

GOVERNMENT POLYTECHNIC MUMBAI

(Academically Autonomous Institute of Government of Maharashtra)



Department of Mechanical Engineering

P19R Curriculum

Sixth Semester

GOVERNMENT POLYTECHNIC MUMBAI

(Academically Autonomous Institute, Government of Maharashtra)

Teaching and Examination Scheme (P19R)

With effect from AY 2022-23

Programme: Diploma in Mechanical Engineering (Sandwich Pattern)

Term / Semester -VI

Course Code	Course Title	Teaching Hours/Contact Hours				Credits	Examination Scheme (Marks)						
		L	P	TU	Total		Theory			PR	OR	TW	Total
							TH	TS1	TS2				
ME19R313	INPLANT TRAINING	--	40	--	40	20	--	--	--	--	100*	100*	200
	Total	--	40	--	40	20	--	--	--	--	100	100	200
Total Contact Hours					40								

Abbreviations: L- Theory Lecture, P-Practical, TU-Tutorial, TH- Theory Paper TS1 & TS2- Term Tests, PR-Practical, OR-Oral, TW: Term Work (progressive assessment)

* Indicates assessment by External Examiner else internal practical skill test, #indicates self, on- line learning Mode, @ indicates on line examination

Note: Duration of Examination--TS1&TS2 -1 hour, TH- 2 hours 30 min, PR/OR – 3 hours per batch, SCA- Library -1 hour, Sports- 2hours, Creative Activity-2 hours

indicates Self, on- line learning Mode through MOOCs/Spoken Tutorials /NPTEL/SWAYAM/FOSSEE etc.

Department Coordinator,
Curriculum Development,
Dept. of Mechanical Engineering

Head of Department
Dept. of Mechanical Engineering

In-Charge
Curriculum Development Cell

Principal

Programme : Diploma in Mechanical Engineering (Sandwich Pattern)										
Course Code:ME19R313				Course Title: INPLANT TRAINING						
Compulsory / Optional: Compulsory										
Teaching Scheme and Credits				Examination Scheme						
L	P	TU	Total	TH (2 Hrs 30min)	TS1 (1 Hr)	TS2 (1Hr)	PR	OR	TW	Total
--	40	--	20	--	--	--	--	100*	100*	200

Abbreviations: L- Theory Lecture, P-Practical, TU-Tutorial, TH- Theory Paper TS1 & TS2- Term Tests, PR- Practical, OR-Oral, TW: Term Work (progressive assessment) , * Indicates assessment by External Examiner else internal practical skill test , # indicates Self, on- line learning Mode, @ indicates on line examination

Note: For Minimum passing marks under various heads, refer, examination rule AR26. Two practical skill tests are to be conducted. First skill test at mid-term and second skill test at the end of the term.

Rationale:

There will always be the need of talented, innovative, and skilled manpower for industries to sustain in competitive market. Industries adopt different policies to get the employable manpower as per the demand. In-plant training, internship, apprenticeship etc. are some of the useful strategies for generating future talent pool for the industry. These programs not only helps fresh pass outs in gaining professional knowhow but also benefits, industries on fresh perspectives on business issues and even discovering future business leaders. Students passing out from technical institutions lack the experience, skills and confidence required by industries. In present scenario competition for job is rising exponentially and securing entry-level jobs is getting very difficult. Hence organizations like AICTE, BOAT, NATS, MEMS, State Boards of Technical education etc. are promoting industrial internship/industrial training at different level in technical institutes.

The main aim of In-plant training is to increase the employability skills of the students passing out from institute. For getting real time exposure of industrial environment six- month in-plant training is incorporated in the curriculum of Mechanical Engineering Department. The outcomes of the training will definitely a step ahead in making students employment-ready and will augment various attributes in students.

Course Outcomes: Student should be able to

CO1	Realize administrative, operational and social functioning of industrial organizations.
CO2	Follow industrial working practices, industrial safety practices, and industrial discipline.
CO3	Correlate the theory with industrial applications relevant to the courses studied.
CO4	Select various materials, processes, tools, products etc. with their relevant aspects of manufacturing, quality control, etc.
CO5	Recognize responsibilities, ethical values, required interpersonal skills, problem solving skills, self-management and job management skills required while working as first line manager.
CO6	Effectively communicate through technical reports/projects report writing, presentation skills.

Course Content Details:

Unit No	Topics / Sub-topics
1	<p>Mechanical Engineering students study various courses that enable them to work in number of fields related to mechanical engineering namely but not limited to design, thermal engineering, management and industrial engineering, mechatronics, production processes, materials engineering, power engineering, fluid mechanics, etc. Student will be placed as a trainee in different industries, organizations etc. for inplant training. During inplant training, students may work as supporting member of project team, assist in production work, small tasks, observe the procedures, collect the information etc. at supervisory level pertaining to the following broad areas:</p> <ol style="list-style-type: none"> 1. Production systems and processes <ul style="list-style-type: none"> • Product development, process planning and selection of equipment • Design and installation of quality engineering and analytical systems • Investigations regarding mechanization, automation and robotics etc. • Computer-supported production systems etc. 2. Industrial Engineering <ul style="list-style-type: none"> • Work study, Method study, Time study activities sampling and determination of time standards and labour/machine costs • Development of wage incentive schemes, work performance, • Measures and task/process evaluation systems, determination of human • resource requirements, occupational safety and health, Productivity measurement • Design of plant layout, space saving in shop floor area, installation of new machines, work and material flow, importance of visuals for operations, mock drills for safety, process improvements by kaizen and other techniques, etc. 3. Quality assurance <ul style="list-style-type: none"> • Quality assurance techniques, e.g. application of statistical process control techniques, control charts, • Inspection methods, measurement techniques, identification of sampling plans for quality control and metrology • Implementation of quality management systems, standards like ISO 9000, TS16949, OHSAS, etc • Creation of a quality culture and total quality management . • Inspection of incoming and outgoing material of factory including in-process and post-process inspection 4. Production planning and control

- Stock and purchasing management
- Design and implementation of production planning- and control systems
- Distribution planning, Capacity planning
- Material requirements planning, production scheduling
- Development and implementation of maintenance planning systems

5. Project management

- Project planning, -organizing and -control
- Scheduling and network planning
- Resource allocation , work division
- Design and implementation of management information systems and data warehousing and processing systems

6. Thermal Engineering

- Refrigeration, Air-conditioning, HVAC
- IC engines, power engineering
- Automobile Engineering
- Design of Automobiles
- Design and fabrication of automobile components

8. Hydraulics and Pneumatics

9. Tool Room, CAD/CAM/CAE and Automation etc.

10. Purchase

- Purchase procedures, vendor finalization, costing and estimating, etc.

11. Marketing

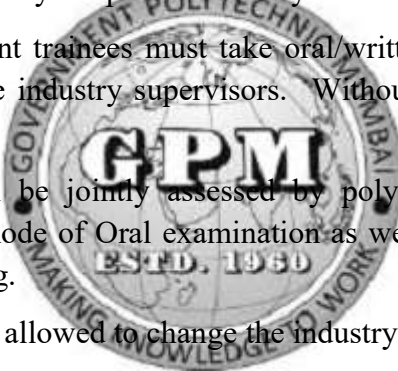
- Marketing activities such as advertising by various tools, market research, future product marketing strategies, etc.

12. Maintenance Engineering

- Maintenance procedures of various machines, check list, types of maintenance, TPM activities
- Installation of new machines
- Defining safety procedures of machines, safety trainings, etc.

IMPORTANT GUIDELINES FOR STUDENTS

- Students will be placed in different industries for in-plant training. Student has to complete minimum 20 weeks of training **or** 800 hours (considering 5 days/week x 8 hrs per shift x 20 weeks) of training **or** number of weeks of training as per the norms

	<p>of the respective industries.</p> <ul style="list-style-type: none"> • During In-plant training, student will be assigned to a polytechnic supervisor and industry supervisor. Polytechnic supervisor will visit the industry during training, guide the students, and resolve the issues of students if any. Industry supervisor will be the officer/shop in-charge/work manager etc., under whom student is working in industry daily. • Student has to maintain in-plant training diary & in-plant training manual regularly. • Student has to prepare the In-plant training report at the end of training under the supervision of polytechnic supervisor and industry supervisor. • TW will consist of updated and signed/certified copies of daily in-plant training diary, weekly diary/in-plant training manual, and In-plant training report. • Participating/completing specific project, mini project, special assignment etc. and including it in in-plant training report will be an added advantage for the students. • During In-plant training, students have to follow the rules and regulations of respective industries. Student should not share any information/sketches/calculations/formulae etc. of company / department to anyone. • Students i.e. in-plant trainees must take oral/written prior permission for any type leave from respective industry supervisors. Without permission students should not remain absent. • Every student will be jointly assessed by polytechnic supervisor, and industry supervisor through mode of Oral examination as well as Term work, after successful completion of training. • No students will be allowed to change the industry on his/her own. • Each student has to abide safety rules of allocated industry. They have to follow safety procedures of industry. <p style="text-align: center;"></p> <p>Course Outcome:CO1 to CO6 Total Hours: Min. 20 weeks/800 Hrs</p>
--	---

Documents/Activities to be completed during Inplant Training :

Sr. No.	Unit Mapping	CO Mapping	Title of Activities	Remark
1	-	CO1-CO6	<p>Daily Diary : Students will regularly maintain the daily diary noting daily activities completed during training, get it certified from concerned supervisors time to time.</p> <p>Inplant Training Manual: Students will carefully read the guidelines of Inplant training manual, follow the instruction given. Trainees will regularly maintain inplant training manual updated noting activities completed weekly</p>	

Sr. No.	Unit Mapping	CO Mapping	Title of Activities	Remark
			during training, get it certified from concerned supervisors time to time. Inplant Training Report: At the end of the training, trainee will prepare inplant training report, detailing introduction of industry, products, activities performed/observed, assignments /projects participated/ completed, Skills achieved, and conclusions.	
			Total Hrs	20 weeks / 800hrs

References/ Books: Inplant Training manual

CO Vs PO and CO Vs PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	2	3	3	3
CO6	3	3	3	3	2	2	3	3	3

Industry Consultation Committee:

Sr. No	Name	Designation	Institute/Organisation
1	Mrs. Pooja Acharekar	Manager, HR	L&T, Powai
2	Mr. Mangesh Nagle,	Managing Director	Pragati Switchgears, Vasai
3	Mr.G.J. Badwe	Lecturer in Mech. Engg, Training Placement Officer.	SBM Polytechnic, Mumbai
4	Dr.Ketan Jagtap	Lecturer in Mech. Engg, I/c TPO,	Govt. Polytechnic Vikramgad
5	U.A. Agnihotri	Lecturer in Mechanical Engineering	Govt. Polytechnic Mumbai
6	Dr. V. U. Rathod	Lecturer in Mechanical Engineering	Govt. Polytechnic Mumbai

Coordinator,
Curriculum Development,
Department of Mechanical Engineering

Head of Department
Department of Mechanical Engineering

I/C, Curriculum Development Cell

Principal

