SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name : Refrigeration and Air Conditioning Subject Code :BME081

Course: B.Tech. Branch: Mechanical Semester: VIII Sem

Academic Session: 2025-26

Course Contents

Course Objectives:

1. Understand Basic Principles Of Refrigeration And Fundamental Cycle.
2. Analyze The State Diagrams For Different Modification Done On Vapor Compression Systems.
3. Classify The Use Of Different Refrigerants And Refrigeration Principles.
4. Understand The Psychometric Charts, Standards Of Ventilation For Comfort Compute The Seasonal Load Required For Cooling And Ventilation.

Course Content:

UNIT-I

Introduction: (A) History of refrigeration, Principles and methods of refrigeration, ice, evaporative, liquid gas, dry ice, vortex tube, and thermoelectric refrigeration, unit of refrigeration concept of refrigerator, heat engine, heat pump, co-efficient of performance.
(B) Air refrigeration system- reversed Carnot cycle, limitations joule cycle, Boot-strap cycle, reduced ambient cycle and regenerative cooling cycles. Simple numerical problem

UNIT-II

Vapour compression system: Vapor compression cycle, p-h and t-s diagrams, deviations from theoretical cycle, sub-cooling and super heating, effects of condenser and evaporator pressure on cop; multi-pressure system: removal of flash gas, multiple expansion and compression with flash inter cooling; low temperature refrigeration: production of low temperatures, cascade system, dry ice, production of dry ice, air liquefaction system,.

UNIT-III

Vapour absorption system: Theoretical and practical systems such as aqua-ammonia, electrolux and other systems;
Steam jet refrigeration: Principles and working, simple cycle of operation, description and working of simple system,
Refrigerants: nomenclature and classification, desirable properties, common refrigeration, comparative study, leak detection methods, environment friendly refrigerants and refrigerant mixtures, brine and its properties

UNIT-IV

Psychrometric: Calculation of psychrometric properties of air by table and charts; **Psychrometric processes:** sensible heating and cooling, evaporative cooling, cooling and dehumidification, heating and humidification, mixing of air stream, sensible heat factor;

principle of air conditioning, requirements of comfort air conditioning, ventilation standards, infiltrated air load, fresh air load human comfort, effective temperature and chart, heat production and regulation of human body, bypass factor of coil

UNIT-V

Air conditioning loads: calculation of summer & winter air conditioning load, calculation of supply air rate & its condition, bypass factor, room sensible heat factor, grand sensible heat factor, effective sensible heat factor, dehumidified air quantity. Problems on cooling load calculation.

Air distribution and ventilation systems, air conditioning system, and introduction to air conditioning equipment, introduction to cryogenics.

LIST OF EXPERIMENTS:

1. Study of Vapour Compression Refrigeration System.
2. Study of Ice Plant.
3. To study different air Conditioning processes & calculates actual COP on air conditioning test rig.
4. Vapour Absorption Refrigeration System (Electrolux Refrigeration).
5. To determine the COP and Tonnage capacity of the cold storage.

REFERENCES BOOK:

- Arora CP; Refrigeration and Air Conditioning; TMH
- Sapali SN; Refrigeration and Air Conditioning; PHI
- Ananthanarayan; Basic Refrigeration and Air conditioning; TMH
- Manohar Prasad; Refrigeration and Air Conditioning; New Age Pub
- Ameen; Refrigeration and Air Conditioning; PHI
- Pita; Air conditioning Principles and systems: an energy approach; PHI
- Stoecker W.F, Jones J; Refrigeration and Air conditioning; McGH, Singapore
- Jordan RC and Priester GB Refrigeration and Air Conditioning, PHI USA
- Arora RC; Refrigeration and Air conditioning; PHI Learning

SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name : Work Study and Ergonomics Subject Code :BME082

Course: B.Tech. Branch: Mechanical Semester: VIII Sem

Academic Session: 2025-26

Course Contents

Course Objectives:

1. Gain a comprehensive understanding of work study principles and ergonomic design, including the importance of efficiency, productivity, and worker well-being
2. Analyze Work Processes
3. Develop the ability to design and implement ergonomic workspaces that enhance comfort, reduce strain, and promote health and safety for employees
4. Master various measurement and assessment techniques used in work study and ergonomics, including time-motion studies and ergonomic assessments

Course Content:

UNIT-I

Method study: purpose of work study, its objectives, procedure and applications; method study definition and basic procedure, selection of job, various recording techniques like outline process charts, flow process charts, man machine charts, two handed process charts, string diagram, flow diagram, multiple activity chart, simo, cyclographs and chrono-cyclographs; critical examination, development, installation and maintenance of improved method; principles of motion economy and their application in work design; micro motion study, memo motion study and their use in methods study.

UNIT-II

Work measurement: Introduction & definition, objectives and basic procedure of work measurement; application of work measurement in industries; time study: basic procedure, equipment's needed, methods of measuring time, selection of jobs, breaking a job into elements; numbers of cycles to be timed; rating and methods of rating, allowances, calculation of standard time. Work sampling: Basic procedure, design of work sampling study conducting work sampling study and establishment of standard-time.

UNIT-III

Job evaluation and incentive schemes: Starlight line, Tailor, Merrick and Gantt incentive plans Standard data system; elemental and non-elemental predetermined motion systems, work factors system; Methods Time Measurement (MTM), MOST

UNIT-IV

Human factor engineering: Definition and history of development of human factors engineering, types & characteristics of man-machine-system, relative capabilities of human

being and machines; development and use of human factor data; information input and processing: Introduction to information theory; factors effecting information reception and processing; coding and selecting of sensory inputs.

UNIT-V

Display systems and anthropometric data: Display- types of visual display, visual indicators and warning signals; factorial and graphic display; general principles of auditory and tactral display, characteristics and selection.

REFERENCE BOOKS:

- ILO; work-study; International Labour Organization
- Khan MI; Industrial Ergonomics; PHI Learning
- Barrnes RM; Motion and Time Study; Wiley pub
- Megaw ED; Contenmprory ergonomics; Taylor &fracis
- Sandera M and Mc Cormick E; Human Factors in Engg and design; MG Hill
- Currie RM; Work study; BIM publications
- Maynard; Hand book of Industrial Engg.

SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name: CAD/CAM/CIM Subject Code: BME083

Course: B.Tech. Branch: Mechanical Semester: VIII Sem

Academic Session: 2025-26

Course Objectives:

1. Identify different type of production system.
2. Use standards of computer graphic and able to apply transformation matrix.
3. Understand different forms of geometric modeling.
4. Prepare part programming for given object.
5. Classify different CAD/CAM interface.

Course Content:

UNIT-I

Introduction- Introduction, Modern manufacturing, Integration and rationalization, Elements of CIM system, CIM hardware and software, Implementing CIM, Advantages and limitations.

Automation and Production Systems- History of automation. Building block of automation Technology, Types of automation systems. Automation production economics, Viability appraisal for automated production.

UNIT-II

Computer Aided Manufacturing (CAM)- Introduction, CAM hierarchy, Elements of CAM systems, CNC machines-types, Classification, File formats, Controllers, Hierarchical controls, Tooling on CNC, -Fixtures on CNC, Rationale for CAD/CAM, NC, DNC, CNC and adaptive control, Methods of part-programming. CAM software.

UNIT-III

Robot, Automated Material handling and storage system - Robot anatomy, Robot configuration, Robot control systems. Accuracy, Repeatability. End effectors. Robot programming, Robot languages, Robot applications. Automated material handling and storage system, Functions, Type of material handling system, Design of system, automated guided vehicle systems. Automated Retrieval systems.

UNIT-IV

Group Technology (GT), Computerized Manufacturing Planning System - Introduction. Part families, Parts Classification and Coding. Production Flow Analysis, Machine cell design, Cellular Manufacturing systems, Agile Manufacturing, Flexible manufacturing Systems (FMS), Types of flexibility and uncertainty.

Expert Systems - Introduction to expert systems, Need and classification, Artificial Intelligence

UNIT-V

Introduction to CNC machines, NC machines, DNC machines, components of robots classification of robots, application of robots, Design of Mechatronics systems, Case examples.

LIST OF EXPERIMENTS:

1. Familiarization with CAD interface and tools (e.g., Solid Works, CATIA, AutoCAD).
2. Create 3D models of machine elements like shafts, gears, pulleys, etc.
3. Develop an assembly of multiple components (e.g., coupling, engine assembly).
4. Generate sectional views, orthographic projections, and detail drawings from 3D models.
5. Structural analysis using FEA tools integrated into CAD software for stress and deformation.
6. Overview of CAM software tools (e.g., MasterCAM, EdgeCAM) and G-code generation.
7. Manual programming of CNC machines using G & M codes for turning and milling operations.
8. Simulate CNC machining operations using CAM software, verify tool paths, and optimize parameters.
9. Practical hands-on CNC machining of a mechanical component using generated part programs.
10. Generate tool paths for milling and turning operations and optimize machining parameters.

REFERENCE BOOKS:

- Production System & CIM, Groover, P.H.I.
- Automation Production Systems and Computer – Integrated Manufacturing by Mikell P Groover: P.H.I.
- Principle of Automation and Advanced Manufacturing systems by Dr. K.C. Jain & Sanjay Jain
- Robotics – Control, sensing, vision, and intelligence by K.S. Fu, RC Gonzalez, and C.S.E. Lee: Tata McGraw Hill Education Pvt. Ltd.
- CAD/CAM: Principles and Applications by P N Rao: Tata McGraw Hill Education Pvt. Ltd
- CIM: Principle of Computer Integrated Manufacturing by J B Waldner: John Wiley & sons

SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name: Total Quality Management Subject Code: BME0841

Course: B.Tech. Branch: Mechanical Semester: VIII Sem

Academic Session: 2025-26

Course Objectives:

1. Understand The Quality Philosophy and The Evolution Of TQM.
2. Demonstrate The Importance of Quality in The Major Work Fields Like Design, Production, Scheduling and Maintenance.
3. Shall Be Able to Compute the Past, Present and Future Trends
4. Students Shall Be Able to Understand and Compute the Process Variations and Shall Be Able to Implement Tools Like Cause-and-Effect Diagram.
5. Students Shall Be Compute the Variants Involved in Process Improvements.

Course Content:

UNIT-I

INTRODUCTION: Introduction - Need for quality - Evolution of quality - Definition of quality - Dimensions of manufacturing and service quality - Basic concepts of TQM - Definition of TQM – TQM Framework - Contributions of Deming, Juran and Crosby – Barriers to TQM.

UNIT-II

TQM PRINCIPLES: Leadership – Strategic quality planning, Quality statements - Customer focus – Customer orientation, Customer satisfaction, Customer complaints, Customer retention – Employee involvement – Motivation, Empowerment, Team and Teamwork, Recognition and Reward, Performance appraisal - Continuous process improvement – PDSA cycle, 5s, Kaizen – Supplier partnership – Partnering, Supplier selection, Supplier Rating.

UNIT-III

TQM TOOLS & TECHNIQUES: The seven traditional tools of quality – New management tools – Six-sigma: Concepts, methodology, applications to manufacturing, service sector including IT–Bench marking Reason to bench mark, Bench marking process – FMEA – Stages, Types. Quality circles – Quality Function Deployment (QFD) – Taguchi quality loss function – TPM – Concepts, improvement needs – Cost of Quality – Performance measures

UNIT-IV

QUALITY SYSTEMS: Need for ISO 9000- ISO 9000-2000 Quality System – Elements, Documentation, Quality auditing- QS 9000 – ISO 14000 – Concepts, Requirements and Benefits– Case studies of TQM implementation in manufacturing and service sectors including IT.

UNIT-V

IMPLEMENTATION OF TQM: Steps in TQM implementation, national and international quality awards, case studies.

REFERENCE BOOK:

- Dale H. Besterfiled, "Total Quality Management", Pearson Education Asia, (Indian reprint 2011).
- John Bank, The essence of total quality management PHI 2000.
- Greg Bounds, Lyle Yorks et al, Beyond Total Quality Management, McGraw Hill, 1994
- Takashi Osada, The 5S's The Asian Productivity Organization, 1991.
- Masaki Imami, KAIZEN, McGraw Hill, 1986.

SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name: Industry 4.0 Subject Code: BME0842

Course: B.Tech. Branch: Mechanical Semester: VIII Sem

Academic Session: 2025-26

Course Content

Course Objectives:

1. Gain a comprehensive understanding of the principles, technologies, and trends driving the fourth industrial revolution
2. Learn about the integration of advanced technologies such as IoT, AI, big data, and robotics in industrial processes
3. Explore the concept of smart manufacturing and how it enhances efficiency, productivity, and sustainability
4. Analyze how Industry 4.0 technologies can improve supply chain management and logistics

Course Content:

UNIT I

Introduction to Industry 4.0:definition of Industry 4.0 What is it all about and why do we have to industrial production Videos from Bosch, Siemens, ABB, Automotive Industry (VW, Audi, Mercedes), Developments in USA, Europe, China and other countries, Comparison of Industry 4.0 Factory and today's Factory The 10 most important things that will change with Industry 4.0, Difference between conventional automation and Industry 4.0

UNIT II

Basic principles and technologies of a Smart Factory: Internet of Things (IoT) & Industrial Internet of Things (IoT) & Internet of Services, Big Data, Cyber-Physical Systems, Value chains in manufacturing companies, Customization of products, Digital Twins, Cloud Computing / Cloud Manufacturing, Security issues within Industry 4.0 networks

UNIT III

The smart work piece: The intelligent work piece as basic functionality in implementing Industry 4.0, what is an intelligent work piece? How to make a work piece intelligent? Work piece tagging, QR codes and RFID, Communication between work piece and environment, multi-agent systems in production, Applications for smart work pieces (examples of existing or future applications in the field of manufacturing)

UNIT IV

Digital Twins in Production: Example: Real time use of Digital Twin (Video), Basic concepts of Digital Twins, Benefits, impact and challenges, Features and Implementation of Digital Twins, Types of Digital Twins, Digital Twin use cases, Applications for digital twins in production (examples of existing or future applications in the field of manufacturing)

UNIT V

Assistance systems for production: The connected worker within the Industry 4.0 scenario ,Diversity- driven workplaces (barrier free workplaces, accessibility in production),Human-and task-cantered assistance systems (e.g. motion capture system for training employees, etc.) ,Technical tools ("Ambient Assisted Working" (AAW)) , Mobile information technologies ,Shop floor information systems Production line support systems (pick by light, assembly display systems, assembly control by vision, …) , Manipulator systems and intelligent chairs, Human work support by using exoskeletons, Applications assistance systems in production (examples of existing or future applications in the field of manufacturing)

REFERENCE BOOKS:

- "Industry 4.0: The Industrial Internet of Things", by Alasdair Gilchrist (Apress)
- "Industrial Internet of Things: Cyber manufacturingSystems "by Sabina Justice, Christian Brecher, Houbing Song, Danda B. Rawat (Springer)

SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name: Robotics & Mechatronics Subject Code: BME0843

Course: B.Tech. Branch: Mechanical Semester: VIII Sem

Academic Session: 2024-25

Course Content

Course Objectives:

1. Evaluate the principles of mechatronics system design
2. Comprehend measurement systems and the functions of their main elements
3. Identify the need for mechatronics in modern industries
4. Gain a foundational understanding of microprocessor-based controllers
5. Define and classify various transducers and sensors
6. Examine the need and importance of industrial robots
7. Analyze various drive systems for robots and the design and application of different types of end effectors

Course Content:

UNIT I

Introduction: Definition of Mechatronics, Multi-disciplinary scenario, origins. Evaluation of Mechatronics, An over view of mechatronics, Design of mechatronics system. Measurements system and function of main elements of measurement systems. Need for mechatronics in industries. Objectives, advantages and disadvantages of mechatronics. Microprocessor based controllers. Principle of working of engine management system, automatic washing machine.

UNIT II

Review of transducers and sensors: Definition and classification of Transducers. Definition and classification of sensors. Principle of working and applications of light Sensors, proximity sensors and Hall Effect sensors. MICROPROCESSOR: Introduction, Microprocessor based digital control. Digital member system, binary and hexadecimal number System, Logic functions, Data word representation basic Elements of control systems.

UNIT III

Microprocessor Architecture: Processor architecture Terminology Such as, CPU, memory and address, ALU, assembler, data, registers, Fetch cycle, write cycle, state, Bus interrupts. Micro controllers - difference between microprocessor and micro controllers. Electrical actuators & Hydraulic actuators

UNIT IV

Need and importance, basic concepts, structure and classification of industrial robots, terminology of robot motion, motion characteristics, resolution, accuracy, repeatability, robot applications. End Effectors and Drive systems: Drive systems for robots, salient features and comparison, different types of end effectors, design, and applications.

UNIT V

Sensor evaluation and selection, piezoelectric sensors, linear position and displacement sensing, revolvers, encoders, velocity measurement, proximity, tactile, compliance and range sensing.

Image Processing and object Robot Programming: Teaching of robots, manual, walk through, teach pendant, off line programming concepts and languages, applications. Safety and Economy of Robots

REFERENCE BOOKS:

- Mechatronics - Principles, Concepts and applications - Nitaigour and Premchand, Mahilik - Tata McGraw Hill -2003
- Mechatronics - W. Bolton, Pearson Education Asia -2nd Edition, 2001.
- Mechatronics - H.D. Ramachandra - Sudha Publication -2003
- Mechatronics by HMT Ltd. - Tata McGrawHill -2000.
- Mechatronics System design by Devadas Shetty and Richard A. Kark - Thomas Learining -1997.
- Mechatronics an Introduction by Robert H Bishop - CRC
- Mechatronics systems Fundamentals by Rolf Isermann – Springer
- Mittal RK, Nagrath IJ; Robotics and Control; TMH
- Groover M.P,Weiss M, Nagel, Odrey NG; Industrial Robotics-The Appl□; TMH
- Spong Mark and Vidyasagar; Robot Modelling and control; Wiley India
- Murphy; Introduction to AI Robotics; PHI Learning
- Ghosal Ashitava; Robotics Fundamental concepts and analysis; Oxford
- Saha S; Introduction to Robotics; TMH

SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name: Major Project-II Subject Code: BME085P

Course: B.Tech. Branch: Mechanical Semester: VIII Sem

Academic Session: 2024-25

Course Content

Course Objectives:

1. To provide students with a comprehensive experience for applying the knowledge gained so far by studying various courses.
2. To develop an inquiring aptitude and build confidence among students by working on solutions of small industrial problems.
3. To give students an opportunity to do something creative and to assimilate real life work situation in institution.
4. To adapt students for latest development and to handle independently new situations.
5. To develop good expressions power and presentation abilities in students.

The focus of the Major Project is on preparing a working system or some design or understanding of a complex system using system analysis tools and submit it the same in the form of a write up i.e. detail project report. The student should select some real-life problems for their project and maintain proper documentation of different stages of project such as need analysis market analysis, concept evaluation, requirement specification, objectives, work plan, analysis, design, implementation and test plan. Each student is required to prepare a project report and present the same at the final examination with a demonstration of the working system (if any)

Working schedule: The faculty and student should work according to following schedule:
Each student undertakes substantial and individual project in an approved area of the subject and supervised by a member of staff. The student must submit outline and action plan for the project execution (time schedule) and the same be approved by the concerned faculty.

Action plan for Major Project work and its evaluation scheme #(Suggestive)

Task/Process	Week	Evaluation	Marks For Term Work#
Orientation of students by HOD/Project Guide	1st	-	-
Literature survey and resource collection	2nd	-	30
Selection and finalization of topic before a committee*	3rd	Seminar-I	30
Detailing and preparation of Project (Modeling, Analysis and Design of Project work	4th to 5th	0	30
Development stage	-	-	-
Testing, improvements, quality control of project	6th to 10th 11th		75
Acceptance testing	12th	-	30
Report Writing	13th to 15th	-	45
Presentation before a committee (including user manual, if any)	16th	Seminar-II	60

* Committee comprises of HOD, all project supervisions including external guide from industry (if any) # The above marking scheme is suggestive, it can be changed to alternative scheme depending on the type of project, but the alternative scheme should be prepared in advance while finalizing the topic of project before a committee and explained to the concerned student as well.

NOTE: At every stage of action plan, students must submit a write up to the concerned guide:

SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name: Internship3 Subject Code: BME086P

Course: B.Tech. Branch: Mechanical Semester: VIII Sem

Academic Session: 2025-26

Course Contents

Course Objectives:

The objective of undertaking industrial training is to provide work experience so that student's engineering knowledge is enhanced and employment prospects are improved. The student should take this course as a window to the real World and should try to learn as much as possible from real life experiences by involving and interacting with industry staff. Industrial training also provides an opportunity to students to select an engineering problem and possibly an industry guide for their Major Project in final semester.

Scheme of Studies: Duration: Minimum 8 weeks after VIII semester.

Scheme of Examination: For the assessment of industrial training undertaken by the students, following components are considered with their weightage.

Marks of various components in industry should be awarded by the I/c of training in Industry but in special circumstances if not awarded by the industry, then faculty in charge /T.P.O. will give the marks.

During training students will prepare a first draft of training report in consultation with section in charge. After training they will prepare final draft with the help of T.P.O. /Faculty of the Institute. Then they will present a seminar on their training and they will face viva-voce on training in the Institute.

Learning through Industrial Training:

During industrial training students must observe following to enrich their learning: Industrial environment and work culture.

- Organizational structure and inter personal communication.
- Machines/equipment/instrument-their working and specifications.
- Product development procedure and phases.
- Project Planning, monitoring and control.
- Quality control and assurance.
- Maintenance system.
- Costing system.
- Stores and purchase systems.
- Layout of Computer/EDP/MIS centers.
- Roles and responsibilities of different categories of personnel.
- Customer services.
- Problems related to various areas of work etc.

Students are supposed to acquire the knowledge on above by-

- Direct Observations without disturbing personnel at work.
- Interaction with officials at the workplace in free/ tea time.
- Study of Literature at the workplace (e.g. User Manual, standards, processes schedules, etc.)
- "Hand's on" experience
- Undertaking/assisting project work.
- Solving problems at the work place.
- Presenting a seminar.
- Participating in group meeting/discussion.
- Gathering primary and secondary data/information through various sources, storage,retrieval and analysis of the gathered data.
- Assisting official and managers in their working.
- Undertaking a short action research work.
- Consulting current technical journals and periodicals in the library.
- Discussion with peers.

Daily Diary- Industrial Training:

Name of the Trainee---------- College ---------- Industry / work place ---------- Week No---------- Department /Section ---------- Date ---------- ----------

---

Dates Brief of observations made, work done, problem/project undertaken, discussion held, literature consulted etc.

Signature of Supervisor (TPO/Faculty) Signature of Trainee Signature of Official in charge for Trg. In Indutry. --

---

Supervision of Industrial Training:

Faculty and TPO are supposed to plan industrial training in such a manner that students get exposure on most of the above area in the field. One faculty member or TPO will plan industrial training of students in consultation with training manager of the industry (work place) as per the predefined objectives of training. Monitoring visits will be made by training and placement officer/faculty in-charge for the group of students, of the college during training.

Guidance to the faculty / TPO for Planning and implementing the Industrial Training:

Keeping in view the need of the contents, the industrial training program, which is spread to minimum 4 weeks duration, has to be designed in consultation with the authorities of the work place; Following are some of the salient points:

- Spelling out the objectives of the industrial training in behavioral terms and same is informed in advance to the 1) students, 2) authorities of the work place and 3) supervising faculty members.
- Discussing and preparing students for the training for which meetings with the students has to be planned.
- Meeting with industrial personnel and orienting them regarding the objective of the

training and the expectations of the program.

- Correspondence with the authorities of the work place.
- Orientation classes for students on how to make the training most beneficial-monitoring daily diary, writing weekly reports, how to interact with various categories of industrial personnel, how to behave and undertake responsibilities, how to gather information form the workplace, ethics etc.
- Guiding students to make individual plans (week wise/ day wise) to undertake industrial training.
- Developing a system of maintaining training records, by teachers for every batch of students for convenient retrieval.
- Inviting industrial personnel to deliver lectures on some aspects of training.

Action plan for planning stages at the Institutional Level

S.No.	Activity	Commencing Week	Finishing week	Remark
1.	Meeting with Principal			
2.	Meeting with colleagues			
3.	Correspondence with work place (Industry concerned)			
4.	Meeting with authorities of work place			
5.	Orientation of students for industry training			
6.	Scrutinizing individual training plan of students.			
7.	Commencement of individual training			
8.	First monitoring of industrial training			
9.	Second monitoring of industrial training			
10.	Finalization of Training report			
11.	Evaluation of performance at industry level			
12.	Evaluation of Industry Program in the Institutions.			