VI Semester

INDUSTRIAL TRAINING

Course Title :	**Industrial Training**	Course Code	**18TT-601P**
Semester	**VI**	Course group	**Practical**
Teaching Scheme in Periods (L/T/P)	**0:0:7**	Credits	**25**
Methodology	**Practical Training**	Total Duration	**6 Months**
CIE Marks		SEE	

Rationale

Industrial is introduced in the VI semester for the students as a part of the program to make the passed out students industry ready thus saving the training and apprenticeship needs in the industry and also help in capacity building of the Telangana state and the country.

Course Objective

To enable the students to

1. Acquaint with Industry environment and culture.
2. Develop professional skills
3. Enhance the usage skills of modern tools
4. Develop Communication and leadership skills.
5. Encourage entrepreneurship

Course Outcome

CO	Outcome	CO/PO Mapping
CO1	Appreciate the organizational setup and hierarchy	5,6,7,8,9,10
CO2	Practice the use of Resource optimization techniques	5,6,7,8,9,10
CO3	Develop core engineering skills	5,6,7,8,9,10
CO4	Develop an understanding of solutions for Environmental issues in the industry	5,6,7,8,9,10
CO5	Get acquainted to industry culture and professionalism	5,6,7,8,9,10

Specific Learning Outcome

Industrial Training Programme – In Spinning

The student should undergo training in an Industry. Some recommended areas of work are as follows :

1. Go down and mixing section.

1. Mixing different types of cotton with the mixing attendant.

2. Blow Room.

1. To learn the work of the Bale Braker Attendant.
2. To learn Doffing weighting and marking adjusting lap weight.
3. To learn collection of waste machine wise.
4. To learn the maintenance work of beaters like settings, inspection of blades, angle of grid bars and spikes of krishiner beater etc.
5. To learn for oiling and greasing of various machines.
6. To learn for attending of repairs along the fitter.
7. To find out lap C.V.
8. To calculate Lap rejection %.

3. Carding.

1. To learn the replacement of full can.
2. To learn deicing of silvers with the help of Can Tenter.
3. To learn stripping of flats.
4. To learn settings of cards.
5. To learn grinding along with the grinders.
6. To learn oiling and greasing.
7. To learn the repairs along with the maintenance staff.
8. To learn the mounting of metallic cloth wire.
9. To learn for adjusting the settings at various points in carding machine.
10. To familiarize with the dust extraction it and crossed verge attachment.
11. To find out production calculations and efficiency.
12. Loss in efficiency due to stripping, grinding, cleaning in repairs want of lap etc., by snap survey method.
13. To learn nep counting.
14. To learn control of waste at different points.
15. To learn checking of heel and toe arrangement, lickening mounting.
16. To learn for card erection work along with the maintenance gang.
17. To find out card silver co-efficient of variation percentage.

4. Drawing Frame.

1. To take training in draw frame feeding, piecing and to attend over roller lapping etc., with the help of operator.
2. To take training in oiling, greasing settings and repairs etc., with the help of fitter.
3. To learn for stop motion repairs.
4. To calculate loss in efficiency.

5. To calculate loss in efficiency due to piecing, roller lapping change, pinion changing, clearing and repairs etc.
6. To learn hank of the drawing silver control.
7. To study silver breakers pet 100 deliveries per one hour.

5. Speed Frames.

1. To learn fly frame feeding piecing and to attend overlapping etc., with the help of the fitter.
2. To learn in doffing along with doffing boys.
3. To learn in oiling, greasing settings and repairs etc., with the help of a fitter.
4. To learn to rectify the various defects with the help of the fitter.
5. To calculate production efficiency.
6. To calculate average idle spindle percentage.
7. Evenness study and hank control.
8. To calculate roving breaks per 100 spindles per one hour.
9. Study of roving hank in fly frames – overhauling – maintenance of differential gear and builder motion.
10. To learn in erection of fly frames - over hauling – maintenance of differential gear and builder motion.

6. Spinning and doubling.

1. To learn the work of piecers and doubler with help of sider.
2. To learn for doffing along with doffing boys.
3. To learn for the work with the fitter along with the cleaning gang when the machine is stopped for overhauling.
4. To learn the repairs along with the maintenance Jobber.
5. To learn spindle gauging and lappet gauging.
6. To learn for tape stitching along with the oiler.
7. To learn for oiling and greasing along with the oiler.
8. To learn changing of wheels and tin roller pulley at the time of counts conversions.
9. To learn for spindle oil topping, extraction, jacky pulley greasing, poker rod clearing and replacement of ring travelers along with the clearing gang.
10. To calculate machinery utilisation percentage.
11. To calculate production per frame per a shift of 8 hours in cages.
12. To calculate spindle point production in grams.
13. To calculate idle spindle percentage.
14. To study of end breakages per 100 spindles per 1 hour.
15. To find out C.V. percentage regarding spinning warping (count) and test (strength).

7. Combing Sections.

The student will be trained in the section with the following duties.

1. To learn in feeding of slivers from the card cans to the silver table and removing the finished laps and then to piece them in the ribbon lap machine with the help of silver lap machine Tenter.

2. To learn an feeding of sliver laps from the sliver lap machine, removing finished laps and then to piece them in the comber head with the help of ribbon lap machine Tenter.
3. To learn the threading of a new lap to the comber and piecing the broken web with the help of comber Tenter.
4. To learn different settings.
5. To set the combers for the required percentages of waste.

8. Reeling.

The student will be given training in the following duties :

1. To learn in reeling hanks and knots without defects and doffing them with the help of a reeler.
2. To check the circumstance of reels.
3. To learn the conversion of plain reeling into cross reeling (Double hank cross reeling and double hand plain reeling).
4. To calculate swift speed.
5. To calculate the waste percentage.
6. To learn for oiling and greasing along with the maintenance jobber.

9. Bundling.

1. To learn the work of dresser and presser in the section with the help of bundling workers.
2. To count the number of knots pet bundle use per the count.
3. To take bundling wrapping.
4. To learn the method of packing for local and export.
5. To check the relative humidity percentage.
6. To learn for oiling and greasing.

10. Baling.

1. To learn the work of a baler with the help of baling worker.
2. To learn work of cutting the hessain cloth, craft paper, polythine paper, bale hoops and wooden sticks as per the requirements.
3. To learn student will be asked to collect the technical dates of all departments starting from blow room to bundling and baling. Also he will be tested at the end of training in all Department.

11. Energy Management.
12. Safety Features.
13. Quality Control.
14. ISO 9000 Certification.
15. Environmental Studies.

15.1 Study the Air Pollution control methods and equipment.

- Cleaning of gaseous effluents, participate matter emission control, cyclones settling chambers, electrostatic precipitators, scrubbers etc.
- Control of gaseous emissions.

15.2 Study the cost concepts and issues in Environmental protection.

- Pollution prevention costs, pollution costs, waste disposal cost, total damage costs and total costs of pollution control.

- Optimum pollution, marginal costs of control, benefits from controlling pollution, total and marginal benefits from pollution control.
- Efficiency in pollution control, efficient level of pollution efficient level of environmental quality, variation of these costs with environmental quality, limitations of cost benefit analysis.

15.3 Study the concepts of Environmental Management.

- Environmental Inpact Assessment (EIA) : terminology and its objectives.
- Environmental Audit (EA) : definition, objectives, benefits, general anatomy of Rule 14 of environmental (protection) act 1986, parts of statutory environmental audit report (A to I) and its significance.
- Environemntal law 1986 : scope, terms and components fundamental right to life, public interest litigation (PIL), duties of citizens and governments.

15.4 Understand the importance of cleaner production.

- Definitions, concept, benefits.
- Factors contributing to cleaner production.
- Case Studies.

Note : References to study the concepts of environmental studies.

INDUSTRIAL TRAINING PROGRAMME – IN WEAVING

The student should undergo training in an Industry. Some recommended areas of work are as follows :

Preparatory to Weaving :

1. Warp Winding.

1. Learn the work of winder on warp winding machine.
2. Learn feeding, knotting and doffing.
3. Study the mechanisms of stop motions.
4. Learn maintenance of cone and chease winding machines.
5. Learn about settings of tensioners yarn clearers.
6. Calculate production and efficiency.
7. Attend the repairs along the fitter.

2. Pirn Winding (Weft winding).

1. Learn the feeding of material for preparing pirns.
2. Learn the knotting and various jobs of pirn winder.
3. Study the operations of various automation devices and identify problems and scope for improvement.
4. Learn the operation of unifil loom winder.
5. Learn about bobbin loader and its operations.
6. Learn about gear plan, speeds, settings adjustments and energy management.
7. Attend repairs of pirn winder machines along the fitter.

3. Warping.

1. Learn the arrangement of creels.
2. Learn the jobs of warper on warping machine.

3. Study the operations of various stop motions, length indicator, beam lowering, lifting motion anti vibration devices.
4. Learn the warping methods of sectional warping and various jobs of warper in sectional warping.
5. Calculate the production and efficiency of warping machines.
6. Learn about warping machines maintenance and prepare maintenance schedule.
7. Attend repairs along the fitters.

4. Sizing.

1. Learn the methods of preparing sizing paste, note down the recipes and ingredients.
2. Learn the jobs of sizing machine.
3. Study the settings adjustments of sizing machinery.
4. Study the operations of various parts in a slasher sizing machine which is in your mill.
5. Learn the arrangement of creels for various sizing machines.
6. Study the operations of various automation devices in slashers like measuring and marking motion beam pressing motion etc.
7. Study the method of slasher driving arrangement and P.I.V. drive gear.
8. Study the importance of various controls in sizing machines related to temperature size level, moisture, stretch and tension in sizing machine of your mill.
9. Collect the data on modern equipment in sizing section, prepare feasibility for modernisation.
10. Learn about high pressure squeeze system and splitting.
11. Identify the problems in sizing process suggest the remedies.
12. Attend the repairs accompanying fitters.
13. Calculate size pick up %, Production and efficiency of sizing machinery.

5. Looming.

1. Learn the work of drawing – in.
2. Learn the work of denting.
3. Learn the work of knotting.
4. Study the operations and efficiency of automatic reaching in machine.
5. Study the functions of Healds and Reed.

6. Primary Motions

a. Sheeding.

1. Understand the mechanisms of shedding and note down the timings and settings.
2. Learn the mechanism of shedding motion.
3. Learn the mechanism of various positive and negative dobbies.
4. Give the settings of Keighly dobbies.
5. Understand the mechanism of various dobby available in mill.
6. Know about the types of Jacquard.
7. Understand the mechanism of SLSC, SLDC, DLSC and DLDC Jacquard.
8. Learn the work of jacquard harness and card cutting.

9. Learn the mechanism and settings of Jacquards available in mill.
10. Write the observations of various problems related to shedding suggest remedies.

b. Picking.

1. Learn the mechanism, setting and repairs of picking.
2. Understand the details of picking timing.
3. Understand the various mechanism related to multiple box motions available in mill.
4. Learn the settings of weft pattern chains, Eccle's Drop Box Motion, Zang Box Motion and Zang Pick-at-will Motion.

c. Beat-Up.

1. Learn the mechanism and settings of Beat-up motion of loom available in mill.
2. Understand the mechanism modification among the different looms in your mill.
3. Attend the repairs related to various primary motions.

7. Secondary motions in Looms.

a. Let – Off Motion.

1. Understand various types of let-off mechanisms.
2. Learn the mechanism, timing and note the settings available in mill.
3. Note down the difference between let-off motions available in mill.
4. Comprehend the mechanism of positive let-off motion in automatic looms.
5. Attend the repairs and know the problems related to let-off motion.
6. List out the common problems related to let-off motion and suggest remedies.

b. Take – Up Motion.

1. Identify the types of take-up motion in various looms of your mill.
2. Learn the mechanism, timings, settings and differences of take-up motions available in mill.
3. Know about the mechanism of slip catch with fulcrummed holder and slip catch with heavy end.
4. Attend the repairs related to take-up motions along with fitter.
5. Identify the common problems related to take-up motion, suggest remedies.

8. Auxiliary Motions.

a. Warp Protectors.

1. Identify various warp protector devices used in various looms. Note down their utility.
2. Understand the difference between loose reed motion and fast reed motion.
3. Note the difference in fast reed motion when compared to loose reed motion.
4. Learn the mechanism, settings and timings of fast reed motion and its brake.
5. Attend the repairs of various warp protecting devices with the maintenance staff.

6. List out the common problems related to warp protectors suggest remedies
7. Give the details of modern warp protecting devices in various shuttleless looms

b. Weft Stop Motions.

1. Identify the parts of loom related to various weft stop motions.
2. Learn the mechanism, settings and differences of different weft fork motion available in mill.
3. Understand the working of Brake Lever mechanism in conjunction with side weft Fork Motion
4. Observe the development of various weft stop motion devices used in various automatic and shuttleless looms.
5. Attend the repairs of loom related to weft stop motion with maintenance staff of your mill.
6. Note down the common problems related to various weft stop motions and suggest remedies.

c. Back rest, lease rods and temples.

1. Learn the settings and adjustments in the arrangement of back rest and lease rods for effective weaving.
2. Identify various types of temples used in different types of looms.
3. Learn the settings of temples in various looms.
4. Identify various Auxiliary devices used in shuttleless looms for quality weaving.

9. Rules of Looms operation and maintenance.

1. Note down the loom maintenance schedules of your unit and try to practice the effective preventive maintenance.
2. Record important loom repairs you have attended and how the repairs were done.
3. Give the details of productive and labour standards for various looms as per norms recommended by BITRA, ATIRA, NITRA& SITRA.

10. Quality Control.

1. Identify the defects on Fabric produced by different type of looms in a chart of kind of fault – Size of fault – Group of fabrics.
2. Give the evaluation of Fabrics according to conformity of Physical and Mechanical properties to standards.
3. Know the different instruments used and their working in quality control lab and evaluate results with BIS & ISO standard.
4. Know the preparation of different quality control charts in Q.C.D.

11. Fancy Weaving Mechanisms.

In your unit if you are having these type of looms know about.

1. Learn the mechanism of lappet weaving and lappet designing.
2. Learn the mechanism of swivel weaving swivel designing and know about swivel shuttle propulsion.
3. Learn the mechanism, designing and settings for Madras Muslin Designing.
4. Know about the features of Terry loom.

5. Learns the mechanisms and settings of CamDriven three Pick Terry mechanism, dobby controlled terry mechanism, heading motion and fringing motion.

12. Energy Management.

13. Safety Management.

14. ISO 9000 Certification Work.

15. Environmental Studies.

15.1 Study the Air Pollution control methods and equipment.

- Cleaning of gaseous effluents, participate matter emission control, cyclones settling chambers, electrostatic precipitators, scrubbers etc.
- Control of gaseous emissions.

15.2 Study the cost concepts and issues in Environmental protection.

- Pollution prevention costs, pollution costs, waste disposal cost, total damage costs and total costs of pollution control.
- Optimum pollution, marginal costs of control, benefits from controlling pollution, total and marginal benefits from pollution control.
- Efficiency in pollution control, efficient level of pollution efficient level of environmental quality, variation of these costs with environmental quality, limitations of cost benefit analysis.

15.3 Study the concepts of Environmental Management.

- Environmental Inpact Assessment (EIA) : terminology and its objectives.
- Environmental Audit (EA) : definition, objectives, benefits, general anatomy of Rule 14 of environmental (protection) act 1986, parts of statutory environmental audit report (A to I) and its significance.
- Environemntal law 1986 : scope, terms and components fundamental right to life, public interest litigation (PIL), duties of citizens and governments.

15.4 Understand the importance of cleaner production.

- Definitions, concept, benefits.
- Factors contributing to cleaner production.
- Case Studies.

Note : References to study the concepts of environmental studies given in Spinning Training Programme.

Textile Chemcical Processing

If Student opts a Chemical Processing unit for inplant training for V or VI Semester for each semesters the areas in which he has to get training and prepare a Report.

1. Brushing and Shearing.

2. Singeing : Fabric and yarn Singeing.

3. Designing : Variue Desizing Chemical – Machines used – Production details.

4. Scouring : Working of Kiers – Chemicals used – Efficiency – Production and Quality features.

5. Bleaching : Batch wise Bleaching continuous Bleaching – Machines used their working, settings and mechanisms.

Chemicals used – Hypochlorities – Peroxides – Quality and Production details.

6. Mercerising : Fibre, Yarn and Fabric Mercerising – Working of mercerizing machine lines – Mechanisms – Settings – Repairs – Quality and Production details.

7. Dyeing Machines : Various Dyeing machines used for Fibre, Yarn and Fabric Dyeing – their working – Control mechanisms – Developments – Production details and quality control settings suggesting and quality control settings suggesting remedies for frequent repairs and break downs.

8. Dyeing Process.

a. Know the various dyes used for various fabrics and preparation of receipe for above in your mill.
b. Dyeing defects and remedies.
c. Learning about Computer colour matching if available in your dye house.

9. Printing.

a. Working and mechanisms of various printing methods like roller – Multi roller – Screen – Rotary screen and other modern printing machines – Flow of material – control mechanisms – Quality control – Production details.
b. Learn about preparing pastes for various styles of Printing like Direct, discharge, Resist for mono and multi colour prints.
c. Learn the method of Transfer Printing preparation of Material – Stencil – Printing and after Treatment.
d. Give the recipes for Natural dyes revival in dyeing and printing process.
e. Attend the maintenance and repair works of dyeing and printing machinery.

10. Finishing.

a. Learn different finishings applied for different fabrics in your processing unit.
b. Learn the operations involve in various finishing machines and their maintenance.
c. Note down various chemicals and auxiliaries used in finishing and record receipe.

11. Pollution Control and effluent Treatment.

a. Understand the working and operations of various pollution control devices used in your process house.
b. Note down the efficiency and working of various effluent treatment plants installed in your process house.
c. Understand the working of various Re-cycling units for various solvents used in process house.
d. Give the details of guide lines followed to obtain ISO 9000 certification to your process house.

12. Energy Management.

13. Safety Norms.
14. Quality Control.
15. Environmental Studies.

15.1 Study the Air Pollution control methods and equipment.
- Cleaning of gaseous effluents, participate matter emission control, cyclones settling chambers, electrostatic precipitators, scrubbers etc.
- Control of gaseous emissions.

15.2 Study the cost concepts and issues in Environmental protection.
- Pollution prevention costs, pollution costs, waste disposal cost, total damage costs and total costs of pollution control.
- Optimum pollution, marginal costs of control, benefits from controlling pollution, total and marginal benefits from pollution control.
- Efficiency in pollution control, efficient level of pollution efficient level of environmental quality, variation of these costs with environmental quality, limitations of cost benefit analysis.

15.3 Study the concepts of Environmental Management.
- Environmental Inpact Assessment (EIA) : terminology and its objectives.
- Environmental Audit (EA) : definition, objectives, benefits, general anatomy of Rule 14 of environmental (protection) act 1986, parts of statutory environmental audit report (A to I) and its significance.
- Environemntal law 1986 : scope, terms and components fundamental right to life, public interest litigation (PIL), duties of citizens and governments.

15.4 Understand the importance of cleaner production.
- Definitions, concept, benefits.
- Factors contributing to cleaner production.
- Case Studies.

Note : References to study the concepts of environmental studies given in Spinning Training Programme.

<u>Training in in miscellaneous textile industries</u>.

If Students opts for Miscellaneous Textile Industries like Garment Manufacturing or Knitting and Non-Wovens the areas in which he has to work in each semester are as follows :

1. Learning the operations and working of various machines used in a Garment production unit or knitting or non-wovens.

2. Knowing production details.

3. Maintenance and Repairs.

4. Process control – Flow line details settings.

5. Working in inspection room – Identifying defects in out put – Suggesting remedies.

6. Knowing the details of Labour Organisation – Unit Management – Cost control and Energy Audit.

7. Textile Marketing and Merchandising Strategies, like retail, chain stores and campaigns – Theme and scope – Textile Expo's – Participations.

8. Exporting Documentation – Logistics of Material Transporation – Forex Regulations and procedures.

9. Scope for up gradation of Technology.

10. ISO 9000 Certification Procedures.

11. Energy Management.

12. Safety Norms.

13. Export and Import Policies.

14. Environmental Studies.

14.1 Study the Air Pollution control methods and equipment.

- Cleaning of gaseous effluents, participate matter emission control, cyclones settling chambers, electrostatic precipitators, scrubbers etc.
- Control of gaseous emissions.

14.2 Study the cost concepts and issues in Environmental protection.

- Pollution prevention costs, pollution costs, waste disposal cost, total damage costs and total costs of pollution control.
- Optimum pollution, marginal costs of control, benefits from controlling pollution, total and marginal benefits from pollution control.
- Efficiency in pollution control, efficient level of pollution efficient level of environmental quality, variation of these costs with environmental quality, limitations of cost benefit analysis.

14.3 Study the concepts of Environmental Management.

- Environmental Inpact Assessment (EIA) : terminology and its objectives.
- Environmental Audit (EA) : definition, objectives, benefits, general anatomy of Rule 14 of environmental (protection) act 1986, parts of statutory environmental audit report (A to I) and its significance.
- Environemntal law 1986 : scope, terms and components fundamental right to life, public interest litigation (PIL), duties of citizens and governments.

14.4 Understand the importance of cleaner production.

- Definitions, concept, benefits.
- Factors contributing to cleaner production.

- Case Studies.

Note : References to study the concepts of environmental studies given in Spinning Training Programme.

EVALUATION:

1. The student should submit a report describing the profile of the company, Nature of the job assigned to him /her and other details in a standard format duly attested and approved by the head of the industry after two weeks and before Four weeks from the date of joining through e mail. Hard copy of the report may be submitted in person or by post.
2. A candidate shall be assessed twice in the spell of industrial training i.e. at the end of third month and finally before he/she completed the industrial training
3. The assessment shall be carried out by a committee comprising of a representative of the Industry where the candidate is undergoing training and a faculty member from the respective program from the Polytechnic.
4. For Institution level evaluation of industrial training, a committee consisting following faculty members (1) Head of Dept. concerned. (2) Faculty member who assessed the student in the industry (3) any other staff member of department concerned may be formed.
5. During Industrial training the candidate shall put a minimum of 90% attendance.

6. The progress made during the end of each assessment will be evaluated on the basis of the following parameters.

Industry Level Evaluation:

- **Evaluation and assessment of Industrial Training**, shall be done and marks be awarded in the following manner, provided the candidates concerned have put up minimum 90% attendance of Industrial Training.

Industrial assessment at Industry : 600 marks (in two spells of 300 marks each)

Institutional Evaluation : 300 marks

Semester End Examination (Seminar/viva-voce at Institution) : 100 marks

TOTAL 1000 marks

Assessment parameters at Industry

Sl No	Learning Parameter	Assessment I (First Quarter)	Assessment II (Second Quarter)
1	Attendance and punctuality	20	20
2	Familiarity of tools and material	30	30
3	Engineering skills	50	50
4	Application of knowledge & Problem solving skills	50	50
5	Comprehension and observation	10	10
6	Professionalism/Professional ethics	20	20
7	Safety and environmental consciousness	10	10
8	Communication skills	20	20
9	Supervisory skills	50	50
10	General conduct during the period	40	40
Total marks for Industry Evaluation		300	300
		600 marks	

Assessment parameters at Institution (End Examination)

Institution Level Evaluation Scheme			
Sl No	**Criteria**	**Marks**	**Time**
1	1st Report Submission	50	within 4 Weeks
2	Seminar-I	50	9th to 10th week
3	2nd Report Submission	50	Within 12 weeks
4	Log book	100	--
5	Seminar-II	50	Before Viva-Voce
	Institute Evaluation Total	**300**	
Semester End Examination			
1	Viva-Voce	50	After 24 weeks
2	Presentation/Demonstration of skills	50	
	Total	100	

The assessment at the institute level will be done by a minimum of three members i.e. Internal Faculty, Industrial Experts/External Examiner and H.O.D. and the shall be averaged

INDUSTRIAL TRAINING
(Practical Training)

Subject Title : Practical training in Textile Industry

Subject Code : TT 501: V-Semester – 1st Spell – 300 Marks
Period of Training : 6 months

1. **The First spell of practical training will begin immediately after the completion of the V Semester**
2. During industrial training the candidate shall put in a minimum of 90% attendance.
3. The student should undergo training in the industry the areas as mentioned below of any one for each semester.
   - **a. Spinning.**
   - **b. Weaving.**
   - **c. Chamical processing.**
   - **d. Miscellanius textile units (allied textile industries)**

INDUSTRIAL TRAINING SCHEME
V SEMESTER

1. A candidate shall be assessed twice in industrial training i.e. At the third and sixth months before he/she has completed the industrial training
2. The assessment shall be carried out by a committee comprising of
   (a) A representative of the Industry where the candidate is undergoing training
   (b) A staff member of the concerned section of the polytechnic.
3. The assessment at the end of the third and sixth months of training shall each carry 100 marks for the progress made during the corresponding period of training
4. The remaining 100 marks are allotted as follows for the training record 30 marks, log book 30 marks and for seminar 40 marks. These are to be evaluated at the institution at the end of each spell of training by a committee consisting faculty members and Head of Dept. concerned.

CO-PO MATRIX

	Basic knowledge	Discipline Knowledge	Experiments and practice	Engineering Tools	Engineer and society	Environment & sustainability	Ethics	Individual and Team work	Communication	Lifelong learning	Linked PO
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	
CO1	1	3	3	3	2			3	3	1	1,2,3,4,5,8,9,10
CO2	1	3	3	3	2	1	1	3	3	3	1,2,3,4,5,6,7,8,9,10
CO3	1	3	3	3	2	2	3	3	3	3	1,2,3,4,5,6,7,8,9,10
CO4	1	3	3	3	2	2	3	3	3	3	1,2,3,4,5,6,7,8,9,10
CO5	1	3	3	3	2	2	3	3	3	3	1,2,3,4,5,6,7,8,9,10