

15. Information of Infrastructure and Other Resources Available

Number of Class Rooms and size of each in Sq. Mtr.	CR-1 (112)	CR-2 (118)	CR-3 (116)	CR-4 (94)	CR-5 (70)	
	CR-6 (116)	CR-7 (118)	CR-8 (116)	CR-9 (112)	CR-10 (68)	
	CR-11 (118)	CR-12 (121)	CR-13 (68)	CR-14 (66)	CR-15 (94)	
• Number of Tutorial rooms and size of each in Sq. Mtr.	TR-1(46)	TR-2 (46)	TR-3 (46)	TR-4 (47)	TR-5 (46)	TR-6(46)
Number of Laboratories and size of each in Sq. Mtr.	COWS-(218)	MWS-1 (224)	MWS-2 (224)	EWS-1 (224)	EWS-2 (224)	
	CWS-1 (218)	CWS-2 (224)	FYL-1` (118)	FYL-2 (116)	FYL-3 (112)	
	FYL-4 (116)	FYL-5 (68)	FYL-6 (67)	FYL-7 (69)	FYL-8 (111)	
	FYL-9 (118)	FYL-10 (118)	FYL-11 (68)	FYL-12 (121)	MELAB-1(67)	
	MELAB-2 (67)	MELAB-3 (67)	MELAB-4 (67)	CELAB-1 (117)	CELAB-2 (90)	
	CELAB-3 (67)	CELAB-4 (69)	CELAB-5 (90)	CELAB-6 (68)	ELLAB-1 (108)	
	ELLAB-2 (108)	ELLAB-3 (72)	ELLAB-4 (72)	ETCLAB-1 (68)	ETCLAB-2 (66)	
	ETCLAB-3 (94)	ETCLAB-4 (116)	LANG-L (69)			
Number of Drawing Halls with capacity of each in Sq. Mtr.	DRG-H (184)					
Number of Computer Centres with capacity of each in Sq. Mtr.	COMP-C (160)					
Central Examination Facility, Number of rooms and capacity of each in Sq. Mtr.	i) All the 15 classrooms are used as examination. The maximum sitting capacity is 64 students & the minimum sitting capacity is 32. ii) There is a Exam control office of 42 Sq. Mtr.					
Barrier Free Built Environment for disabled and elderly persons	Well laid Ramps are available at the Administrative & Academic Building for convenience of disabled and elderly persons.					
Occupancy Certificate	Available					
Fire and Safety Certificate	Under process					
Hostel Facilities	102 seated Boys Hostel & 100 seated Girls Hostel is available in the Polytechnic Campus					

- **Library**

• Number of Library books/ Titles/ Journals available (program-wise)	Titles - 862 Nos Volume -6923 Nos
• List of online National/ International Journals subscribed	National Journals- 15 Nos
• E- Library facilities	Under process

• Laboratory and Workshop

3RD SEMESTER- MECHANICAL

< Mechanical Engineering Lab >
< 3rd Semester Mechanical >

Page- 1 of 3

EXPERIMENT NO:-05

AIM OF THE EXPERIMENT:-
Determination of toughness of material by using impact testing machine.(charpy/izod).

APPARATUS REQUIRED:-


Sl.no	Name of the apparatus	Specification	Quantity
01	Impact testing machine		01
02	A mild steel specimen	(75x10x10)mm For izod	01
03	A mild steel specimen	(55x10x10)mm For charpy	01

THEORY:-

- An impact test signifies toughness of material that is ability of material to absorb energy during plastic deformation.
- This important factor is determined by impact test .Toughness takes into account both the strength and ductility of the material.
- Several engineering materials have to withstand impact or suddenly applied load while in service.
- Strengths are generally lower as compared to strengths achieved under slowly applied load.
- Of all types of impact test ,the notched bar tests are more extensively used .Therefore the impact test measure the energy necessary to fracture a standard notch bar by applying an impact load.
- The test measures the notch toughness of material under shock loading.

PROCEDURE:-

- Select the test mode i.e izod or charpy ,depending up on the test to be conducted and fix the pendulum holding pipe at the respective angle i.e for izod at 84degree and for charpy at 140 degree and secure it tight with the bolts provided.
- The striker for izod and charpy test are different and depending up on the test to be conducted fix the correct striker on the pendulum hammer end.



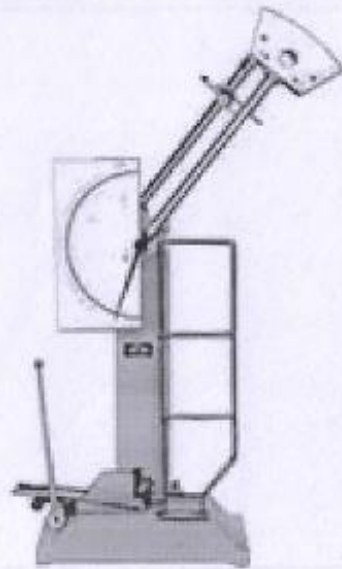
- Fix the specimen on the anvil in the position corresponding to the test mode i.e. izod or charpy.
- Bring the pointer on the dial to its proper position i.e. 16kgm for izod and 30kgm for charpy.
- Release the pendulum by operating the lever for the pendulum to strike the specimen fitted on the anvil.
- Note the readings indicated by the pointer on the dial, which is the izod or charpy value as the case may be.
- The diagrams of izod and charpy strikers and their positioning on the anvil is enclosed for easy identification and fitment.

OBSERVATION:-

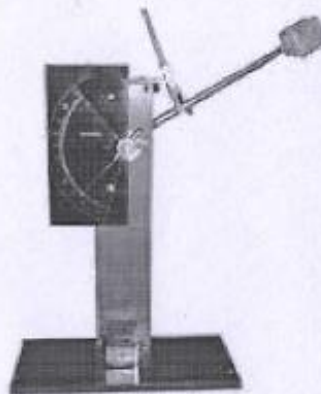
- Energy absorbed by izod test=.....Nm
- Energy absorbed by charpy test=.....Nm

CONCLUSION:-

From the above experiment we determine the toughness of material by using impact testing machine.



CHARPY IMPACT TESTING MACHINE



Izod Impact testing Machine

EXPERIMENT NO:-02

AIM OF THE EXPERIMENT:-

Determination of torsional rigidity of the shaft by using torsion testing machine.

APPARATUS REQUIRED:-

SL.NO	NAME OF THE APPARATUS	SPECIFICATION	QUANTITY
01	Torsion testing machine		01
02	Mild steel specimen	D=..... L=.....	01
03	Steel rule	Least count=0.5mm	01
04	Vernier calliper	Least count=0.02mm	01

THEORY:-

- A torsion test is a quite instrumental in determining the value of modulus of rigidity (ratio of shear stress to shear strain) of a metallic specimen.
- The modulus of rigidity can be found out through observations, made during the experiment by using the torsion equation.
- Torque is defined as the product of twisting force to the distance between the point of application of the force and the axis of the shaft.
- The torsion equation is- $T/J = C\theta/L$.

$$\text{So, } C = TL/J\theta$$

Where,

T=Torque applied.

$$J = \text{Polar moment of inertia} = \pi/32 * D^4$$

D= Diameter of specimen.

C=Modulus of rigidity.

θ =Angle of twist.

L=Gauge length of the specimen in m.



PROCEDURE:-

- Select the driving dogs to suit the size of the specimen and clamp it in the machine by adjusting the length of the specimen by means of a sliding spindle.
- Measure the diameter of the specimen at about three places and take the average values.
- Choose the appropriate range by capacity change lever.
- Set the maximum load pointer to zero.
- Set the protractor to zero for convenience.
- Carry out straining by rotating the hand lever in either direction.
- Load the machine in suitable increments, observing and recording strain gauge.

OBSERVATION TABLE:-

SL.NO	TORQUE APPLIED in (Kg-m)	ANGLE (θ) in degree	T_{mean} (kgm)	θ_{mean} (degree)
1				
2				
3				
4				

CALCULATION:-

Polar moment of inertia (J) = $(\pi/32) \times D^4 \text{ mm}^4$

$\theta_{\text{mean}} = \dots\dots\dots \times (\pi/180) = \dots\dots\dots \text{rad}$

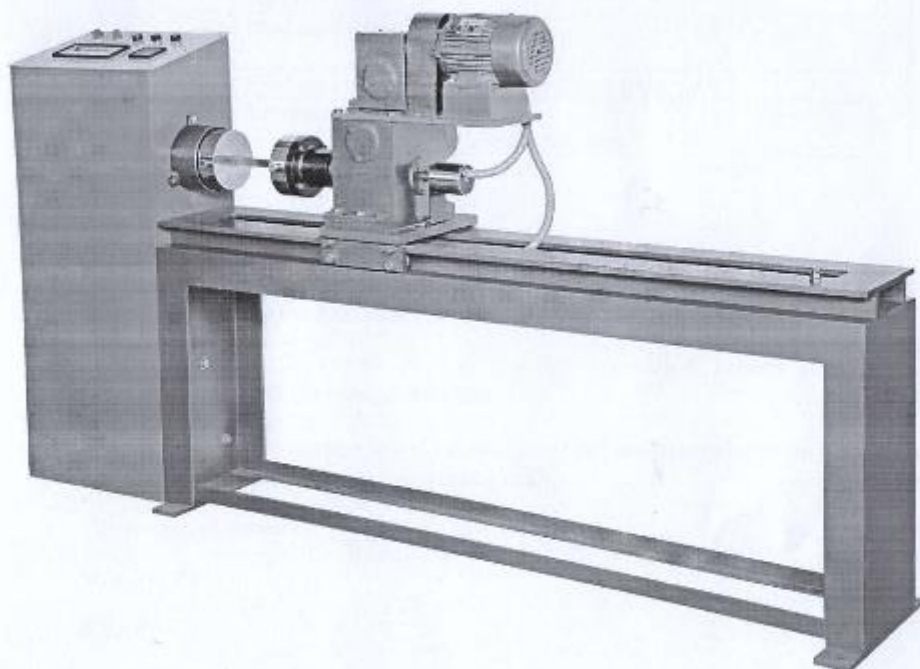
$T_{\text{mean}} = \dots\dots\dots \times 9.81 = \dots\dots\dots \text{N-m}$

Modulus of rigidity (C) = $TL/J\theta = \dots\dots\dots \text{N/m}^2$

CONCLUSION:-

From the above experiment we have successfully determine the modulus of rigidity of mild steel specimen by using torsion testing machine.

GOVERNMENT POLYTECHNIC
Date 14/05/19
SAMBALPUR (RENGALI), ODISHA



TORSION TESTING MACHINE

THEORY OF MACHINE LAB

SEMESTER - 5th sem

BRANCH - MECHANICAL ENGG.

Page-142

EXPERIMENT NO-01

AIM OF THE EXPERIMENT:-

Determination of thickness of M.S. Flat to an accuracy of 0.02mm using Vernier caliper.

APPARATUS REQUIRED:-

SL.NO	Name of the Items	Specification	Quantity
01.	Vernier caliper	150mm.	01
02.	M.S Flat	(50x50x6)mm (70x50x5)mm	02.

THEORY:-

A vernier caliper is a precision measuring instrument used to measure inside & outside diameter and depth up to an accuracy of 0.02mm. Lower jaw is used to measure external diameter, upper jaw is used to internal and depth bar is used to measure depth or thickness of a job. The graduation on the vernier scale and main scale gives the reading. Vernier calipers are available in the size of 150mm, 225mm, 300mm and 1200mm.

CALCULATION OF LEAST COUNT:-

$$50 \text{ V.S.D} = 49 \text{ M.S.D}$$

$$1 \text{ V.S.D} = 49/50$$

$$1 \text{ M.S.D} = 1\text{mm.}$$

$$\text{Least count} = 1 \text{ M.S.D} - 1 \text{ V.S.D}$$

$$= 1\text{mm} - 49/50 = \frac{50 - 49}{50} = \frac{01}{50} \text{ mm}$$

$$= 0.02\text{mm.}$$

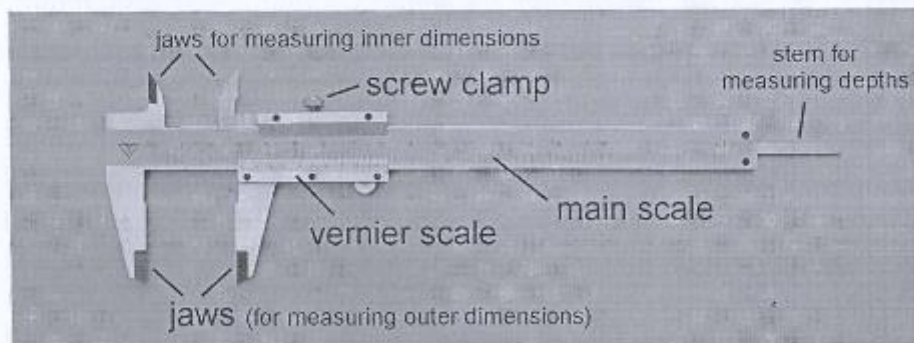


FIGURE: VERNIER CALIPER



PROCEDURE:-

1. At first we took the vernier caliper and adjusted it correctly So that the vernier scale zero and main scale zero coincide with each other.
2. Then we calculate the least count of the vernier scale.
3. Then we took the M.S Flat and kept it inside the external diameter measuring jaw.
4. We took the main scale reading and vernier scale division.
5. Then we noted down in the table.
6. In this way we take 5 observations.

TABULATION :- (All units are in mm)

SL.NO.	M.S.R in mm	V.S.D	L.C in mm	V.S.R(V.S.D x L.C)	M.S.R + V.S.R	Reading in mm	Remarks
01			0.02				
02			0.02				
03			0.02				
04			0.02				
05			0.02				

CONCLUSION:-

From the above experiment we successfully measured the dimensions of ground M.S Flat up to an accuracy of 0.02 mm .



THEORY OF MACHINE

SEMESTER - 5th

BRANCH - MECHANICAL ENGG.

Page-1 of 3

EXPERIMENT NO-02

AIM OF THE EXPERIMENT:-

To determine the centrifugal force of a governor.

APPARATUS REQUIRED:

SLNO	Equipment	Specification	Quantity
01	Centrifugal governor (Digital)	watt	
02	Steel rule	0-30cm	03

THEORY:-

Governor is a mechanical device which is used to regulate the mean speed of an engine. When there are variations in the load for e.g. when the load on an engine increases, its speed decreases, therefore it becomes necessary to increase the supply of working fluid. On the other hand when the load on the engine decreases, its speed increases and thus less working fluid is required. The governor automatically controls the supply of working fluid to the engine with the varying load conditions and keeps the mean speed within certain limit.

Governors are of two types:

- (i) Centrifugal governor
- (ii) Inertia governor

Generally centrifugal type governor are used in the practical field. In centrifugal governor forces of the rotating masses due to change in speed of the engine is used for the movement of the governor sleeve which is also controlled by dead weight of the sleeve or the spring.

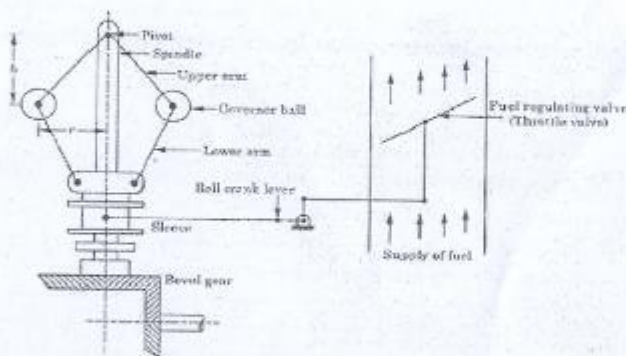


FIGURE: CENTRIFUGAL GOVERNOR(WATT TYPE)



WORKING FORMULA:-

N = Speed of the centrifugal governor
 h = height of the governor
 r = radius of rotation with respect to speed
 ω = angular speed of spindle
 F_c = centrifugal force = $m r \omega^2$
 $\sin \beta = h/l$ so $\beta = \sin^{-1} (h/l)$
 $r = 0.05 + (h/\tan \beta)$
 $\omega = 2\pi N/60$

l = length of the link or arm
 m = mass of the flyball

TECHNICAL SPECIFICATION OF THE APPARATUS:-

Length of the link (l) = 130 mm
 Mass of the flyball = 200gm (4 flyball)
 Initial height (h) = 81mm

PROCEDURE:-

1. The links are fixed as per the diagram.
2. Ensure that all the fittings are tight.
3. With the help variable voltage supply slowly increase the rpm of the governor.
4. Note down the respective speed.
5. Note down the lift of the sleeve, due to increase in speed.
6. Take five readings at variable speeds.
7. Plot height vs speed and centrifugal forces vs speed graphs from the above readings.

TABULATION :-

SL NO	SPEED IN RPM	LIFT / HEIGHT IN (m)	RADIUS OF ROTATION (r) in m	CENTRIFUGAL FORCE(F_c) IN N
1				
2				
3				
4				
5				



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SAMPLE CALCUTION:-

$$N_1 =$$

$$h_1 =$$

$$\sin \beta_1 = h_1/l \text{ so } \beta_1 = \sin^{-1} (h_1/l)$$

$$r_1 = 0.05 + (h_1/\tan \beta_1)$$

$$\omega_1 = 2\pi N_1/60$$

$$F_{c1} = \text{centrifugal force} = m r_1 \omega_1^2$$

CONCLUSION:

From the above experiment, we study and calculate the centrifugal forces at different speed of watt governor and hence plotted the graph.



• Computing Facilities

• Internet Bandwidth	40 mbps
• Number and configuration of System	150 Nos (Window-7 & Windows-10)
• Total number of system connected by LAN	150 Nos
• Total number of system connected by WAN	NIL
• Major software packages available	ARC GIS, MATLAB, VLSI, MULTI SIM, PLC
• Special purpose facilities available	-----
• Innovation Cell	Available
• Social Media Cell	Available
• Compliance of the National Academic Depository (NAD), applicable to PGCM/ PGDM Institutions and University Departments	Not applicable

● **List of facilities available**

● Games and Sports Facilities	1. Field for playing Football & Cricket 2. Indoor Badminton Court available in Academic Building. 3. Outdoor Volley Ball Court 4. Basket Ball Court to be ready shortly.
● Extra-Curricular Activities	Song Competition, Dance competition, Debate competition, Quiz Competition, Essay Competition, Drawing Competition
● Soft Skill Development Facilities	Soft skill training is imparted to students

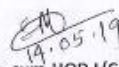
• Teaching Learning Process

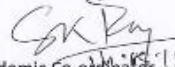
• Curricula and syllabus for each of the programmes as approved by the University	Uploaded in our Institute website.
• Academic Calendar of the University	Academic Calendar published by the SCTE&VT is uploaded in our Website.
• Academic Time Table with the name of the Faculty members handling the Course	Available & Uploaded
• Teaching Load of each Faculty	Appended
• Internal Continuous Evaluation System and place	02 Internal Assessment conducted in each Semester & Branch. Answer Scripts evaluated & deficiencies point out to students
• Student's assessment of Faculty, System in place	Regular Feedback is collected from students regarding quality of teaching imparted by Faculties

TEACHING LOAD

Teaching load (Theory & Practicals)
assigned to faculties under CIVIL ENGG. DEPT. of Govt. Polytechnic,
Sambalpur (Rengali) for WINTER-2019.

Sl No.	Name of Faculty	Subject to Teach with Semester		No of period per week	
1	Sri. G.R.Ray (PRINCIPAL)	Mechanics of Materials (Th)	3rd sem	5	5+(3/2)=6.5
		Engineering Drawing (Pr)	1st sem	3	
2	Sri. S. Meher H.O.D I/C	Highway Engineering(Th)	5th sem	5	9+(15/2)=16.5
		Surveying-I(Th)	3rd sem	4	
		Survey Practice-I (Pr)	3rd sem	6	
		Civil Engineering Drawing-I (Pr)	3rd sem	6	
		Engineering Drawing (Pr)	1st sem	3	
3	Smt. A. Pradhan Faculty-1	Surveying-II (Th)	5th sem	4	12+(18/2)=21
		Concrete Technology (Th)	5th sem	4	
		Fluid Mechanics & Hydraulics Machines (Th)	3rd sem	4	
		Civil Engineering Lab-II (Pr)	5th sem	6	
		Civil Engineering Lab-I (Pr)	3rd sem	6	
		Engineering Drawing (Pr)	1st sem	6	
4	Smt. S.S. Patel Faculty-2	Structural Design-I (Th)	5th sem	5	13+(16/2)=21
		Civil Engineering Materials (Th)	3rd sem	4	
		Construction Technology (Th)	3rd sem	4	
		Structural Detailing-PR-I (Pr)	5th sem	4	
		CAD Lab (Pr)	5th sem	6	
		Engineering Drawing (Pr)	1st sem	6	
5	Full Time Faculty -3(C)	Construction Management (Th)	5th sem	5	5+(6/2)= 8
		Engineering Drawing (Pr)	1st sem	6	

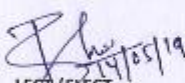

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Lect. cum-HOD I/C
Civil Engg. Dept.

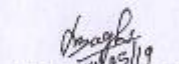

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Academic Co-ordinator
G.P Sambalpur

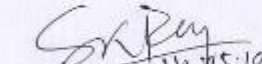

14/05/19
Principal
GOVT. G.P. Sambalpur
SAMBALPUR (Rengali)
Odisha-768212

TEACHING LOAD OF 1ST ,3RD AND 5TH SEM ELECTRICAL ENGG. DEPT. FOR SESSSION WINTER-2019

NAME OF FACULTY	SUBJECT	SEM	SEC	NO. OF CLASSES	TH/PRAC. CLASSES	TOTAL LOAD
LIPSARANI BAG HOD I/C	Energy Conversion-II	5th	E-2	5	TH=5+5+2=12	TOTAL=12+7.5=19.5
	Circuit and Network Theory	3rd	E-1	5		
	Electrical Engg. Material		E-1	2		
	Electrical Lab Practice-II	5th	E-2	6	PRAC.=6+3+4+2=15/2=7.5	
	Engg. Drawing	E-1	3			
	Circuit Theory Lab	3rd	E-2	4		
	Library Study	5th	E-2	2		
PRATIMA BHOI FACULTY-1	Power Electronics & Drives	5th	E-1	5	TH=5+5+2=12	TOTAL=12+7.5=19.5
	Circuit and Network Theory	3rd	E-2	5		
	Electrical Engg. Material		E-1	2		
	Power Electronics Lab	5th	E-1 & E-2	3X2=6	PRAC.=6+3+4+2=15/2=7.5	
	Engg. Drawing	E-1	3			
	Circuit Theory Lab	3rd	E-1	4		
	Library Study	5th	E-1	2		
FACULTY-2	Environmental Studies	5th	E-1	5	TH=5+2=7	TOTAL=7+6=13
	Electrical Engg. Material	3rd	E-2	2		
	Electrical Lab Practice-II	5th	E-2	6	PRAC.=6+6=12/2=6	
	Engg. Drawing		E-2	6		
FACULTY-3	Environmental Studies	5th	E-2	5	TH=5+2=7	TOTAL=7+6.5=13.5
	Electrical Engg. Material	3rd	E-2	2		
	Electrical Lab Practice-II	5th	E-1	6	PRAC.=6+3+4=13/2=6.5	
	Power Electronics Lab		E-1	3		
	Circuit Theory Lab	3rd	E-1	4		
FACULTY-4	Power Electronics & Drives	5th	E-2	5	TH=5+2=7	TOTAL=7+6.5=13.5
	Basic Electrical and Engg.	1st		2		
	Power Electronics Lab	5th	E-2	3	PRAC=3+6=9/2=4.5	
	Engg. Drawing		E-1	6		
	Circuit Theory Lab	3rd	E-2	4		
FACULTY-5	Energy Conversion-II	5th	E-1	5	TH=5+2=7	TOTAL=7+6=13
	Basic Electrical and Engg.	1st		2		
	Engg. Drawing	5th	E-2	6	PRAC.=6+6=12/2=6	
	Electrical Lab Practice-II		E-1	6		


LECT. (ELECT. ENGG.)
G.P SBP (RENGALI)


LECT. (ELECT. ENGG.)
G.P SBP (RENGALI)


ACADEMIC CO-ORDINATOR
G.P SBP (RENGALI)


PRINCIPAL
G.P SBP (RENGALI)
SAMBALPUR (Rengali)
Odisha-768212

TEACHING LOAD OF 1ST, 3RD, & 5TH SEM E&TC DEPT. FOR WINTER 2019.

NAME OF FACULTY	SUBJECT	SEM	SEC	NO. OF CLASSES	TH/PRAC. CLASSES	TOTAL LOAD
Sri S.K.RAY Lect. HOD I/C	Analog Electronics & Op-amp	3rd	E1	5	TH=5+5+4=14	TOTAL=14+6=20
	Analog Electronics & Op-amp	3rd	E2	5		
	Power Electronics & Industrial Control	5th		4		
	Analog Electronics Lab.	3rd	E1	6	PRAC.= 6+6=12=12/2=6	
	Analog Electronics Lab.	3rd	E2	6		
Sri Milan Kumar Sahoo Lect.	Microprocessor & Interface	5th	E1	4	TH=4+4+4=12	TOTAL=12+6=18
	Microprocessor & Interface	5th	E2	4		
	Network Communication	5th		4		
	Microprocessor Lab.	5th	E1	3	PRAC.= 3+3+4+2=12=1 2/2=6	
	Microprocessor Lab.	5th	E2	3		
	ISAP Lab.	5th		4		
	Technical Seminar.	5th		2		
FACULTY-1	Communication Engg. II	5th		4	TH=4+4+2=10	TOTAL=10+7=17
	Advanced Microprocessor & VLSI	5th		4		
	Environmental Studies	5th		2		
	Communication Engg. II Lab.			4	PRAC.= 4+4+3+3=14=1 4/2=7	
	Advanced Microprocessor & VLSI Lab.			4		
	Microprocessor Lab.	5th	E1	3		
	Microprocessor Lab.	5th	E2	3		
FACULTY-2	Environmental Studies	5th		3	TH=3+2+2=7	TOTAL=7+8=15
	Basic Electronics	1st		2		
	Basic Electronics	1st		2		
	Analog Electronics Lab.	3rd	E1	6	PRAC.= 6+6+4=16=16/ 2=8	
	Analog Electronics Lab.	3rd	E2	6		
	Power Electronics Lab.	5th		4		


LECT. (ETC ENGG.)



HOD (ETC ENGG.)

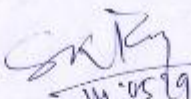

ACADEMIC
CO-ORDINATOR



PRINCIPAL
GOVT. POLYTECHNIC
SAMBALPUR (Sengal)
Odisha-768212

**Teaching load (Theory & Practical) assigned to faculty members of
MECH. ENGG. DEPT. of Govt. Polytechnic, Sambalpur (Rengali) for (W)-2019**

S.N.	Name of Faculty	Subject to teach with Semester	No of periods /week	Effective Teaching Load
1	Sri S. Padhi (HOD I/C)	3 rd Sem. Engineering Materials	05(TH.)	TH(10)+Pr(16/2=8)=18
		3 rd Sem. Mech. Engg. Lab (M1)	06	
		3 rd Sem. Mech. Engg. Lab(Elect. Engg.) (E ₁)	06	
		5 th Sem. Environmental Studies	05(TH.)	
		5 th Sem. TOMM Lab.(M1)	04	
2	Miss R. Parida (Faculty-I)	3 rd Sem. Strength of Materials	05(TH.)	TH(13)+Pr(19/2=9.5)=22.5
		3 rd Sem. Work Shop Practice- II(M1)	07	
		3 rd Sem. Mech. Engg. Drawing(M1)	06	
		5 th Sem. Machine Design	04(TH.)	
		5 th Sem. Production Technology	04(TH.)	
3	Smt. S. Babu (Faculty-II)	3 rd Sem. Heat Power Lab. (M1)	06	TH(14)+Pr(13/2=6.5)=20.5
		3 rd Sem. Thermal Engg.-I	05(TH.)	
		3 rd Sem. Work Shop Practice- II(M2)	07	
		3 rd Sem. Mech. Engg. Drawing(M2)	06	
		3 rd Sem. Elements Of Mechanical Engg. (Electrical) (E ₁)	05(TH.)	
4	Faculty-III	5 th Sem. Applied Thermodynamics	04(TH.)	TH(05)+Pr(12/2=6)=11
		3 rd Sem. Elements Of Mechanical Engg. (Electrical) (E ₂)	05(TH.)	
		3 rd Sem. Mech. Engg. Lab(Elect. Engg.) (E ₂)	06	
5	Faculty-IV	3 rd Sem. Mech. Engg. Lab(M2)	06	TH(04)+Pr(12/2=6)=10
		1 st Sem. Engg. Mechanics	04(TH.)	
		1 st Sem. Workshop Practice (C)	06	
6	Faculty-V	5 th Sem. Heat Power Lab. (M2)	06	TH(04)+Pr(12/2=6)=10
		1 st Sem. Engg. Mechanics	04(TH.)	
		1 st Sem. Workshop Practice (D)	06	
		5 th Sem. TOMM Lab.(M2)	04	
		Professional Development Training	02	


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