

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3		Sheet No. 1/3	
Branch	MECHANICAL ENGINEERING			Semester	III		
Course Code	301	Course Name	Manufacturing Processes				
Course Outcome 1	Explain conventional manufacturing processes.				Teach Hrs	Marks	
Learning Outcome 1	Describe principle of metal working, casting, metal joining, and press working processes.				10	10	
Contents	Principle and Classification of basic manufacturing processes metal working, re-crystallization, casting, metal joining and press working.						
Method of Assessment	Paper pen test						
Learning Outcome 2	Select suitable manufacturing process for a given job.				10	10	
Contents	Factors influencing selection of metal working, re-crystallization, casting, metal joining and press working.						
Method of Assessment	Theory exam						
Course Outcome 2	Select a suitable casting method for a given job.				Teach Hrs	Marks	
Learning Outcome 1	Select a suitable pattern for a given job.				7	10	
Contents	Types of patterns, materials and its application, allowances, tools required, color code, selection of a pattern.						
Method of Assessment	Laboratory test by observation						
Learning Outcome 2	Explain process of metal casting.				8	10	
Contents	Types and properties of moulding sand, bench and floor moulding methods, cores and core prints, elements of gating system, Cupola, crucible, pit and electric arc furnace, induction furnaces, Casting defects and their remedies. Area of application of casting process.						
Method of Assessment	Theory exam						

Learning Outcome 3	Explain die casting, centrifugal casting, investment casting and permanent mould casting.	5	10
Contents	Die casting, centrifugal casting, investment (lost wax) casting, permanent mould casting.		
Method of Assessment	Theory exam		
Learning Outcome 4	Make use of pattern, sand preparation and moulding with safety precaution in foundry shop.	10	10
Contents	Use of pattern and core, sand preparation and mould preparation.		
Method of Assessment	Laboratory test by observation		
Course Outcome 3	Identify a suitable metal working process for a given job.	<i>Teach Hrs</i>	<i>Marks</i>
Learning Outcome 1	Select a suitable mechanical working process for a given job.	5	10
Contents	Principle, types, applications and selection criteria of metal working-rolling, wire drawing, extrusion, forging processes.		
Method of Assessment	Paper pen test		
Learning Outcome 2	Describe rolling, wire drawing, extrusion and forging processes.	10	10
Contents	Type and operations of metal working-rolling, wire drawing, extrusion, forging processes.		
Method of Assessment	Theory exam		
Learning Outcome 3	Identify suitable equipment for a given mechanical working processes.	5	10
Contents	Basic components of simple rolling mill, Type of rolling mill, die material and its applications. Wire drawing, extrusion, forging and their applications.		
Method of Assessment	Theory exam		
Course Outcome 4	Explain press working.	<i>Teach Hrs</i>	<i>Marks</i>
Learning Outcome 1	Describe operations of press working.	10	10
Contents	Basic principle of press working, press working operations- punching, shearing, drawing, bending, slitting, knurling, notching, trimming, and piercing.		

Method of Assessment	Theory exam		
Learning Outcome 2	Describe dies, punches, press units.	10	10
Contents	Die and punch, types of dies, description and application of a simple press working unit, double action press.		
Method of Assessment	Seminar presentation		
Course Outcome 5	Make use of metal joining processes for a given job.	Teach Hrs	Marks
Learning Outcome 1	Explain metal joining by arc welding, gas welding, soldering and brazing processes.	10	10
Contents	Welding:-Definition, classification, Weldability of metals. Resistance welding: Spot, seam, butt, projection. Gas welding, Arc Welding: Carbon arc, shielded metal arc, TIG, MIG, Submerged arc, Plasma arc Soldering, Brazing: Basic principle, soldering and brazing processes its applications		
Method of Assessment	Theory exam		
Learning Outcome 2	Make use of arc welding process for a given job.	8	10
Contents	Electrodes-types and selection, flux and their uses. Defects in welds and its remedies, joints, testing and inspection. Safety aspects.		
Method of Assessment	Laboratory test by observation		
Learning Outcome 3	Make use of gas welding for a given job.	7	10
Contents	Operation and techniques of gas welding, Types of flames.		
Method of Assessment	Laboratory test by observation		
Learning Outcome 4	Follow safety precautions in welding shop.	5	10
Contents	Safety precaution in welding shop.		
Method of Assessment	Laboratory test by observation		

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>1</i>	
COURSE NAME	Manufacturing Processes												
CO Description	Explain conventional manufacturing processes.												
LO Description	Describe principle of metal working, casting, metal joining, press working processes.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Principle and Classification of basic manufacturing processes –metal working, re-crystallization, casting, metal joining and press working.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	8	2	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required			External / Internal					
1	Paper pen test	Student will be asked to list and explain types of manufacturing processes.		10	Test paper + Rating scale			Internal					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of progressive I													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>2</i>	
COURSE NAME	Manufacturing Processes												
CO Description	Explain conventional manufacturing processes.												
LO Description	Select suitable manufacturing process for a given job.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Factors influencing selection of metal working, re-crystallization, casting, metal joining and press working.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/quiz/tutorial to make students practice their knowledge.	8	2	Handouts, chalk board, PPT, text book.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Theory exam	Student will be asked to explain the factors influencing selection of manufacturing process for a given application.	10	Question paper + Rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Nil													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					M	0	2	3	0	1	2	1	
COURSE NAME		Manufacturing Processes											
CO Description		Select a suitable casting method for a given job.											
LO Description		Select a suitable pattern for a given job.											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Types of patterns, materials and its application, allowances, tools required, color code, selection of a pattern.	Lab assignments, presentation, lab demonstration, hands on practice.	Teacher will conduct lab assignments to make students practice their knowledge. Teacher will demonstrate the procedure of lab experiments. The students will learn through practice.	03	04	Handouts, chalk board, charts, video film, virtual lab.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Laboratory test by observation	Student will be asked to select a suitable pattern for a given job.	10	Rubrics/Rating scale			Internal						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of Lab work													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>2</i>	
COURSE NAME	Manufacturing Processes												
CO Description	Select a suitable casting method for the given job.												
LO Description	Explain process of metal casting.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Types and properties of moulding sand, bench and floor moulding methods, cores and core prints, elements of gating system, Cupola, crucible, pit and electric arc furnace, induction furnaces, Casting defects and their remedies. Area of application of casting process.	Interactive classroom teaching,demonstration , quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	05	03	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required			External / Internal					
1	Theory exam	Student will be asked to describe the process of metal casting for a given job.		10	Question paper + Rating scale			External					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Nil													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	
COURSE NAME	Manufacturing Processes												
CO Description	Select a suitable casting method for the given job.												
LO Description	Explain die casting, centrifugal casting, investment casting and permanent mould casting.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Die casting, centrifugal casting, investment (lost wax) casting, permanent mould casting.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	05	---	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required			External / Internal					
1	Theory exam	Student will be asked to describe one method of casting.		10	Question paper + Rating scale			External					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Nil													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>4</i>	
COURSE NAME	Manufacturing Processes												
CO Description	Select a suitable casting method for the given job.												
LO Description	Make use of pattern, sand preparation and moulding with safety precaution in foundry shop.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Use of pattern and core, sand preparation and mould preparation.	Presentation, lab demonstration, hands on practice.	Teacher will demonstrate the procedure of lab experiments. The students will learn through practice.	02	08	Handouts, chalk board, charts, video film, virtual lab.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Laboratory test by observation	Student will be asked to prepare a mould using a given pattern and core.	10	Observation schedule/ check-list / rating scale / rubrics			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of External Practical													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>3</i>	<i>1</i>	
COURSE NAME	Manufacturing Processes												
CO Description	Identify a suitable metal working process for a given job.												
LO Description	Select a suitable mechanical working process for a given job.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Principle, types, applications and selection criteria of metal working-rolling, wire drawing, extrusion, forging processes.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	03	02	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Paper pen test	Student will be asked to explain and select a suitable mechanical working process for given selection criteria.	10	Test paper + Rating scale			Internal						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of progressive II													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>3</i>	<i>2</i>	
COURSE NAME	Manufacturing Processes												
CO Description	Identify a suitable metal working process for a given job												
LO Description	Describe rolling, wire drawing, extrusion, forging processes.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Type and operations of metal working-rolling, wire drawing, extrusion, forging processes.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/quiz/tutorial to make students practice their knowledge.	08	02	Handouts, chalk board, PPT, text book, charts, video film.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required			External / Internal					
1	Theory exam	Student will be asked to describe operations of one metal working process.		10	Question paper + Rating scale			External					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Nil													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>3</i>	<i>3</i>	
COURSE NAME		Manufacturing Processes											
CO Description		Identify a suitable metal working process for a given job											
LO Description		Identify suitable equipment for a given mechanical working processes.											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Basic components of simple rolling mill, Type of rolling mill, die material and its applications. Wire drawing, extrusion, forging and their applications.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	03	02	Handouts, chalk board, PPT, text book, charts, video film, virtual lab.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment		Maximum Marks	Resources Required				External / Internal				
1	Theory exam	Student will be asked to identify, sketch and describe equipment used in one mechanical working process.		10	Question paper + Rating scale				External				
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Nil													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>4</i>	<i>1</i>	
COURSE NAME	Manufacturing Processes												
CO Description	Explain press working.												
LO Description	Describe operations of press working.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks				
1	Basic principle of press working, press working operations- punching, shearing, drawing, bending, slitting, knurling, notching, trimming, and piercing.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	07	03	Handouts, chalk board, PPT, text book, charts, video film, virtual lab.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Theory exam	Student will be asked to describe any two press working operations.	10	Question paper + Rating scale			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Nil													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				<i>M</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>4</i>	<i>2</i>	
COURSE NAME	Manufacturing Processes											
CO Description	Explain press working.											
LO Description	Describe dies, punches, press units.											
SCHEME OF STUDY												
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required			Remarks			
1	Die and punch, types of dies, description and application of a simple press working unit, double action press.	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	07	03	Handouts, chalk board, PPT, text book, charts, video film, virtual lab.						
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal					
1	Seminar presentation	Student will be asked to present dies/ punches or any press unit.	10	Rubrics/Rating scale			Internal					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
Part of term work												

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					M	0	2	3	0	1	5	1	
COURSE NAME	Manufacturing Processes												
CO Description	Make use of metal joining processes for a given job.												
LO Description	Explain metal joining by arc welding, gas welding, soldering and brazing processes.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Welding:-Definition, classification, weldability of metals. Resistance welding: Spot, seam, butt, projection. Gas welding, Arc welding: Carbon arc, shielded metal arc, TIG, MIG, Submerged arc, Plasma arc Soldering, Brazing: Basic principle, soldering and brazing processes its applications	Interactive classroom teaching, demonstration, quiz, assignments, tutorial.	Teacher will explain the contents and provide handouts to students. Teacher will conduct assignments/ quiz/tutorial to make students practice their knowledge.	08	02	Handouts, chalk board, PPT, text book, charts, video film, virtual lab.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal								
1	Theory exam	Student will be asked to describe any two methods of metal joining process.	10	Question paper + Rating scale	External								
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Nil													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					M	0	2	3	0	1	5	2	
COURSE NAME	Manufacturing Processes												
CO Description	Make use of metal joining processes for a given job.												
LO Description	Make use of arc welding process for a given job.												
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Electrodes-types and selection, flux and their uses. Defects in welds and its remedies, joints, testing and inspection. Safety aspects.	Lab assignments, presentation, lab demonstration, hands on practice.	Teacher will conduct lab assignments to make students practice their knowledge. Teacher will demonstrate the procedure of lab experiments. The students will learn through practice.	02	06	Handouts, chalk board, charts, video film, virtual lab.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal						
1	Laboratory test by observation	Student will be asked to use of any one method of arc welding to make a given job with safety precautions.	10	Observation schedule/ check-list / rating scale / rubrics			External						
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of external practical													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME			Branch Code			Course Code			CO Code	LO Code	Format No. 4
					M	0	2	3	0	1	5	3	
COURSE NAME		Manufacturing Processes											
CO Description		Make use of metal joining processes for a given job.											
LO Description		Make use of gas welding for a given job.											
SCHEME OF STUDY													
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks						
1	Operation and techniques of gas welding, types of flames.	Lab assignments, presentation, lab demonstration, hands on practice.	Teacher will conduct lab assignments to make students practice their knowledge. Teacher will demonstrate the procedure of lab experiments. The students will learn through practice.	02	05	Handouts, chalk board, charts, video film, virtual lab.							
SCHEME OF ASSESSMENT													
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required	External / Internal								
1	Laboratory test by observation	Student will be asked to prepare a given gas welding job.	10	Observation schedule/ check-list / rating scale / rubrics	External								
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)													
Part of external practical													

RGPV (Diploma Wing) Bhopal		SCHEME FOR LEARNING OUTCOME		Branch Code			Course Code			CO Code	LO Code	Format No. 4
				M	0	2	3	0	1	5	4	
COURSE NAME	Manufacturing Processes											
CO Description	Make use of metal joining processes for a given job.											
LO Description	Follow safety precautions in welding shop.											
SCHEME OF STUDY												
S. No.	Learning Content	Teaching –Learning Method	Description of T-L Process	Teach Hrs.	Pract. /Tut Hrs.	LRs Required	Remarks					
1	Safety precaution in welding shop.	Lab demonstration, hands on practice.	Teacher will demonstrate the procedure of lab experiments. The students will learn through practice.	--	05	Handouts, chalk board, charts, video film.						
SCHEME OF ASSESSMENT												
S. No.	Method of Assessment	Description of Assessment	Maximum Marks	Resources Required			External / Internal					
1	Laboratory test by observation	Student will be observed for safety practices while making a given welding job.	10	Observation schedule/ check-list / rating scale / rubrics			Internal					
ADDITIONAL INSTRUCTIONS FOR THE HOD/ FACULTY (IF ANY)												
Part of lab work												

Practical List

S.No.	NAME OF EXPERIMENT	SHOP	PRACT. Hrs.	
1	Making a split/solid pattern from wood..	Carpentry /pattern shop	04	II CO 15Hrs
2	Practice of green and dry sand making, tempering of sand,	Foundry shop	03	
3	Practice of core making and baking	Foundry shop	04	
4	Practice of open mould using split pattern/solid pattern.	Foundry shop	04	
5	Demonstration of Metal rolling, metal drawing	Virtual lab/ Industry Visit	03	III CO 06 Hrs
6	Demonstration of metal extrusion, metal forging	Virtual lab/ Industry Visit	03	
7	Demonstration of dies, punches, simple working press unit and double action press.	Machine shop/ Industry/ Virtual lab	03	IV CO 06 Hrs
8	Demonstration of press working operations	Machine shop/ Industry visit/ Virtual lab	03	
9	Practice of edge preparation for welding.	Welding shop	03	V CO 18 Hrs
10	Demonstration and practice of bead laying (Welding) on a Flat pieces	Welding Shop	03	
11	Prepare corner, edge and Tee joints using arc welding	Welding Shop	06	
12	Demonstration of joining wires and rods of different size on spot welding machine.	Welding Shop/ Virtual lab	03	
13	Prepare a simple job using gas welding.	Welding Shop	03	