Definition, Importance, Types: basic pattern, working pattern and production pattern
Pattern making: Definition, Techniques: drafting and draping, Merits and demerits. Pattern making tools and workroom terms and definitions. Types: Industrial and bespoke patterns.
Figure analysis: Head theory: Seven and Half and Eight.
Measuring techniques: Introduction; Standard Measurement charts for male, female and kids, Body measurements: circumference measurement, Vertical measurements and horizontal measurements.

UNIT II   Block preparation and Fullness   10
Drafting of basic bodice, Skirt blocks and sleeve
Fullness: Definition types, Darts–single, Double, Pointed darts, Tucks- pin tucks, Cross tucks, Piped tucks, Shell tucks, Pleats,- knife pleats, Box pleats, Invertible box pleats, Kick pleats, Flare, Godets, Gathers, Shirrings, Single and Double frills.
Dart manipulation: Pivotal method, Slash and spread method, designing with fullness.

UNIT III   Seams and Stitches   9
Seams: Definition, Federal classification of seams, Seam quality, Seam performance, Factors to be considered in the selection of Seam, Seam finishes.
Stitches: Definition, Federal classification of Stitches, Stitch parameters, Factors to be considered in the selection of stitches.
Sewing thread: Selection of sewing thread for woven and knitted garments.

UNIT IV   Sleeves and Collars   10
Sleeves: Drafting and construction of Set–in–sleeves: Plain, Puff, Bell, Circular and Leg-o-mutton; Sleeves combined with bodice: Kimono and Raglan.
Collars: Drafting and construction of Convertible, Shirt, Mandarin, Peter pan, Sailor, Shawl and Notch collar.

Introduction and construction techniques of garment closures: Applications of zippers, Types of button and button holes and their applications, Types and applications of hooks and eye snaps; Velcro, Eyelets, Cords.

Total: 45 hours

TEXT BOOKS:
1. Halen Josep Armstrong "**Pattern Making for Fashion Design**" 5th Edition, Pretence Hall, New Jercey, 2014.
2. Marie Clayton, "**Ultimate Sewing Bible – A Complete Reference with Step-by-Step Techniques**", Collins & Brown, London, 2008.
3. Claire Schaeffer, "**The Complete Book of Sewing Shortcuts**", Sterling Publishing (NY), 2009.

REFERENCE:
1. Winifred Aldrich, "**Pattern Cutting for Menswear**", 4th edition, Blackwell Science Publisher, USA, 2006.
2. Winifred Aldrich, "**Metric Pattern Cutting**", Blackwell Publishing, 2008.
3. Claire Shaeffer, "**Sewing for Apparel Industry**", Prentice Hall, 2000.
4. Cooklin Gerry, "**Garment Technology for Fashion Designers**", Blackwell Science Ltd., 1997.
5. Laing, Webster J "**Stitches and Seams**" Woodhead Publishing Ltd., 1998.
6. Leila Aitken, "**Step by Step Dress Making Course**", BBC Books, 1992.

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COURSE OUTCOMES

At the end of the study of this course the students will be able to,

1. Draft and construct samples for basic blocks, seam and seam finishes and fullness.
2. Draft and construct samples for sleeves and collars.
3. Solve real time problem related to pattern making and construction of blocks, seams, fullness, sleeves and collars.

COs	CO/PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	1	2		1	1	1			1	1	2	1	1	1
CO2	1	1	2		1	1	1			1	1	1	1	2	1
CO3	1	3	3	1	1	1				2	1	1	1	2	1

List of Experiments

Drafting and construction of following components

1. **Bodice blocks, Skirt blocks and sleeve block** (2sessions)
2. **Seam and Seam Finishes** (1session)
3. **Fullness:** Darts, Tucks and Pleats (1 session)
4. **Sleeves:** Plain, Puff and Raglan (1session)
5. **Collars:** Shirt, Peter pan, Sailor and Shawl (1session)

Total: 30 hours

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PATTERN MAKING AND GARMENT CONSTRUCTION LABORATORY I

List of equipment required for a batch of 30 students for U.G

S. No.	Name of the equipment / software	Quantity Required	Additional tools issued to individual students
1.	Cork Top Tables	15	L - scale
2.	**Dress forms**		Hip curve
3.	Male : 40"chest full	1	Meter Scale
4.	Male : 42"chest full	1	French Curve
5.	Male : adjustable half	1	Tracing wheel
6.	Male : 4o"chest half	1	Measuring tape
7.	Female : 32.5" bust half	1	Tailor's Chalk
8.	Female : 32.5" bust full	1	Paper cutting scissors
9.	Female : 34.5" bust full	1	Fabric cutting scissors
10.	Female : 36.5" bust full with hand	1	1/4th Paper Scale
11.	Female : adjustable half	1	
	Mannequins		
12.	i. Baby		
	Boy – 80.5 cm	1	
	Girl – 88.8 cm	1	
	ii. Teenage Girls & Boys		
	Boy – 139 cm	1	
	Girl – 139cm	1	
	iii. Adults		
	Male -186 cm	1	
	Male -182.5 cm	1	
	Female -157.6 cm	1	
	Female -186 cm	1	
	Jewellery bust half head	1	
	Jewellery bust Indian face	1	
	Jewellery hand	2	
13.	Single-needle lock-stitch machine	30	
14.	Steam Iron	3	
15.	Fusing Machine	1	
Total		**70**	

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COURSE OUTCOMES

At the end of the study of this course the students will be able to,

1. Develop the basic creative and manipulative skills necessary for fashion design through various shading techniques and Sketching various elements and principles of designing and Draw fashion figures and visually communicate apparel design details, understanding of the color theory using various color schemes and Illustrate different styles of garment components and reproduce it to fit fashion figures
2. Illustrate basic fashion figure models and design various fashion designs using software
3. Illustrate different fashion figures incorporating all the illustrating techniques and designing high end fashion garments

COs	CO/PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3	2	3	1		1	3	1	3	3	3	2
CO2	2	3	3	3	3	2	1	1	1	3	1	3	3	3	2
CO3	1	2	1	2	2	1			1	1	1	2	2	1	1

LIST OF EXPERIMENTS

Manual Practice

1. Illustration of lines and strokes using pencil shading techniques; lettering and numbering styles
2. Illustration of human body shapes (Indian and International standards)
3. Illustration of human face
4. Illustration of different postures of human head, hand, leg and feet
5. Illustration of different hair styles
6. Sketching of lay figure using head theory
7. Preparation of Prang's colour wheel
8. Preparation of different colour schemes
9. Rendering different fabric textures

Digital Practice

10. Illustration of sleeves, cuffs, necklines, skirts, pockets, trousers, and skirt tops
11. Illustration of elements and principles of design
12. Draping of garments for men, women and kids on fashion figure
13. Designing of accessories for men, women and kids.
14. Development of flat sketches for men, women and kids.
15. Development of technical pack.

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Total: 60 hours

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U19FT306 DIGITAL FASHION DESIGN LABORATORY

List of equipment required for a batch of 30 students for U.G

S. No.	Name of the equipment / software	Quantity Required
1.	Open Source software	30
	Hard Ware	
2.	Pentium IV / higher PCs Configuration to Support the Software	30
3.	Printer	1
4.	Scanner	1
	Total	62

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U19ENG301 COMMUNICATION SKILLS LABORATORY
(LAB / PRACTICAL COURSE)

0 0 2 1

(Common to all branches of Third / Fourth Semester B.E / B.Tech programmes)

Course Outcome: At the end of the course, the students will be able to
- Communicate confidently and effectively
- Demonstrate active listening skills
- Practice soft skills and interpersonal skills to excel in their jobs.
- Use language efficiently to face interviews, participate in group discussions and present speeches.

COs	CO/PO, PSO Mapping														
	(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	2	3	3		1	3	3	3	2	3	2	2	3
CO2	1	3	2	3	3	3	3	3	3	3	2	2	2	2	3
CO3	1	3	3	3	3	3	3	3	3	3	2	3	2	3	3
CO4	1	3	2	3	3	3	3	3	3	3	1	3	2	2	3

1. **Listening Comprehension**: Listening and typing – listening and sequencing of sentences – Filling in the blanks – Listening and answering questions.

2. **Reading Comprehension**: Filling in the blanks – Cloze exercises – Vocabulary building – Reading and answering questions.

3. **Speaking: Phonetics**: Intonation – Ear training – Correct Pronunciation – Sound recognition exercises – Common errors in English.
   Conversations: Face to Face Conversation – Telephone conversation – Role play activities (Students take on roles and engage in conversation)

4. Making presentations: introducing oneself – introducing a topic – answering questions – individual presentation practice

5. Creating effective PPTs – presenting the visuals effectively

6. Using appropriate body language in professional contexts – gestures, facial expressions, etc.

7. Preparing job applications - writing covering letter and résumé

8. Applying for jobs online - email etiquette

9. Participating in group discussions – understanding group dynamics - brainstorming the topic – mock GD

10. Training in soft skills - persuasive skills – people skills - questioning and clarifying skills

11. Writing Project proposals: collecting, analyzing and interpreting data / drafting the final report

12. Attending job interviews – answering questions confidently

13. Interview etiquette – dress code – body language – mock interview

TOTAL: 30 PERIODS

REFERENCE BOOKS:

1. English and Soft Skills, Dhanavel, S.P. Hyderabad: Orient BlackSwan Ltd. 2010.
2. How to Prepare for Group Discussion and Interview, Corneilssen, Joep. New Delhi: Tata-McGraw-Hill, 2009.
3. Group Discussion and Team Building D'Abreo, Desmond A. Mumbai: Better yourself books, 2004.
4. The ACE of Soft Skills, Ramesh, Gopalswamy, and Mahadevan Ramesh.New Delhi: Pearson, 2010.
5. Corporate Soft Skills, Gulati, Sarvesh. New Delhi: Rupa and Co. 2006.
6. Presentation Skills for Students, Van Emden, Joan, and Lucinda Becker. New York: Palgrave Macmillan, 2004.
7. Dictionary of Common Errors, Turton, N.D and Heaton, J.B. Addision Wesley Longman Ltd., Indian reprint 1998.
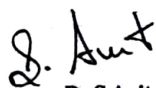
EXTENSIVE READING

1. The 7 Habits of Highly Effective People, Covey, Stephen R. New York: Free Press, 1989.
2. The Professional, Bagchi, Subroto. New Delhi: Penguin Books India, 2009.

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Semester-III	U19GE301-SOFT SKILLS AND APTITUDE – 1	L	T	P	C	Marks
		0	0	2	1	100

Course Outcomes

At the end of the course the student will be able to:

1. Demonstrate capabilities in specific soft-skill areas using hands-on and/or case-study approaches
2. Solve problems of greater intricacy in stated areas of quantitative aptitude and logical reasoning
3. Demonstrate good vocabulary skills, analyse comprehension and critical reasoning passages, spot errors and utilize language skills to describe pictures effectively.

1.Soft Skills	**Demonstrating soft-skill capabilities with reference to the following topics:** a. Attitude building b. Dealing with criticism c. Innovation and creativity d. Problem solving and decision making e. Public speaking f. Group discussions
2. Quantitative Aptitude **and** **Logical Reasoning**	**Solving problems with reference to the following topics:** a. Vedic Maths: Fast arithmetic, multiplications technique, Criss cross, Base technique, Square root, Cube root, Surds, Indices, Simplification. b. Numbers: Types, Power cycle, Divisibility, Prime factors & multiples, HCF & LCM, Remainder theorem, Unit digit, Tens digit, highest power. c. Averages: Basics of averages and weighted average. d. Percentages: Basics of percentage and Successive percentages. e. Ratio and proportion: Basics of R &P, Alligations, Mixture and Partnership. f. Profit ,Loss and Discount: Basic & Advanced PLD g. Data Interpretation: Tables, Bar diagram, Venn diagram, Line graphs, Pie charts, Case lets, Mixed varieties, Network diagram and other forms of data interpretation. h. Syllogism: Six set syllogism using Venn diagram and tick and cross method
3. Verbal Aptitude	**Demonstrating English language skills with reference to the following topics:** a. Verbal analogy b. Tenses c. Prepositions d. Reading comprehension e. Choosing correct / incorrect sentences f. Describing pictures g. Error spotting

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அலகு I   நெசவு மற்றும் பானைத் தொழில்நுட்பம்:   3

சங்க காலத்தில் நெசவுத் தொழில் – பானைத் தொழில்நுட்பம் – கருப்பு சிவப்பு பாண்டங்கள் – பாண்டங்களில் கீறல் குறியீடுகள்.

அலகு II   வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்பம்:   3

சங்க காலத்தில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் & சங்க காலத்தில் வீட்டுப் பொருட்களில் வடிவமைப்பு– சங்க காலத்தில் கட்டுமான பொருட்களும் நடுகல்லும் – சிலப்பதிகாரத்தில் மேடை அமைப்பு பற்றிய விவரங்கள் – மாமல்லபுரச் சிற்பங்களும், கோவில்களும் – சோழர் காலத்துப் பெருங்கோயில்கள் மற்றும் பிற வழிபாட்டுத் தலங்கள் – நாயக்கர் காலக் கோயில்கள் – மாதிரி கட்டமைப்புகள் பற்றி அறிதல், மதுரை மீனாட்சி அம்மன் ஆலயம் மற்றும் திருமலை நாயக்கர் மஹால் – செட்டிநாட்டு வீடுகள் – பிரிட்டிஷ் காலத்தில் சென்னையில் இந்தோ–சாரோசெனிக் கட்டிடக் கலை.

அலகு III   உற்பத்தித் தொழில் நுட்பம்:   3

கப்பல் கட்டும் கலை – உலோகவியல் – இரும்புத் தொழிற்சாலை – இரும்பை உருக்குதல், எஃகு – வரலாற்றுச் சான்றுகளாக செம்பு மற்றும் தங்க நாணயங்கள் – நாணயங்கள் அச்சடித்தல் – மணி உருவாக்கும் தொழிற்சாலைகள் – கல்மணிகள், கண்ணாடி மணிகள் – சுடுமண் மணிகள் – சங்கு மணிகள் – எலும்புத்துண்டுகள் – தொல்லியல் சான்றுகள் – சிலப்பதிகாரத்தில் மணிகளின் வகைகள்.

அலகு IV   வேளாண்மை மற்றும் நீர்ப்பாசனத் தொழில் நுட்பம்:   3

அணை, ஏரி, குளங்கள், மதகு – சோழர்காலக் குமுழித் தூம்பின் முக்கியத்துவம் – கால்நடை பராமரிப்பு – கால்நடைகளுக்காக வடிவமைக்கப்பட்ட கிணறுகள் – வேளாண்மை மற்றும் வேளாண்மைச் சார்ந்த செயல்பாடுகள் – கடல்சார் அறிவு – மீன்வளம் – முத்து மற்றும் முத்துக்குளித்தல் – பெருங்கடல் குறித்த பண்டைய அறிவு – அறிவுசார் சமூகம்.

அலகு V   அறிவியல் தமிழ் மற்றும் கணித்தமிழ்:   3

அறிவியல் தமிழின் வளர்ச்சி –கணித்தமிழ் வளர்ச்சி – தமிழ் நூல்களை மின்பதிப்பு செய்தல் – தமிழ் மென்பொருட்கள் உருவாக்கம் – தமிழ் இணையக் கல்விக்கழகம் – தமிழ் மின் நூலகம் – இணையத்தில் தமிழ் அகராதிகள் – சொற்குவைத் திட்டம்.

TOTAL : 15 PERIODS

TEXT-CUM-REFERENCE BOOKS

1. தமிழக வரலாறு – மக்களும் பண்பாடும் – கே.கே. பிள்ளை (வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்).
2. கணினித் தமிழ் – முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
3. கீழடி – வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருநை – ஆற்றங்கரை நாகரிகம். (தொல்லியல் துறை வெளியீடு)
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: International Institute of Tamil Studies.
7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City C ivilization on the banks of river Vaigai' (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, TamilNadu)
10. Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

HOD

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U19TAM301　　　　　**TAMILS AND TECHNOLOGY**　　　　　**L T P C**
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UNIT I　　　WEAVING AND CERAMIC TECHNOLOGY　　　　　**3**

Weaving Industry during Sangam Age – Ceramic technology – Black and Red Ware Potteries (BRW) – Graffiti on Potteries.

UNIT II　　　DESIGN AND CONSTRUCTION TECHNOLOGY　　　　　**3**

Designing and Structural construction House & Designs in household materials during Sangam Age -Building materials and Hero stones of Sangam age – Details of Stage Constructions in Silappathikaram - Sculptures and Temples of Mamallapuram - Great Temples of Cholas and other worship places - Temples of Nayaka Period - Type study (Madurai Meenakshi Temple)- Thirumalai Nayakar Mahal - Chetti Nadu Houses, Indo - Saracenic architecture at Madras during British Period.

UNIT III　　　MANUFACTURING TECHNOLOGY　　　　　**3**

Art of Ship Building - Metallurgical studies - Iron industry - Iron smelting, steel -Copper and gold- Coins as source of history - Minting of Coins – Beads making-industries Stone beads -Glass beads - Terracotta beads - Shell beads/ bone beats - Archeological evidences - Gem stone types described inSilappathikaram.

UNIT IV　　　AGRICULTURE AND IRRIGATION TECHNOLOGY　　　　　**3**

Dam, Tank, ponds, Sluice, Significance of Kumizhi Thoompu of Chola Period, Animal Husbandry - Wells designed for cattle use - Agriculture and Agro Processing - Knowledge of Sea - Fisheries – Pearl - Conche diving - Ancient Knowledge of Ocean - Knowledge Specific Society.

UNIT V　　　SCIENTIFIC TAMIL & TAMIL COMPUTING　　　　　**3**

Development of Scientific Tamil - Tamil computing – Digitalization of Tamil Books – Development of Tamil Software – Tamil Virtual Academy – Tamil Digital Library – Online Tamil Dictionaries –Sorkuvai Project.

TOTAL : 15 PERIODS

TEXT-CUM-REFERENCE BOOKS

1. தமிழக வரலாறு – மக்களும் பண்பாடும் – கே.கே. பிள்ளை (வெளியீடு: தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்).
2. கணினித் தமிழ் – முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
3. கீழடி – வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருநை – ஆற்றங்கரை நாகரிகம். (தொல்லியல் துறை வெளியீடு)
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by: International Institute of Tamil Studies.
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8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by: International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City C ivilization on the banks of river Vaigai' (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, TamilNadu)
10. Studies in the History of India with Special Reference to Tamil Nadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamil Nadu Text Book and Educational Services Corporation, Tamil Nadu)
12. Journey of Civilization Indus to Vaigai (R.Ramakrishna) (Published by: RMRL) – Reference Book.

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Professor & Head,
Department of Humanities & Languages,
nna College of Technology,
SALEM - 63

U19GE3014- Constitution of India

Course Outcomes   **2 0 0 0**

At the end of the course, the students will be able to

CO 1   Demonstrate a capacity to work efficiently and with critical engagement with complex and sophisticated primary constitutional law texts

CO 2   Exhibit the capacity to craft coherent and persuasive constitutional law arguments in an adversarial context ,also recognizing the limitations of such argumentation

CO 3   Apply a contextual understanding of (i) the function of the High Court as the final arbiter of constitutionality and (ii) the techniques of judicial review as applied

CO 4   Practice a thorough and contextual knowledge of constitutional law doctrine particularly in its application to real or hypothetical constitutional law problems

CO 5   Demonstrate a high level of skill on academic and professional legal rights.

CO / PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
COs, POs PSOs Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO – 1	2													
CO – 2	2													
CO – 3	2													
CO – 4	2													
CO - 5	2													

UNIT – I   Introduction to Constitution of India   **6**
- Constitutional law – meaning – importance
- Constitutionalism – features – elements
- Constitution of India – concept – importance – historical perspective – characteristics

UNIT – II   Fundamental Rights and Equality   **6**
- Fundamental rights – scheme – benefits
- Fundamentals duties – importance – and its legal status

UNIT – III Structure, Policies, Principles   **6**
State policy – the directive principles and its importance-The implementation of directive principles- Parliamentary form of government in India- Constitution power and status of the President- Federal structure and distribution of legislative

29.08.2022

B.E. / B.Tech. Regulations 2019

UNIT –IV   Emergency rule
                                                                        6
Financial powers between the union and the states- Amendment of the constitutional powers – procedure- Emergency provisions : articles of Indian constitution that has provisions to proclaim emergency- Emergency powers of President   – national emergency President rule, financial emergency

UNIT – V Types and Concepts of Local Self Government
                                                                        6
- The concept of local self –government and its types
- Comparison of the Indian constitutional scheme
- Directive principles of state policy and fundamental duties noted in the Indian constitution
- Scheme of the fundamental rights to certain freedom under Article 19
- Scope of the right to life and personal liberty under Article 21
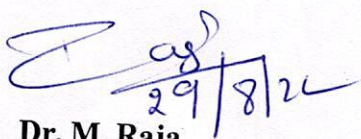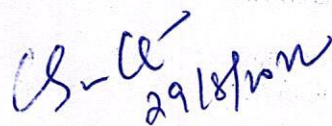
Reference Books

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

Total: 30 hours

Dr. M. Raja
Course Coordinator / Sciences

Dr. C. Shanthi
HOD / Sciences

Dr. M. Renuga
Chairperson BOS,
Science and Humanities

29.08.2022

U19ENG301- Communication Skills Laboratory (Lab/Practical Course) 0 0 2 1

(Common to all branches of Third / Fourth Semester B.E / B.Tech-programmes)

Course Outcome: At the end of the course, the students will be able to
- Communicate confidently and effectively
- Demonstrate active listening skills
- Practice soft skills and interpersonal skills to excel in their jobs.
- Use language efficiently to face interviews, participate in group discussions and present speeches.

1. **Listening Comprehension**: Listening and typing – listening and sequencing of sentences – Filling in the blanks – Listening and answering questions.

2. **Reading Comprehension**: Filling in the blanks – Cloze exercises – Vocabulary building – Reading and answering questions.

3. **Speaking: Phonetics**: Intonation – Ear training – Correct Pronunciation – Sound recognition exercises – Common errors in English.

Conversations: Face to Face Conversation – Telephone conversation – Role play activities (Students take on roles and engage in conversation)

4. Making presentations: introducing oneself – introducing a topic – answering questions – individual presentation practice

5. Creating effective PPTs – presenting the visuals effectively

6. Using appropriate body language in professional contexts – gestures, facialexpressions, etc.

7. Preparing job applications - writing covering letter and résumé

8. Applying for jobs online - email etiquette

9. Participating in group discussions – understanding group dynamics - brainstorming the topic – mock GD

10. Training in soft skills - persuasive skills – people skills - questioning and clarifying skills

11. Writing Project proposals: collecting, analyzing and interpreting data / drafting the final report

12. Attending job interviews – answering questions confidently

13. Interview etiquette – dress code – body language – mock interview

TOTAL: 30 PERIODS

REFERENCE BOOKS:
1. English and Soft Skills, Dhanavel, S.P. Hyderabad: Orient BlackSwan Ltd. 2010.
2. How to Prepare for Group Discussion and Interview, Corneilssen, Joep. New Delhi: Tata-McGraw-Hill, 2009.
3. Group Discussion and Team Building D'Abreo, Desmond A. Mumbai: Better yourself books, 2004.
4. The ACE of Soft Skills, Ramesh, Gopalswamy, and MahadevanRamesh.New Delhi: Pearson, 2010.
5. Corporate Soft Skills, Gulati, Sarvesh. New Delhi: Rupa and Co. 2006.
6. Presentation Skills for Students, Van Emden, Joan, and Lucinda Becker. New York: Palgrave Macmillan, 2004.
7. Dictionary of Common Errors, Turton, N.D and Heaton, J.B. Addision Wesley Longman Ltd., Indian reprint 1998.

EXTENSIVE READING
1. The 7 Habits of Highly Effective People,Covey, Stephen R. New York: Free Press, 1989.
2. The Professional, Bagchi, Subroto.New Delhi: Penguin Books India, 2009.

HOD

Dr. M.RENUGA,
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SALEM - 6

Semester-III	U19GE301-SOFT SKILLS AND APTITUDE – I	L	T	P	C	Marks
		0	0	2	1	100

Course Outcomes

At the end of the course the student will be able to:

1. Demonstrate capabilities in specific soft-skill areas using hands-on and/or case-study approaches
2. Solve problems of greater intricacy in stated areas of quantitative aptitude and logical reasoning
3. Demonstrate good vocabulary skills, analyse comprehension and critical reasoning passages, spot errors and utilize language skills to describe pictures effectively.

1.Soft Skills	**Demonstrating soft-skill capabilities with reference to the following topics**: a. Attitude building b. Dealing with criticism c. Innovation and creativity d. Problem solving and decision making e. Public speaking f. Group discussions
2. Quantitative Aptitude **and** **Logical Reasoning**	**Solving problems with reference to the following topics:** a. Vedic Maths: Fast arithmetic, multiplications technique, Criss cross, Base technique, Square root, Cube root, Surds, Indices, Simplification. b. Numbers: Types, Power cycle, Divisibility, Prime factors & multiples, HCF & LCM, Remainder theorem, Unit digit,Tens digit, highest power. c. Averages: Basics of averages and weighted average. d. Percentages: Basics of percentage and Successive percentages. e. Ratio and proportion: Basics of R &P, Alligations, Mixture and Partnership. f. Profit ,Loss and Discount: Basic & Advanced PLD g. Data Interpretation: Tables, Bar diagram, Venn diagram, Line graphs, Pie charts, Case lets, Mixed varieties, Network diagram and other forms of data interpretation. h. Syllogism: Six set syllogism using Venn diagram and tick and cross method
3. Verbal Aptitude	**Demonstrating English language skills with reference to the following topics:** a. Verbal analogy b. Tenses c. Prepositions d. Reading comprehension e. Choosing correct / incorrect sentences f. Describing pictures g. Error spotting

31/4/2023

Dr.S.Anita

Head/Training

Dr. S. ANITA
Professor and Head
Department of Training,
SONA COLLEGE OF TECHNOLOGY,
SALEM-636 005.

Sona College of Technology, Salem
(An Autonomous Institution)
Courses of Study for B.E/B.Tech. Semester IV Regulations 2019
Branch: Fashion Technology

S. No	Course Code	Course Title	Lecture	Tutorial	Practical	Credit	Total Contact Hours
		Theory					
1	U19GE402	**Mandatory Course:** Environment and Climate Science	2	0	0	0	30
2	U19FT401	Pattern Making and Garment Construction - II	3	0	0	3	45
3	U19FT402	Garment Production Machinery and Equipment (Lab Integrated)	3	0	2	4	75
4	U19FT403	Problem Solving using Python Programming (Lab Integrated)	3	0	2	4	75
5	U19FT404	Textile and Apparel Quality Evaluation	3	0	0	3	45
6	U19FT405	Textile Materials for Fashion Design	3	0	0	3	45
		Practical					
7	U19FT406	Pattern Making and Garment Construction Laboratory – II	0	0	2	1	30
8	U19FT407	Textile and Apparel Quality Evaluation laboratory	0	0	2	1	30
9	U19GE401	Soft Skills and Aptitude – II	0	0	2	1	30
10	U19FT408	Mini Project - I	0	0	2	1	30
11	U19FT409	In-Plant Training	2 Weeks			1	2 Weeks
					Total Credits	**22**	

Approved By

Chairperson, Fashion Technology BoS
Dr.D.Raja

Member Secretary, Academic Council
Dr.R.Shivakumar

Chairperson, Academic Council & Principal
Dr.S.R.R.Senthil Kumar

Copy to:-

HOD/Fashion Technology, Fourth Semester B.Tech FT Students and Staff, COE

22.12.2023

Regulations-2019

U19FT401   **PATTERN MAKING AND GARMENT CONSTRUCTION II**   3 0 0 3

COURSE OUTCOMES

At the end of the study of this course the students will be able to,
1. Explain the steps in the construction of yokes, necklines and hems
2. Describe stitching methods used for pockets, plackets, waist bands and cuffs
3. Draft block patterns for basic children's, men's and women's garments
4. Explain the basic principles of grading
5. Explain the basic principles of draping

	CO/PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak													
COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO12	PSO1	PSO2	PSO3
CO1	2	3	3	2	3	2	2					3	3	2
CO2	2	3	3	2	3	2	2					3	3	2
CO3	3	2	3	2	3	2	2				2	3	3	2
CO4	3	3	2	2	3	2	2				2	3	2	2
CO5	3	3	3	2	2	2					2	2	2	2

Unit I   Yokes, Hemming and Necklines   9
Yokes: Definition – Selection of yoke design, Different styles of yoke. Simple yoke – yokes with or without fullness – Midriff yokes, Methods of attaching yokes.
Hemming Techniques: Definition, Factors to be considered in the selection of hems, Types of machine stitched hem, Hand stitched hem.
Neckline Finishes: Preparation and uses of True Bias, Facings, and Binding.

Unit II   Pockets and Plackets   10
Plackets: Types, two piece plackets, continuous plackets, Kurtha plackets, Shirt cuff placket
Pockets: Types – patch pocket, patch with lining, Patch with flap, Front hip, Set-in seam, Slash pocket - Single lip, Double lip, with flap.
Waistband: One-piece, Two-piece and Tailor waistband, Elastic applied
Cuffs: Types, square shape, Round shape.

Unit -III   Drafting for Garments   10
Drafting: Basic principles and methodologies used to draft block patterns for the following garments: Children's Body Suit, Romper, Frock, Shirt, Trouser, Skirt and Blouse.
Pattern alterations: Importance, Principles and pattern alterations for blouse and trouser.

Unit -IV   Grading   8
Grading: Principles of pattern grading, Types: Draft grading: Two dimensional and Three dimensional grading, Track grading; Grading of basic bodice, Basic sleeve and Basic collar.

Unit -V   Draping   8
Draping: Introduction, Importance, Preparation of dress forms, Preparation of muslin for draping; draping for bodice, sleeve, collar and skirt.

                                                       Total: 45 hours

Dr. D. RAJA, M.Tech., Ph.D.,
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Sona College of Technology
Salem - 636 005, Tamil Nadu

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TEXT BOOKS:

1. Marie Clayton, **"Ultimate Sewing Bible – A Complete Reference with Step-by-Step Techniques",** Collins & Brown, London, 2008.
2. Clair B. Shaeffer **"The Complete Book of Sewing Shortcuts"** Sterling Publishing Company, 1981.

REFERENCE:

1. Claire Shaeffer, **"Sewing for Apparel Industry"**, Prentice Hall, 2000.
2. Cooklin Gerry, **"Garment Technology for Fashion Designers"**, Kindle edition., 2011.
3. Leila Aitken, **"Step by Step Dress Making Course"**, BBC Books, 1992.
4. Peg couch **"Illustrated Guide to Sewing: Garment Construction"**, fox chapel publishing, 2011
5. Anette Fischer **"Construction for Fashion Design (Basics Fashion Design)"**, Bloomsbury, 2017

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Salem - 636 005. Tamil Nadu

**GARMENT PRODUCTION MACHINERY AND
EQUIPMENT (Lab Integrated)**   3 0 2 4

COURSE OUTCOMES

At the end of the study of this course the students will be able to,
1. Explain different methods of spreading of fabrics with respect to type of fabric.
2. Describe the types and functions of various fabric cutting machines.
3. Explain the functions of primary and auxiliary parts of sewing machine.
4. Elucidate the working principles of over lock and flat lock sewing machine.
5. Explain the functions and working principles of special purpose sewing machines.

6. Identify the major parts and various setting points in garment manufacturing machines.
7. Perform threading sequence of various stitching machines.
8. Determine the causes and remedies for stitch defects

CO/PO, PSO Mapping
(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak

COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	2	2			2	2	3	2	2
CO2	2	3	2	2	2	2		2				3	2	2
CO3	3	3	2	3	2	3					2	3	2	2
CO4	3	1	2	2		2					2	2	3	2
CO5	3	3	2	2	2	3					2	3	3	2
CO6	3	3	3	2	2	2	2				2	2	2	2
CO7	3	3	3	2	2	2	2				2	2	2	2
CO8	3	3	2	3	2	2	2				2	2	3	2

UNIT I   Spreading   8
Spreading: Types of fabrics: One way, two way fabrics, their effect on spreading. Methods of fabric spreading, spreading equipment, computerized spreaders, marker planning, marker efficiency, factors affecting marker efficiency, marker duplicating methods and computer aided marker planning, types of fabric packages.

UNIT II   Cutting Machines   8
Introduction to cutting machines: Types and functions of cutting machines, straight knife, round knife, band knife cutting machines, notches, drills, die cutting machines, computerized cutting machines. Maintenance of cutting machines, common defects in cutting and their remedies.

UNIT III   Sewing Machine - SNLS   10
Basic parts of sewing machine: Primary and auxiliary part and their functions, bobbin case / bobbin hook, throat plate, take up devices, tensioners, feed dog, pressure foot. Types of needle, parts of needle and their function, needle finishes. Adjustments of stand height, pedal, needle bar, stitch length selection, feed timing, needle and bobbin thread tension, stitch cycle timing diagram. Common defects and remedies. Special attachments in sewing machines: guides, folders, stackers, trimmers, ziggers. Different machine brands.

UNIT IV   Multi Thread Sewing Machines   10

Over lock machines: Types of over lock machines, parts and their functions. Threading diagram of over lock machines. Adjustment of needle height, feed dog height, angle, differential feed ratio, position of upper and lower knives, loopers. Defects and remedies.

Flat lock machines: Types, parts and their functions. Threading diagram of flat lock machines. Adjustment of parts: Needle height, feed dog height, differential feed ratio, loopers. Maintenance of flat lock machines. Defects and Remedies.

UNIT V   Special Purpose Sewing Machines   9

Introduction to different special purpose sewing machines: Basic working of feed of arm, button hole sewing, button sewing, bar tack, blind stitch machines. Embroidery sewing machines. **Seam sealing machine.** Latest developments in sewing machines. Sewing machine maintenance, maintenance schedule for various machines.

Total: 75 hours

LIST OF EXERCISES

1. Identify the single needle lock stitch machine parts, study various setting points, perform threading, prepare samples by using various folders and calculate the SPI for specified/chosen stitch length.(1 sessions)

2. Identify an over lock machine parts, study various setting points, adjustments for needle-thread, looper thread tension, feed-ratio, needle and looper setting and knife setting. perform threading, prepare stitch sample and calculate the SPI for given stitch length. (2 sessions)

3. Identify the flat lock machine parts, study various setting points, making adjustments of the needle-thread and looper-thread tension, feed-ratio, needle-and-looper setting and spreader setting. Perform threading, prepare stitch sample and calculate the SPI for given stitch length. (2 sessions)

4. Identify the button sewing and buttonhole machine parts, study various setting points, perform threading and prepare stitch sample. (2 sessions)

5. Identify the Feed-off arm and Bar tack machine parts, study various setting points, perform threading and prepare stitch sample. (2 sessions)

TEXTBOOKS
1. Carr and Latham's **"Technology of Clothing Manufacture"** Revised by David J.Tyler, Blackwell Publishing, 2008.
2. Laing R.M., Webster J, **"Stitches and Seams"**, TheTextile Institute, Manchester, UK, 2009.
3. Rathnamoorthy.,R,Surjith, "Apparel Machinery And Equipments", WoodHead Publishing Indian in Textiles,2015

REFERENCES
1. Shaeffer Claire, **"Sewing for the Apparel Industry"**, Prentice Hall, New Jersey, 2001.
2. Singer Sewing Reference Library, **"Sewing Lingerie"**, CyDeCosse Incorporated, Minnesota, 1991.
3. Jacob Solinger, **"Apparel Manufacturing Handbook"**, Reinhold Publications, 1998.

Garment Production Machinery and Equipment (Lab Integrated)

List of equipment required for a batch of 30 students

S. No.	Name of the equipment / software	Quantity Required
1	Single Needle Lock Stitch Machine	30
2	Over lock machine	3
3	Flat lock machine	2
4	Button sewing machine	1
5	Button Hole machine	1
6	Feed - off the arm machine	1
8	Bar tack sewing machine	1
	Total	**39**

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U19FT403   **PROBLEM SOLVING USING PYTHON**   **3 0 2 4**
              PROGRAMMING (Lab Integrated)

COURSE OUTCOME:
At the end of course, the students will be able to
1. Develop algorithmic solutions to simple computational problems
2. Write simple Python programs
3. Write programs with the various control statements and handling strings in Python
4. Develop Python programs using functions and files
5. Analyze a problem and use appropriate data structures to solve it.

	CO/PO, PSO Mapping												
	(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak												
COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO12	PSO1	PSO2
CO1	3	3	3	3									3
CO2	2	3	3	3	3								3
CO3	2	3	3	3	3								3
CO4	2	3	3	3	3								3
CO5	2	3	3	3	3								3

UNIT I   Algorithmic Problem Solving   9
Need for computer languages, Algorithms, building blocks of algorithms (statements, state, control flow, functions), notation (pseudo code, flow chart, programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion).

UNIT II   Basics of Python Programming   9
Introduction-Python Interpreter-Interactive and script mode -Values and types, variables, operators, expressions, statements, precedence of operators, Multiple assignments, comments, input function, print function, Formatting numbers and strings, implicit/explicit type conversion.

UNIT III   Control Statements and Strings   9
Conditional (if), alternative (if-else), chained conditional (if-elif-else). Iteration-while, for, infinite loop, break, continue, pass, else. Strings-String slices, immutability, string methods and operations.

UNIT IV   Functions and Files   9
Functions - Introduction, inbuilt functions, user defined functions, passing parameters - positional arguments, default arguments, keyword arguments, return values, local scope, global scope and recursion. Files -Text files, reading and writing files.

UNIT V   Data Structures: Lists, Sets, Tuples, Dictionaries   9
Lists-creating lists, list operations, list methods, mutability list functions, searching and sorting, Sets-creating sets, set operations. Tuples-Tuple assignment, Operations on Tuples, lists and tuples, Tuple as return value- Dictionaries-operations and methods, Nested Dictionaries.

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Salem - 636 005. Tamil Nadu

22.12.2023   Regulations 2019

Theory: 45 Hours   Tutorial: -   Practical: -   TOTAL: 45 Hours

TEXT BOOKS:

1. Reema Thareja, **"Problem Solving and Programming with Python"**, Oxford University Press, 2018.
2. Allen B. Downey, **"Think Python: How to Think Like a Computer Scientist"**, 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016 (http://greenteapress.com/wp/think- python/)

REFERENCES:

1. Ashok Namdev Kamthane, Amit Ashok Kamthane, **"Programming and Problem Solving with Python"** , Mc-Graw Hill Education, 2018.
2. Robert Sedgewick, Kevin Wayne, Robert Dondero, **"Introduction to Programming in Python: An Inter-disciplinary Approach"**, Pearson India Education Services Pvt. Ltd., 2016.
3. Timothy A. Budd," **Exploring Python"**, Mc-Graw Hill Education (India) Private Ltd., 2015.
4. Kenneth A. Lambert, **"Fundamentals of Python: First Programs"**, CENGAGE Learning, 2012.
5. Charles Dierbach, **"Introduction to Computer Science using Python: A Computational Problem Solving Focus"**, Wiley India Edition, 2013.

LIST OF EXPERIMENTS

1. Draw flowchart using any open source software.
2. Implement programs with simple language features.
3. Implement various branching statements in python.
4. Implement various looping statements in python.
5. Develop python programs to perform various string operations like concatenation, slicing, indexing.
6. Implement user defined functions using python.
7. Implement recursion using python.
8. Develop python programs to perform operations on list and tuples
9. Implement dictionary and set in python
10. Implement python program to perform file operations.

Theory: -   Tutorial: -   Practical: 30 Hours   TOTAL: 30 Hours

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Problem Solving using Python Programming (Lab Integrated)

List of equipment required for a batch of 30 students

S. No.	Name of the equipment / software	Quantity Required
1	Computers (Pentium i5)	30
	Total	30

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TEXTILE AND APPAREL QUALITY EVALUATION

COURSE OUTCOMES

At the end of the study of the course the student should be able to,
1. Elucidate the various principles and methods are used for yarn properties testing.
2. Describe the different methods and procedure is used for fabric testing properties.
3. Discuss the basic terms and definition of apparel testing and methods of evaluation.
4. Discuss the basic terms and definition and procedures of Quality, Inspection Quality Assurance and Control forms.
5. Elaborate on the quality control for Fabrics, QC in Garment Manufacturing Processes, Quality Standards and Tolerances.

CO/PO, PSO Mapping
(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak

COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	2	3		2		2	2	3	2	2
CO2	3	2	2	2	2	3		2		2	2	3	2	2
CO3	3	2	2	2	2	3		2		2	2	3	2	2
CO4	3	2	2	3	3	3		3		2	2	3	2	2
CO5	3	2	2	3	3	3		3		2	2	3	2	2

UNIT I   Fibre and Yarn Testing   **9**
Fibre Testing: Testing of cotton using the rapid fibre testing methods, high Volume Instrument (HVI) and AFIS.
Yarn count and Strength: Definitions of count, yarn numbering system, determination of yarn count using wrap reel. **Count Strength Product and single yarn strength.**
Yarn Twist: Definitions of twist, determination of twist of single and ply yarn.
Yarn Evenness and Hairiness: Yarn appearance board winder. Classification of variations in yarn, methods of measuring yarn evenness and hairiness, Uster evenness tester.

Unit II   Fabric Testing   **9**
Fabric Strength Testing: Fabric tensile strength tester, tearing strength tester, hydraulic bursting strength tester.
Fabric Performance Testing: Martindale abrasion resistance tester. **Fabric pilling:** ICI pillbox tester.
Fabric Drape and Stiffness: Definition of drape and stiffness, drape meter, Shirley stiffness tester, fabric crease resistance and crease recovery tester.
Fabric Permeability: Terms in air permeability and water permeability tester. MVTR, MMT, thermal conductivity and resistance, liquid penetration.

UNIT III   Apparel Testing   **8**
Seam Strength: Definition of seam strength, seam puckering, seam slippage and evaluation of interlining quality. Standards for above testing methods.
Apparel testing: Dimensional stability, durable press evaluation, Snap / button pull strength testing. Testing procedures for various functional finishes like anti-microbial, flame retardant.

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UNIT IV   Quality, Inspection, Quality Assurance and Control forms   9

Quality: Introduction, definition, control of quality and its necessity.

Inspection: Importance of inspection, types of inspection: raw material inspection, in-process inspection, final inspection, 100% inspection, sampling inspection, comparison of 100% and sampling inspections. AQL Standards, basic calculations, self-inspection method. definition of minor, major and critical faults.

UNIT V   Quality Control and Quality Standards   10

QC for fabrics: Quality control for knitted and woven fabrics, types of defects in fabrics, major, minor and critical faults, fabric inspection system, 4 point and 10 point system.

Quality assurance: Definition, differences between quality assurance and inspection, inspection agencies. Control forms.

Quality Standards and Tolerances: Quality standards and tolerances and for fabrics, spreading, cutting, stitching in garment industry, tolerances and quality standards for finished garments. Quality assurance system and standards for packing and packed goods.

TOTAL: 45 hours

TEXT BOOKS:

1. Angappan P and R.Gopalakrishnan , "**Textile Testing**"-S.S.M.I.T.T Co-op stores Ltd.,2007.
2. Koushik C.V. and R. Chandrasekaran, "**Textile Testing**"-NCUTE publication, New Delhi, 2004.
3. Jacob Solinger, "**Apparel Manufacturing Handbook**", Prentice Hall, New Jersey, 1993.

REFERENCES:

1. J. E. Booth, "**Principles of Textile Testing**", CBS Publishers and Distributors, New Delhi, 1996.
2. B. P. Saville, "**Physical Testing of Textiles**", CRC Woodhead Publishing, New Delhi 1999.
3. V.K. Kothari, "**Quality Control and Testing Management**", IAFL Publications, New Delhi, 1999.
4. Samuel Eilon, "**Production Planning and Control**", Macmillan, New York, 1962.
5. Grover E. G. and Hamby D. S., "**Hand Book of Textile Testing and Quality Control**", Wiley Eastern Pvt. Ltd., New Delhi, 1969.
6. Pradip V. Mehta, "**An Introduction to Quality Control for the Apparel Industry**", Dekker, 1992.

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U19FT405   TEXTILE MATERIALS FOR FASHION DESIGN   3 0 0 3

COURSE OUTCOMES
At the end of the study of this course the students will be able to,
1. Explain about role of textiles in fashion
2. Describe about design features, properties and applications of woven fabrics.
3. Describe about design features, properties and applications of knitted and nonwoven fabrics.
4. Describe about design features, properties and applications of embellished fabrics in fashion
5. Describe about design features, properties and applications of speciality fabrics in fashion

<table>
<tr><td colspan="14" align="center">CO/PO, PSO Mapping
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<tr><td>PO1</td><td>PO2</td><td>PO3</td><td>PO4</td><td>PO5</td><td>PO6</td><td>PO7</td><td>PO8</td><td>P09</td><td>PO10</td><td>PO12</td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr>
<tr><td>CO1</td><td>2</td><td>3</td><td>3</td><td>2</td><td>3</td><td></td><td>2</td><td></td><td></td><td></td><td>2</td><td>2</td><td>2</td><td>3</td></tr>
<tr><td>CO2</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>2</td><td>2</td><td></td><td></td><td>2</td><td>3</td><td>2</td><td>3</td><td>3</td></tr>
<tr><td>CO3</td><td>2</td><td>2</td><td>3</td><td>2</td><td>3</td><td>2</td><td></td><td></td><td></td><td></td><td></td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>CO4</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>2</td><td>2</td><td></td><td></td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>CO5</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>2</td><td>2</td><td></td><td></td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
</table>

UNIT I Role of Textiles in Fashion   9
Role of textiles in fashion designing, different types of textile materials used in fashion designing: raw material, construction, structure and quality, its properties and application, sources of fabric, choice of fabrics for regular and functional garments, factors influencing the selection of fabric for specific end use.

UNIT II Woven Fabrics in Fashion   9
Design, properties, applications and commercial names of plain, twill, stain, sateen, crepe, gauze, Bedford cord, leno, pile, gauze, dobby, jacquard, brocade, extra warp, extra weft fabrics and double cloth.

UNIT III Knitted and Nonwoven Fabrics in Fashion   9
Design, properties, applications and commercial name of jersey, rib, interlock, purl, pique, lacoste weft knitted fabrics.
Design, properties, applications and commercial name full tricot, lock knit, reverse lock knit, satin, shark skin, queen's cord warp knitted fabrics.
Design, properties, applications and commercial name needle punched, melt blown, spun bond nonwoven fabrics.

UNIT IV Embellished Fabrics in Fashion   9
Design, properties, applications and commercial name of ikkat, bhandhini, batik dyed textiles,
Design, properties, applications and commercial name of batik, stencil, block, screen and transfer printed textiles,

Design, properties, applications and commercial name of kalamkari and spray painted textiles,

Design, properties, applications and commercial name of hand and machine embroidered textiles

UNIT V   Speciality fabrics in Fashion   9

Design, properties, applications and commercial name of full grain, bonded, tanned, Suede, embossed leather.

Design, properties, applications and commercial name of coated fabrics for mobility, outdoor & lifestyle, interior design, industrial & protective and exterior application

Design, properties, applications and commercial name of **composites**, laminated, brushed, lace, stretch, and fur fabrics

TOTAL: 45 hours

TEXTBOOKS:
1. Clive Hallett, Fabric for Fashion: The Complete Guide: Natural and Man-made Fibers Paperback, Laurence King Publishing, 2014
2. Clive Hallett and Amanda Johnston, Fabric for Fashion: A Comprehensive Guide to Natural Fibres, Laurence King Publishing, 2010

REFERENCES:
1. Gail Baugh , The Fashion Designer's Textile Directory: The Creative Use of Fabrics in Design, Thames and Hudson Ltd, 2011
2. Stefanella Sposito , Fabrics in Fashion Design: The Way Successful Fashion Designers Use Fabrics, Promopress, 2017

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COURSE OUTCOMES

At the end of the study of this course the students will be able to
1. Draft and construct samples for Placket, Necklines and Pockets.
2. Draft and construct for children's garments like body suit, Romper, Frock and Drape for basic bodice and skirt.
3. Solve real time problem related to pattern making and construction of components, garments and draping

	CO/PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak													
COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	3	2	2				2	3	3	3
CO2	3	2	3	2	3	2	2				2	3	3	3
CO3	3	3	2	3	2	2	2				2	3	2	3

LIST OF EXPERIMENTS

I. Drafting and construction of following components

1. Plackets – Continuous bound placket, 2 piece placket and Tailored Placket (1session)
2. Necklines – Bias facing, Shaped facing and Bias binding (1session)
3. Pockets –Patch pocket, set in seam pocket and Bound pocket (1 sessions)

II. Drafting and construction of following garments

4. Children's body/sleep suit(1session)
5. Children's rompers(1session)
6. Children's frock(1session)

III. Drape bodice and skirt (1session)

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Total: 30 hours

PATTERN MAKING AND GARMENT CONSTRUCTION LABORATORY II

List of equipment required for a batch of 30 students for U.G

S. No.	Name of the equipment / software	Quantity Required	Additional tools issued to individual students
1.	Cork Top Tables	15	L - scale
2.	**Dress forms**		Hip curve
3.	Male : 40"chest full	1	Meter Scale
4.	Male : 42"chest full	1	French Curve
5.	Male : adjustable half	1	Tracing wheel
6.	Male : 4o"chest half	1	Measuring tape
7.	Female : 32.5" bust half	1	Tailor's Chalk
8.	Female : 32.5" bust full	1	Paper cutting scissors
9.	Female : 34.5" bust full	1	Fabric cutting scissors
10.	Female : 36.5" bust full with hand	1	
11.	Female : adjustable half	1	$1/4^{th}$ Paper Scale
	Mannequins		
12.	i. Baby		
	Boy — 80.5 cm	1	
	Girl — 88.8 cm	1	
	ii. Teenage Girls & Boys		
	Boy — 139 cm	1	
	Girl — 139cm	1	
	iii. Adults		
	Male -186 cm	1	
	Male -182.5 cm	1	
	Female -157.6 cm	1	
	Female -186 cm	1	
	Jewellery bust half head	1	
	Jewellery bust Indian face	1	
	Jewellery hand	2	
13.	Single-needle lock-stitch machine	30	
14.	Steam Iron	3	
15.	Fusing Machine	1	
16	Ironing Table	1	
Total		**71**	

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COUR SE OUTCOMES

At the end of study of this course the students will be able to,
1. Determine the count, strength and the appearance of the yarn.
2. Determine the physical and dimensional properties of the fabric.
3. Evaluate the garment qualities like dimensional stability, seam properties of the garment.

	CO/PO, PSO Mapping													
	(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak													
COs	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	2	2			2	2	3	3	2
CO2	3	3	2	3	3	2	2			2	2	3	3	2
CO3	2	3	2	3	3	2	2			2	2	3	3	2

LIST OF EXPERIMENTS

1. Determination of yarn count, lea strength and CSP. (1 session)
2. Determination of fabric tensile strength and seam strength properties. (1 session)
3. Determination of fabric abrasion resistance and pilling tendency of the fabric. (1 session).
4. Determination of colour fastness to light, washing and rubbing. (1 session)
5. Determination of fabric bursting and tearing strength of the fabric. (1 session)
6. Determination of drape coefficient of fabric by using drape meter. (1 session)
7. Determination of air permeability and wickability of fabric testing. (1 session)
8. Analyse seam puckers and thread consumption for a given garment. (1 Session)
9. Analyse the given fabric and garment defects using standards and suggest causes and remedies. (1 session)
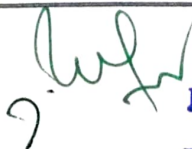10. Determination of Button Pull Strength and dimensional stability of the garment. (1 session)

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Total: 30 hours

TEXTILE AND APPAREL QUALITY EVALUATION LABORATORY
List of equipment required for a batch of 30 students

S. No.	Name of the equipment / software	Quantity Required
1.	Electronic Balance	1
2.	Automatic Wrap Reel	1
3.	Lea Strength tester	1
4.	Yarn appearance tester	1
5.	Single yarn twist tester	1
6.	Fabric tensile strength tester	1
7.	Double yarn twist tester	1
8.	Martindale abrasion tester	1
9.	Fabric bursting strength tester	1
10.	Fabric stiffness tester	1
11.	Fabric crease recovery tester	1
12.	Drape meter	1
13.	Beesley's Balance	4
14.	Air-permeability tester	1
15.	Course length tester	1
16.	Crimp tester	2
17.	Single yarn strength tester	1
18.	Wash fastness tester	1
19.	Rubbing fastness tester	1
20.	Light fastness tester	1
	Total	**24**

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22.12.2023

Regulations 2019

COURSE OUTCOMES

At the end of the study of this course the students will be able to,
1. Identify case study and innovative ideas related to the subjects learnt in the current semester.
2. Execute a mini project related to the case study and innovative ideas identified by the students.
3. Function effectively on teams and to communicate effectively and develop report with results and conclusion of the mini project work.

<table>
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<tr><td>CO1</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td></tr>
<tr><td>CO2</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td></tr>
<tr><td>CO3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>2</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td></tr>
</table>

The evaluation of mini project shall be conducted in the form of creative methodology as **Hackathon**.

Methodology:
- The students' group shall present their chosen problem statement and justify their selection.
- During review 2, they shall present their solution methodology to the chosen problem statement and also present the requirement.
- During review 3, the group shall present the progress made on the prototype development.
- The office of COE shall give 3 days to conduct the hackathon. During first two days, the students' group shall complete developing their prototype and showcase the same on the third day as video presentation/demonstration of the working model to the team of evaluators.

The evaluation is carried out in the following way:

- The team consist of industry personnel, faculty and peer students. Evaluation metrics and rubrics are provided to each of the evaluators. For computing the final marks, 50% weightage from industry evaluators, 40% weightage from faculty evaluators and 10% weightage from student evaluators, is considered. The numbers of industry evaluators and faculty evaluators for each programme will be decided by the HOD and COE as per the number of teams.

- Industry evaluators are appointed by the office of COE for which the list of such evaluators is provided by the respective departments. The faculty evaluators are also appointed by the office of COE as recommended by the respective HOD. The peer evaluators are chosen by the coordinators as one student from each team.

- Within 5 days after the completion of Hackathaon, the students shall submit the mini project report as per the approved guidelines given by the Controller of Examinations.

Total: 30 hours

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22.12.2023   Regulations 2019

IN-PLANT TRAINING
2 weeks during vacation leave

COURSE OUTCOMES

At the end of the study of this training, the students will be able to
1. Get training in real world of production and process in the apparel and related industries.
2. Understand the entire process in detail.
3. Identify the problems in the industry by observation.
4. Prepare an in-plant training report

COs	CO/PO, PSO Mapping (3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak													
	Programme Outcomes (POs) and Programme Specific Outcome (PSOs)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	P09	PO10	PO12	PSO1	PSO2	PSO3
CO1	2	3	2	2		2	2		2	2	2	2	2	2
CO2	2	3	2	3		3	3		2	2	2	2	2	2
CO3	2	3	2	3		3	2		2	2	2	2	2	2
CO4	2	3	3	3					2	3	2	2	2	2

- The students have to undergo a 2-week in-plant training related to the subject learnt in the immediately preceding semesters.
- Industry mentor and institute mentor will be allotted to the students in the inplant training.
- Students have to submit weekly progress report regularly which will be compiled by the institute mentor and submitted to HOD.
- The students have to submit a report of their in-plant training with photos.
- Students have to submit a certificate provided by the industry for two weeks.
- A committee of three staff members as internal examiner and an external examiner will conduct a Viva voce and evaluate student performance.
- Students successfully completing the 2-week in-plant training will be awarded one credit.

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COURSE CODE	U19GE402	L T P C
COURSE NAME	MANDATORY COURSE:	
	ENVIRONMENT AND CLIMATE SCIENCE	2 0 0 0

Course outcome:

Upon completion of this course the students will be able to

CO1 Describe the importance of the acute need for environmental awareness and discuss significant aspects of natural resources like forests, water and food resources.

CO2 Illustrate the concepts of an ecosystem and provide an overview of biodiversity and its conservation.

CO3 Analyze the causes, effects of various environmental pollution and their appropriate remedial measures.

CO4 Provide solutions to combat environmental issues like global warming, acid Rain, ozone layer depletion.

CO5 Analyze the effect of climate change in various sectors and their remedial measures.

CO / PO, PSO Mapping														
(3/2/1 indicates strength of correlation) 3-Strong, 2-Medium, 1-Weak														
Programme Outcomes (POs) and Programme Specific Outcome (PSOs)														
COs, POs PSOs Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO – 1	3	2				2	2							-
CO – 2	2	-												-
CO – 3	3	2				2	2							2
CO – 4	3	2				2	2							2
CO - 5	3	2				2	2							2

Unit I   INTRODUCTION TO ENVIRONMENTAL STUDIES AND NATURAL RESOURCES   L 6

Definition, Scope and Importance Forest Resources: - Use and over - exploitation, deforestation, Case Studies, Water Resources: - Use and Over-Utilization of Surface and ground water, Floods, Drought, Food Resources- Effects of Modern Agriculture, Fertilizer- Pesticide Problems–Role of an Individual in Conservation of Natural Resources.

Unit II   ECOSYSTEMS AND BIODIVERSITY   L 6

Structure and Function of an Ecosystem– Energy Flow in the Ecosystem -Food Chains, Food Webs and Ecological Pyramids. Introduction to Biodiversity –Value of Biodiversity: Consumptive Use, Productive Use, Social, Ethical, Aesthetic and Option Values –India as a Mega-Diversity Nation –– Threats to Biodiversity: Habitat Loss, Poaching of Wildlife, Man-Wildlife Conflicts – Endangered and Endemic Species of India – Conservation of Biodiversity: In-Situ and Ex-Situ conservation of Biodiversity.

Unit III   ENVIRONMENTAL POLLUTION

L 6

Definition – Causes, Effects and Control Measures of:-(A) Air Pollution(B) Water Pollution (C) Soil Pollution (D) Marine Pollution (E) Noise Pollution (F) Thermal Pollution, Solid Waste Management-Effects and Control Measures of Acid Rain,– Role of an Individual in Prevention of Pollution.

Unit IV   FUNDAMENTALS OF CLIMATE CHANGE

L 6

Sustainable Development- - Climate Change-Causes and effects of Global Warming - Effect of global warming in food supply, plants, sea, coral reef, forest, agriculture, economy- Kyoto Protocol in reduction of greenhouse gases - Ozone Layer Depletion-mechanism, effects and control measures Montreal Protocol to protect ozone layer depletion -Rain Water Harvesting - .Effect of climate change due to air pollution Case study - CNG vehicles in Delhi.

Unit V   EFFECT OF CLIMATE CHANGE

L 6

Fungal diseases in forests and agricultural crops due to climatic fluctuations - Growing energy needs - effect of climate change due to non-renewable energy resources. Renewable energy resources in the prevention of climatic changes- Effect of climatic changes in ground water table, garments, monuments, buildings, consumption of energy, agriculture and in electric power sector - Carbon credit - carbon footprint - disaster management -Role of an individual to reduce climate change.

Total Number of hours: 30

Learning Resources

Text Book:

1. Miller, T.G. Jr., "Environmental Science", Wadsworth Pub. Co. 2018 2. Anubha Kaushik and Kaushik,

2. "Environmental Science and Engineering" New Age International Publication, 4thMulticolour Edition, New Delhi, 2014.

Reference Books:

1. S. Radjarejesri et al., "Environmental Science" Sonaversity, Sona College of Technology, Salem, 2018.

2. Masters, G.M., "Introduction to Environmental Engineering and Science", Pearson Education Pvt., Ltd., 2nd Edition, 2004.

3. Erach, B., "The Biodiversity of India", Mapin Publishing P.Ltd.,Ahmedabad, India.

4. ErachBharucha, "Textbook of Environmental Studies for Undergraduate Courses", 2005, University Grands Commission, Universities Press India Private Limited, Hyderguda, Hyderabad – 500029.

22/12/2023

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22/12/23.

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Semester – IV	U19GE401 - SOFT SKILLS AND APTITUDE – II	L	T	P	C	Marks
		0	0	2	1	100

Course Outcomes

At the end of the course the student will be able to:

1. Demonstrate capabilities in additional soft-skill areas using hands-on and/or case-study approaches

2. Solve problems of increasing difficulty than those in SSA-I in given areas of quantitative aptitude and logical reasoning and score 65-70% marks in company-specific internal tests

3. Demonstrate greater than SSA-I level of verbal aptitude skills in English with regard to given topics and score 65-70% marks in company-specific internal tests

1.Soft Skills	**Demonstrating soft-skill capabilities with reference to the following topics:** a. SWOT b. Goal setting c. Time management d. Stress management e. Interpersonal skills and Intrapersonal skills f. Presentation skills g. Group discussions
2. Quantitative **Aptitude** **and** **Logical** **Reasoning**	**Solving problems with reference to the following topics:** a. Equations: Basics of equations , Linear, Quadratic Equations of Higher Degree and Problem on ages. b. Logarithms, Inequalities and Modulus c. Sequence and Series: Arithmetic Progression, Geometric Progression, Harmonic Progression, and Special Series. d. Time and Work: Pipes & Cistern and Work Equivalence. e. Time, Speed and Distance: Average Speed, Relative Speed, Boats & Streams, Races and Circular tracks and Escalators. f. Arithmetic and Critical Reasoning: Arrangement, Sequencing, Scheduling, Network Diagram, Binary Logic, and Logical Connection. g. Binary Number System.- Binary to decimal, Octal, Hexadecimal
3. Verbal **Aptitude**	**Demonstrating English language skills with reference to the following topics:** a. Critical reasoning b. Theme detection c. Verbal analogy d. Prepositions e. Articles f. Cloze test g. Company specific aptitude questions

Total: 30 Hours

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