Training Plan HIPF Diploma

Approved by

هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

Accredited by ACCET
Accrediting Council for Continuing Education and Training

Higher Institute for Plastics Fabrication is a premiere Institute in the field of Plastics Technology. It was started on 8th September 2007 as a non-profit institute in an agreement signed by the Saudi Ministry of Energy, along with the Technical and Vocational Training Corporation (TVTC), the Eastern Petrochemical Company (SHARQ) and the Saudi Petrochemicals Development Company Limited (SPDC Ltd.), Japanese partner of SHARQ.

The establishment of HIPF aims to train Saudi Youth under Japanese Expert's supervision to participate as skilled technicians in the booming plastics industry of the Kingdom through Diploma in Plastics Fabrication Technology.

A. Program Level

1. STRUCTURE OF DIPLOMA PROGRAM

1ST SEMESTER (21 Weeks)								
NO.	CODE	COURSE TITLE	TRG HOURS	PREREQUISITE	NO. OF UNITS			
					CTH	CT	PT	Cr.H
1	ENG 101	**English1**	525	-	25	25	0	**0**
2	COM 111	**Computer**	84	-	4	2	2	**3**
3	CHM 121	**Chemistry**	84	-	4	2	2	**3**
4	WET 131	**Work Ethics**	42	-	2	2	0	**2**
							Total	***8***
2ND SEMESTER (21 Weeks)								
NO.	CODE	COURSE TITLE	TRG HOURS	PREREQUISITE	NO. OF UNITS			
					CTH	CT	PT	Cr.H
5	ENG 202	**English 2**	231	ENG 101	11	11	0	**0**
6	MAT 241	**Mathematics**	63	-	3	3	0	**3**
8	PLS 251	**Basic Engineering**	168	ENG 101	8	8	0	**8**
9	PLS 252	**Basic Plastics**	126	CHM 121	6	6	0	**6**
10	PLS 253	**Sheet Thermoforming**	147	CHM 121	7	3	4	**5**
							Total	***22***
3RD SEMESTER (21 Weeks)								
NO.	CODE	COURSE TITLE	TRG HOURS	PREREQUISITE	NO. OF UNITS			
					CTH	CT	PT	Cr.H
11	ENG 303	**English 3**	63	ENG 202	7	7	0	**0**
12	PLS 354	**Plastics Test Methods**	84	PLS 252	4	2	2	**3**
13	PLS 355	**Injection Molding**	245	PLS 251, PLS252	12	4	8	**8**
14	PLS 356	**Blow Molding**	245	PLS 251, PLS252	12	4	8	**8**
							Total	***19***
4TH SEMESTER (21 Weeks)								
NO.	CODE	COURSE TITLE	TRG HOURS	PREREQUISITE	NO. OF UNITS			
					CTH	CT	PT	Cr.H
15	ENG 404	**English4**	91	ENG 303	1	1	0	**0**
16	PLS 457	***Blown Film Extrusion**	231	PLS 251, PLS252	11	3	8	**7**
17	PLS 458	***Pipe Extrusion**	231	PLS 251, PLS252	11	3	8	**7**
18	PLS 459	**On the Job Training (OJT)**	280	-	According	to work	hours	**6**
							Total	***20***
Coding Abbrv. Short Name -Sem -subject no.- sub subject no.							***TOTAL CREDIT POINTS***	***69***

49 hrs covered in 3rd sem

CTH: Contact Hours - **CT**: Class Training Hours - **PT**: Practical Training Hours - **Cr.H**: Credit Hours

2. PROGRAM DESCRIPTION:

COURSE TITLE	COURSE DESCRIPTION
ENGLISH **ENG 101** 1ST SEMESTER	This course provides a solid foundation in English. It concentrates on the four skills of reading, writing, speaking and listening. It also focuses heavily on grammar and conversation strategies.
COMPUTER **COM 111** 1ST SEMESTER	The course includes the basic theory computer elements, dealing with the operation systems, managing files and documents, and it provides training on the most important typing programs for editing texts, table creations and slide shows creation. Also, it provides general training on other modern uses of computers like browsing.
CHEMISTRY **CHM 121** 1ST SEMESTER	Basic principles of chemistry in relation to polymers, atomic structure, chemical bonding, types of polymers, important characteristics of plastics, effect of the environment, etc. are introduced. It is supported by experiments in the laboratory.
WORK ETHICS **WET 131** 1ST SEMESTER	The course or Work Ethics covers individual behavior, skills for getting jobs, work ethics, work laws, work habits, problem solving, self-development, communication skills.
ENGLISH **ENG 202** 2ND SEMESTER	This course compliments and improves on the foundation learned in the first semester. Trainees learn advanced English skills.
MATHEMATICS **MAT 241** 2ND SEMESTER	The course covers the topics that are essential for the trainees during working on production lines. Those topics include real number, percentage, graphs, basic calculations needed in workshops, polynomials, factoring binomials and polynomials and plane geometry and quadrilaterals,
BASIC ENGINEERING **PLS 251** 2ND SEMESTER	Safety engineering, accidents -its causes & prevention, the principle of 5S & KY, general overview & safe operation procedures for operation of plastic processing machines & good shop floor practices. Basic industrial engineering, introduction to machinery, daily machine inspection guide, introduction to electrical engineering, introduction to control technology, introduction to measurement & quality control.
BASIC PLASTICS **PLS 252** 2ND SEMESTER	Introduction to Petrochemical industry, basics of polymers & polymerization, classification of plastics, plastics materials & their properties; formulation technology, overview of the fabrication processes for plastics: Injection Molding, Blown Film Extrusion, Blow Molding, Pipe Extrusion, Sheet Extrusion, Thermoforming, Physical Properties of molten resins & recycling technologies.
SHEET THERMO - FORMING **PLS 253** 2ND SEMESTER	The course includes concepts, theories, safety, 5S, & good shop floor practices for Sheet extrusion and Thermoforming are introduced. Hands on and practical training including Standard operating procedure (SOP) and quality checking using parameters form. Sheet and Thermoforming is a demonstration type training for 2 types of plastic fabrication process namely Sheet extrusion and Thermoforming process.
ENGLISH **ENG 303** 3RD SEMESTER	This is the third course in general English. It is used to improve on the structures learned in the first two semesters. Trainees broaden their scope of vocabulary and speaking strategies.
PLASTICS TEST METHODS **PLS 354** 3RD SEMESTER	This course covers General Safety, Measurements, Plastics Testing, Specification and Test Standards and their importance and meanings which is highly used in plastics industry for quality inspection as well as in product research and development. Training covers theoretical and practical. Practical activities includes Micrometer and Vernier Caliper reading, Mechanical Testing includes Tensile, Flexural, Charpy Impact, Dart Impact, Puncture Impact and Tear Test. Optical Testing includes Haze, Gloss and Color Test. Thermal Testing includes Deflection Temperature under Load (DTUL). Material Characterization includes Melt Flow Rate Test.

COURSE TITLE	COURSE DESCRIPTION
INJECTION MOLDING **PLS 355** 3RD SEMESTER	The course covers the basic theory of injection molding, safety precautions, components of injection machines, operation processes, mold components, control and control processes, common materials used in injection molding , processing conditions for these materials, and process trouble shooting. This course also covers mold structure, parts, types of mold and its setting and maintenance. There is also hands on and practical training including Standard Operating Procedure (SOP) of start-up, shutdown, process parameters setting and mold replacement. It also includes auxiliary equipment and secondary process technologies used in the plastics industry. It also describes other injection molding processes such as multi component injection molding, electrical injection molding and processing conditions of engineering plastics like PC, PMMA , NYLON and TPE
BLOW MOLDING **PLS 356** 3RD SEMESTER	This course, Extrusion Blow Molding covers Machine, Processes & Equipment, Safety Practices, Machine parts & function, Machine Operation, Mold & Tooling Change Over & Set-Up, Changing Material & Master Batch, Mold & Machine Maintenance, Machine & Process Troubleshooting, Product Quality Testing, Auxiliary equipment process &recycling, Other related processes. The course also includes Demo run of stretch blow molding process using two stage machines like HUSKY & SIDEL, testing procedure for Preforms & PET bottles. It also covers the theoretical knowledge of PET resin; Production of PET bottles & Preforms trouble shooting.
ENGLISH **ENG 404** 4TH SEMESTER	This course is used to give the trainees their final training in general English. It focuses on increasing their knowledge in the areas of vocabulary and speaking in advanced communicative situations.
BLOWN FILM EXTRUSION **PLS 457** 4TH SEMESTER	The course covers the blown film process, understanding the basic theory of blown film, the nature of raw materials, components of film machinery, safety precautions, components of die, . H&s on operation on Blown film machine & process parameters setting by using LLDPE, LDPE & HDPE material, parameter adjustments, controls and the product setup. It also covers the film secondary processing, the troubleshooting of defects, their remedies, and other related machines.
PIPE EXTRUSION **PLS 458** 4TH SEMESTER	This course covers Pipe extrusion technology, understanding the machine parts & their functions, the machine mechanism, safety machine operation, the operating principles. It also covers the hands on operation on Pipe extrusion machine & techniques of HDPE, PP & PVC pipe processing, recycling, operation of crusher & pelletizer. Analyzing the basic characteristics of Pipes & reporting methods in a plastic pipe production set up.
ON THE JOB TRAINING (OJT) **PLS 459** 4TH SEMESTER	The trainees go to respective companies for on the job training.