



MEMORANDUM OF UNDERSTANDING for CERTIFICATE PROGRAMME IN TEXTILE TECHNOLOGY

This Memorandum of Understanding, entered into on 19/08/2019 between the Teejay India Private Limited, principal place of business at Brandix India Apparel City SEZ, Pudimadaka Road, Atchutapuram Mandal, Visakhapatnam, Andhra Pradesh - 531011 and the academic partner "Vignan's Foundation for Science, Technology and Research (Deemed to be University)"; referred as "VFSTR", principal place of business at "VFSTR, Vadlamudi, Guntur Dist. – 522 213, Andhra Pradesh, India".

1. INTRODUCTION

About Teejay India Private Limited

Considered to be the largest Textile Group and Knit Fabric Provider in South Asia, the Teejay Group specializes in weft knitting and is regarded as Sri Lanka's only multinational mill. The Group has its headquarters in Avissawella, 52km away from Colombo and has a state-of-the-art printing facility along with a strategic business unit in India.

Teejay offers a wide range of products and services related to weft knit manufacturing. While offering wide solutions in knitting, dyeing, finishing and printing, they have extended their portfolio to include lace dyeing, yarn dyeing and synthetic production. They are also engaged in extensive research and development and have also hoping to venture into online business in the future.

Customer portfolio stretches from Europe to USA including global brands such as Intimissimi, Tezenis, Calvin Klein, Victoria's Secret, Marks & Spencer, Lidl and Decathlon, with plans to start business with the Asian Hub, from India and Bangladesh to Japan. Teejay was recognized both in Sri Lanka as well as internationally for best corporates, being rated by Forbes as one of the best corporate in Asia under a net worth of 1 billion dollars. A public quoted company with 39% public ownership, and proud to be backed by Sri Lanka's largest apparel exporter, Brandix Lanka with 33% share ownership and Pacific Textiles – the world's second largest textile mill, with share ownership of 28%.

Providing employment to over 2200 people in India and Sri Lanka, Teejay constantly focused on driving sustainability, partnership and innovation as key aspects of our DNA. Teejay believe in creating bonds through the magic of fabric and fashion and in creating bigger dreams and visions for the future.

Agreed to:

For

Teejay India Private Limited,

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Department of Chemical Engineering VIGNAN'S FOUNDATION

FOR SCIENCE, TECHNOLOGY AND RESEARCH





About VFSTR:

Vignan's Foundation for Science, Technology and Research (Deemed to be University) located in Guntur (Dist.) of Andhra Pradesh is a NAAC "A" graded University under sec 3 of UGC Act 1956 and is the flagship institution of Vignan Group. The University has recently been ranked at 88th position among 3300 odd Engineering Institutions in the country who participated in the survey conducted under the aegis of National Institutional Ranking Framework (NIRF) by the Ministry of HRD, Govt. of India.

The University located in a 50-acre campus in a green and eco-friendly environment of Vadlamudi Village was awarded University status in 2008 and has evolved from the erstwhile Vignan's Engineering College, established in 1997. Supported by the Vignan Group consisting of 40 Institutions, which is serving the educational needs of about 44,000 students in both Andhra Pradesh and Telangana, VFSTRU is making giant strides in the right direction through implementation of various good practices in all areas of academic pursuit.

Right from the inception, every activity is made student-centric and quality conscious towards realizing the vision of transforming the students of this region into globally accepted, socially conscious, emotionally balanced and psychologically strong professionals. The University conducts 19 UG, 22 Ph.D. Programs in diverse fields of Engineering and Technology. The institution has four Centers of Excellence and twelve Research Centers in frontier areas of Science and Technology; Besides we have international Collaboration Programs with USA, UK, Canada, Korea, France, Japan and Singapore. A total of 5323 students are presently pursuing their studies in the University both at the UG, PG and Ph.D level.

The University has recently been awarded as one of the Technical Skill Development Institution (TSDI) in Andhra Pradesh by AP Skill Development Corporation in Collaboration with M/s. SIEMENS. TSDI was launched on 02.02.2017 by Prof. Ghanta Subba Rao, Special Secretary to Government, Skill Development and Ex. Officio Secretary to the Hon'ble Chief Minister of Andhra Pradesh.

II. OBJECTIVES AND TERMS OF COLLABORATION

- To conduct certificate programme in Textile Technology to the employees of Teejay India Pvt. Ltd.
 Brandix India Apparel City SEZ, Pudimadaka, Atchutapuram Mandal, Visakhapatnam.
- The certificates program includes training in the areas of Spinning, Knitting, Chemical processing, Testing, Production & General Management and enable employees of Teejay to excel better in their work.

Agreed to:

For

Teejay India Private Limited,

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VADLAMI IDLE 522 242





- Total duration of the certificate program is 9 months (August 2019 to April 2020). Program Details and schedules are given in Annexure 1.
- Finalized syllabus for the course work is given in Annexure 2.
- Finalized evaluation pattern is given in Annexure 3.
- Fees for the Training program is Rs. 15,000/- per student. The minimum strength of batch is 40.
- Certificate will be awarded through the Department of Textile Technology, Vignan's Deemed to be University, Vadlamudi, Guntur, A.P. Format of certificate is given in Annexure 4.
- Faculty from the department of Textile Technology, Vignan's Deemed to be University will visit the Industry to deliver lectures which are scheduled mostly on regular basis.
- Payment terms and conditions are given in Annexure 5.

III. LIABILITY

Each party takes reasonable care and precaution in fulfilling the spirit of this MoU. No other liabilities are applicable unless explicitly agreed before in writing by the authorized persons.

IV. TERMS AND TERMINATION OF THIS MEMORANDUM OF UNDERSTANDING

- This Memorandum of Understanding shall last for the initial period of one year from the effective
- Termination of this MoU is not allowed in normal circumstances. However, if any party wants to terminate this MoU, it should be discussed with other party to resolve the issue with mutual consent.
- Extension of this MoU is completely based on satisfaction of both the parties.

V. AMENDMENTS

Amendments to this Memorandum of Understanding may be proposed, either by the undersigned or their successors, and shall become effective only if agreed to, in writing, by the undersigned or their successors.

Agreed to:

Teejay India Private Limited,

For

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VI. GENERAL

- This Memorandum of Understanding is and will be available for disclosure to the general public.
- This Memorandum of Understanding is an agreement between both parties and does not create or confer any right or benefit on any other person or party, private or public.
- The Parties are and shall remain independent contractors and nothing herein shall be construed to create a partnership, agency, joint venture, or teaming agreement between the Parties. Nothing herein shall be construed as implying that either party's employees are employees of the other.
- A determination that any term of this Memorandum of Understanding is invalid for any reason shall not affect the validity of the remaining terms of the Memorandum of Understanding.
- This Memorandum of Understanding constitutes the entire agreement between the Parties and supersedes all prior agreements and understandings, whether oral or written.

Agreed to:

For

Teejay India Private Limited,

For

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ANNEXURE 1: TENTATIVE SCHEDULE OF THE PROGRAM

Theory course: August 2019 to April 2020 **Project work:** February 2020 to April 2020

Evaluation: May 2020

S	Name of Module	Faculty	Dates		No. of
No			From	To	days
		Mr. Ch. Govardhana Rao &	24-08-2019	25-08-2019	2
1	Fibre Science And	Mr. B. Venkatesh			
	Technology	Mr. Md. Vaseem Chavhan &	07-09-2019	08-09-2019	2
		Mr. B. Venkatesh			
and the second second second second		Mr. M. Siva Jagadish Kumar	21-09-2019	22-09-2019	2
2	Spinning Technology	Mr. M. Siva Jagadish Kumar &	05-10-2019		-1
		Mr. Ch. Govardhana Rao			
		Mr. Ch. Govardhana Rao &	06-10-2019	-	1
		Mr. M. Siva Jagadish Kumar			
3	Vnitting Tashnalagy	Mr. Ch. Govardhana Rao	19-10-2019	20-10-2019	2
3	Knitting Technology	Mr. Mr. Ch. Govardhana Rao	02-11-2019	03-11-2019	2
		Mr. Md. VaseemChavhan &	16-11-2019	17-11-2019	2
		Mr. Ch. Govardhana Rao			
		Mr. B. Venkatesh	30-11-2019	1-12-2019	2
		Mr. B. Venkatesh	14-12-2019	15-12-2019	2
4	Colouration And	Mr. B. Venkatesh	21-12-2019	22-12-2019	2
7	Finishing Technology	Mr. B. Venkatesh	04-01-2020	05-01-2020	2
		Dr. B. R. Gurumurthy &	18-01-2020	19-01-2020	2
		Mr. B. Venkatesh			2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
		Mr. Ch. Govardhana	01-02-2020	02-02-2020	2
5	Testing And Quality	Mr. Ch. Govardhana Rao	15-02-2020	16-02-2020	2
	Control	Mr. Md. VaseemChavhan &	29-02-2020	01-03-2020	2
		Mr. Ch. Govardhana Rao			
	Plant Utilities And	Mr. M. Siva Jagadish Kumar	14-03-2020	15-03-2020	2
5	Environment	Mr. M. Siva Jagadish Kumar	28-03-2020	29-03-2020	2
	Management	Mr. M. Siva Jagadish Kumar	04-04-2020	05-04-2020	2
7	Production And General	Dr. B. R. Gurumurthy	11-04-2020	12-04-2020	2
i	Management	Dr. B. R. Gurumurthy	25-04-2020	26-04-2020	2
	TOTAL NO OF DAYS				40

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ANNEXURE 2: SYLLABUS

Duration: 9 Months

Medium of Instructions: English/Telugu

Venue: Teejay India Pvt Ltd, Brandix India Apparel City, Visakhapatnam

CONTENT	DURATION
	(DAYS)
FIBRE SCIENCE AND TECHNOLOGY	04
Introduction to Textile fibres, Definition, Basic characteristics and	
Classification	
Internal structure of fibres and their effect on fibre properties	
Physical and Chemical Properties of Fibres	
Production processes of natural fibres	
Man-made fibre manufacturing methods	
New developments in Textile fibres	
Identification of fibres	
SPINNING TECHNOLOGY	03
Conventional and Non-conventional Methods of Yarn Manufacture Doubling,	
Folding and Cabling of Yarn and Sewing Threads, Texturised Yarn Quality	
Parameters of Yarn; yarn count, twist, single yarn strength etc.	
Yarn count systems, Preparation of Yarn for Subsequent Processes.	
KNITTING TECHNOLOGY	07
Introduction to knitting, definitions and classifications	
Weft Knitting - different types of machines, Fundamental principles of knitting, Basic knitting elements, Different types of needles, Knitting action, Preparation of yarn for knitting, Quality control systems of knitted fabrics, Production calculations	
Warp Knitting - Classification of machines and their principles, principles of knitting for single needle bed, double needle bed, high and low bar lace raschel and multipurpose machines with special attachments.	
Types of needles, Functions of various knitting elements, machine gauge, let- off motions, method of fabric quality control – run in measurement, yarn feeding and tension control. Yarn preparation and warping systems.	
Chain links, Development of lapping diagrams and chain notations. Basic over lap/under lap variations, Plain Tricot structures knitted with two full set guide bars, two bar tricot, lock knit, reverse lock knit etc.	

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Fabric Structures and Analysis - Specifications, Courses and Wales, Stitch density, Calculation of yarn requirements, Basic knitted fabric structures, Modifications, Jacquards and Structured design, Patterning stitches, Properties of various structures, End uses and analysis

Fabric defects, Causes and remedial action

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COLOURATION AND FINISHING TECHNOLOGY

Soaps & Detergents and Surface Active Agents

Pretreatments - Principle and Practice of Singeing, Desizing, Scouring, Bleaching and Mercerizing of Cotton, Principles and practice of scouring, bleaching and setting of manmade fibres and blended fabrics, Test methods used in the assessment and quality control of the above processes.

Dyeing - Basic principles and terminology, rate of dyeing, dyeing curves, Attractive forces between dyes and fibres, Classification of dyes by method of application; Application of various class of dyes to the main types of textile fibres, Dyeing of fibre blends, Machinery used in fibre, yarn and fabric dyeing, Basic principles of colour theory

Printing - Different techniques, equipment and machinery used in printing, printing pastes, print designing, screen making and exposing process, Methods of fixing and soaping of prints, Different styles of printing.

Finishing - Principle, practice and machinery used for drying yarn/fabrics, mechanical and chemical finishes and finishes applied to improve serviceability. Test methods used in the assessment and quality control of above processes.

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TESTING AND QUALITY CONTROL

Introduction to testing, the objectives of testing, Factors affecting the accuracy of textile testing, Standard test methods, Specifications

Physical Testing of Textiles

Fabric strength parameters – Tensile strength, Tearing strength, Bursting strength, Fabric Seam Properties – Seam strength, Seam slippage, Seam puckering Fabric Wear Resistance – Pilling resistance, Abrasion resistance, Fabric Crease Recovery – Crease recovery appearance test and crease recovery angle test, Fabric handle and the factors effecting fabric handle

Testing of Colour Fastness Properties - Evaluation of colour fastness properties, Grey scales, Adjacent fabrics and their uses, Colour fastness to Light, Washing, Rubbing, Perspiration, Water, Sea water, Chlorinated water, Dry cleaning and Hot pressing

Dimensional Stability Tests - Factors effecting the dimensional stability and importance of dimensional stability of fabrics and garments, Determination of dimensional stability to washing, Dry cleaning, Steaming, Relaxation, Fabric

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spirality after washing, Appearance after washing	
Safety Tests	
pH value, Flammability tests, heavy metals	
pri varae, i lammaomity tests, neavy metals	
Blend Composition Analysis - Analyzing procedure, Percentage calculations	
based on dry mass and after moisture additions	
Interpretation of test results	
PLANT UTILITIES AND ENVIRONMENT MANAGEMENT	06
Industrial water supplies; Quality of water for textile processing, Water treatment	00
Composition and treatment of textile effluent, steam generation and utilization	
Environmental effects of Wet processing industry and waste minimization Global	
environmental issues in 21st century.	
Introduction to Environmental Management Systems for Industry and Services	7
Ex: ISO 14000, GOTS, SA8000, EKO Tex, FSSAI etc.	
Application of Cleaner Production Concepts	
•	
4R Concepts (Techniques of reduction of resources and waste, techniques of	
replace hazardous chemicals and raw materials with eco-friendly products) Carbon	
foot print, Water foot print and other ecological benchmarks.	
Green productivity for environmental performance, Eco labels	
	0.4
PRODUCTION AND GENERAL MANAGEMENT	04
Introduction to Production management concepts	
Introduction to management, Planning and Organizing, Marketing	
management, Human resource management, Organizational behavior, Industrial	
relations, laws and industrial actions, Factories Ordinance	
TOTAL	40

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ANNEXURE 3: EVALUATION PROCESS

The performance of a student in each course/module is evaluated continuously during the course and also at the end of the course through various types of examinations. The marks awarded through continuous evaluation are referred to as internal marks. The marks awarded through endsemester examination are referred to as external marks. For each course/module, the maximum sum of internal and external assessment marks is 100, in the ratio of 40:60. To clear a course/module, a student should secure at least 50% of the total maximum marks which is inclusive of internal and external assessment marks of which a minimum of 40% must have been scored in the end examination.

Marks Distribution:

Theory Course: The distribution of marks and scheme of evaluation for a theory course is as given below in Table-1.

Table 1: The distribution of marks for a theory course

S. No	Component	Marks%
1	Continuous Evaluation a. Attendance b. Periodic Assignments / Tests	5 35
2	End Examination	60
	Total Marks	100

Description of individual components in evaluation:

Attendance:

Attendance requirements are strictly adhered to make sure that the students are regular to the classes. Minimum of 75% attendance is required to write the end written exams. Marks are awarded for each course based on the % of attendance put up by the student in that course, as per the details given in Table 2 below:

Table 2: Marks allotment to attendance

S. No	Attendance %	Marks
1	>90	5
2	<90 but >80	4
3	>75 but <80	3

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Periodic Assignments/ Tests:

To encourage the students to learn and update the contents being covered in the class room on continuous basis, periodic assignments/tests are conducted on the syllabus covered during the particular module. To award the total marks under this category, the average marks obtained in the total submitted assignments will be considered.

Theory courses - End-semester examination:

For each module, the end examination shall be conducted by the University for three hours duration for a maximum of 60 marks, covering the syllabus spread in the particular module. Weighted average of all modules will be considered for final evaluation and awarding grades. The question paper for final theory examination consists of two parts as given in Table 3 below:

Table 3: Theory Examination Question Paper Pattern

S. No	No. of Questions	Marks for each questions	Marks/Part	Choice
1	10	1	10	No
2	5	10	50	Internal
		Total Marks	60	

Evaluation of Project Work:

The students, who undergo the nine months course they have to carry out three months project work simultaneously along with theory courses at Teejay India Private Limited, Brandix India Apparel City, Visakhapatnam and submit the report which is a mandatory requirement for the award of certificate. An industrial project report should be submitted after completion of course work, under the guidance of a faculty member and company supervisor relevant to selected topic. This can be an innovation or an in-depth study relevant to one's own job responsibilities.

These projects are to be done preferably by individual or a group of students. The formation of student batches, guide identification etc., are to be completed before the commencement of project work.

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Project Review Committee (PRC):

The progress of project is reviewed twice in a three months by the "Project Review Committee" and internal marks are awarded based on these reviews. The Project review committee consists of:

- a) Faculty Guide from University
- b) Project Supervisor from Industry

The review presentations are open to all the students of that section and attendance is compulsory. The first review should be of 10 minutes/batch; the second review should be around 30 minutes/batch. The detailed assessment guidelines and scheme are to be announced along with the assessment schedule. The following aspects may be considered by the committee for assessment.

First Review: (for 20 marks, within two weeks after commencement of project)

Objectives of the review:

- a. Identification of specific area out of broad areas under the supervisor
- b. Identification of outcomes in line with programme objectives.
- c. Feasibility of contributing to the attainment of outcomes
- d. Identification of tools/equipment/training needs/ etc..
- e. Understanding by individual students on the overall aspect of the project.

Note: One page report should be submitted consisting of above points

Second review: (for 30 marks, after seven or eight week's commencement of project):

Objectives of the review:

- a. Structure of project report
- b. Presentation of results and conclusions
- c. Meeting of objectives defined in first review
- d. Preparation of draft report
- e. Understanding by individual students on the overall project
- f. Individual student contribution

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Project End examination:

At the end of three months, the student shall submit a comprehensive project report covering the work done. He should make a final presentation before a panel of examiners consisting of the one senior executive from the industry and one faculty member from University and project work supervisor. The dates of submission of reports, presentations and scheme of evaluation are to be announced and the same shall be informed to the students in advance. The general scheme of evaluation is given in Table 4 below.

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Table 4: Evaluation of Project Work

Component		Total			
Component	Company Guide	Faculty guide	Senior executive from the Industry	Marks	
Relevance of the project	0	0	5	5	
Presentation skills of student	5	5	5	15	
Viva	0	0	10	10	
Individual student contribution	5	0	0	5	
Internal reviews progress batch wise	0	0	5	5	
Project report	0	5	5	10	
Total Marks	10	10	30	50	

Grading System:

For each course, a letter grade is awarded based on the absolute grading system, as shown in Table 5 below:

Table-5: Grading information

Percentage of Marks	Category	Grade	Grade Points
90 and above	Outstanding	О	10
80 and above but less than 90	Excellent	S	9
70 and above but less than 80	Very Good	A	8
60 and above but less than 70	Good	В	7
50 and above but less than 60	Fair	С	6
Less than 50	Fail	F	0

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ANNEXURE 4: MODEL CERTIFICATE

tee	ejay	VIGNAN'S Poundation for Science, Technology & Research (Desired to be UNIVERSITY)	AAS À
	CERTIF	CATE	
This is to	certify that Mr./Ms		
Registration	No	has attended and successfu	ully
completed	the course / module nam	ed "CERTIFICATE PROGRAMME IN TEXT	ILE
TECHNOLOG	GY" for a period of Nine 1	Months from to	
		Technology, Vignan's Foundation for Scie	
		Guntur at Teejay India Private Limited	
O,			٠,
	isakhapatnam, Andhra Pra		
The candid	ate has been awarded	grade.	
	Modules Undergone: 1. Fibre Science and Technology	2. Spinning Technology	
	Initting Technology	Spinning Technology A. Coloration and Finishing Technology	
	5. Testing and Quality Control	3,0	ent
	7. Production and General Managem		
	Prog	ramme Coordinator Head of the Departi	ment
			100

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ANNEXURE 5: PAYMENT TERMS

• Fees per students is Rs. 15,000/-

 Before the commencement of course the total amount need to be deposited in the VFSTR University bank account.

• Account details:

Paid Into: VFSTR Miscellaneous

CA A/C No: 21890210000151

IFSC Code: UCBA0002189

Local transportation and accommodation need to be provided by Teejay India Private

limited to the faculties coming there.

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