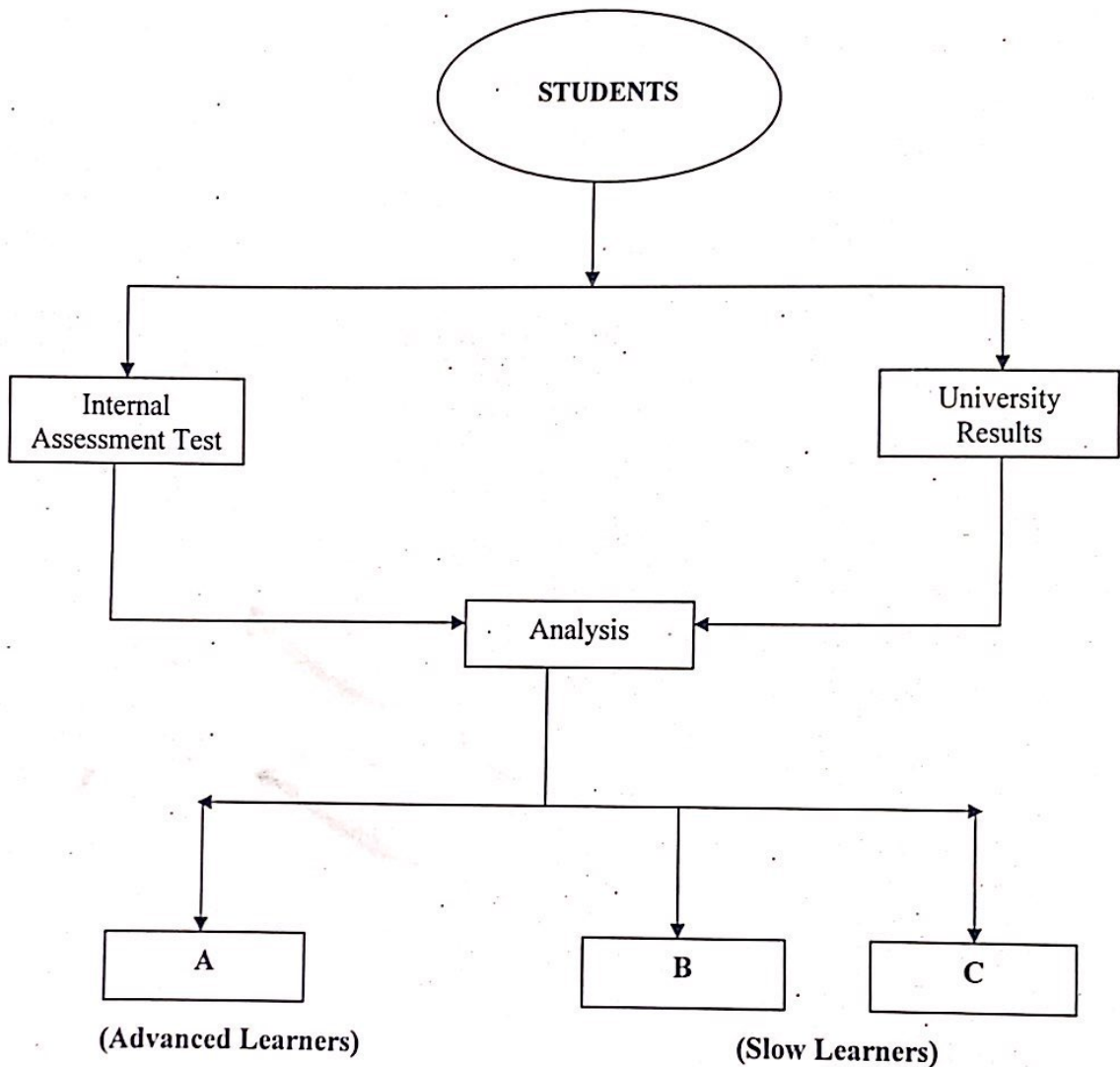
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2.2.1 The institution assesses the learning levels of the students and organises special Programmes for advanced learners and slow learners

S.No	Content	P.No
1	Flow Chart for Assessing Learning Levels and Special Programmes for Advanced and Slow Learners	2
2	Policy Guidelines for Advanced learners and slow learners	3
3	Method of assessment	4
4	Sample Reports of Activities Conducted for Advanced Learners	
	Seminar Presentation	9
	Encourage to participate in other college activities and Inplant Training	16
5	Sample Reports of Measures taken for Slow Learners	
	Remedial class	20
	Handwritten Materials	28



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Flow Chart for Assessing Learning Levels and Special Programmes for Advanced and Slow Learners



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Our policy guidelines for advanced learners and slow learners are listed below.


Policy Guidelines for Advanced learners

1. To achieve the goals, constant motivations are provided for better career planning and growth to the advanced learners.
2. Guiding them to make quality publications in reputed UGC care and Scopus indexed journals.
3. Facilitating them to participate in other college technical and non-technical activities to develop analytical and problem solving abilities in them and thereby, to improve their presentation skills.
4. They are given special appreciations at the end of the academic year for making their ideas become visible.
5. They are made the supporters to the average and the slow learners.

Policy Guidelines for Slow learners

1. The slow learners should be treated as any other student in the class but they can be provided remedial classes for improvement and achievement.
2. Proper guidance and counseling by the department and individual teachers will be given to them.
3. Bilingual explanation and discussions are imparted to the slow learners after the class hours for better understanding.
4. Encouraging the group learning activities and practical will be useful to the slow learners.
5. Provision of simple and easy notes and course material.
6. Peer education strategy.


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Method of Assessment

The students can be assessed to identify their learning levels by different mechanisms. The college has a well-established counseling system/mentorship system in place. Students are assigned to, identified faculty who act as their mentors/counselors. They conduct regular meetings with their student mentees to monitor their academic progress. The assessment procedure can be a statistical process of making the three levels like Category A (High) [Advanced learners], Category B (Average) and Category C (low) [Slow learners]. The Identification criteria for the above said categories of students are given in Table 2.1. Counselors keep a close eye on these students and keep their parents informed about their performance. The change of the students and the levels achievements can also be compared with the previous semester so that the advancements can be assessed and appropriate interventions can be made.

S.NO	Identification Criteria	Category
1.	Students scoring more than 50% of marks in Internal Assessment and all clears in University exam – Advanced learners	A
2.	Students scoring less than 50% of marks in Internal Assessment and upto 3 arrears in University exam – Slow learners	B
3.	Students scoring less than 50% of marks in Internal Assessment and more than 3 arrears in University exam - Slow learners	C

Table 2.1. Identification Criteria


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CIA I TEST ANALYSIS

GROUP A								
S.NO	REGISTER NUMBER	STUDENT NAME	MA8452 SNM	ME8392 MT	MT8491 MPMC	ME8492 KOM	MT8401 THT	NO OF SUBJECTS FAIL
1	812117115004	T.Balakrishnan	66	60	80	91	83	0
2	812117115005	M.Deepak	66	69	65	88	79	0
3	812117115011	N.Mageshwaran	73	73	77	84	77	0
4	812117115015	Mohamed Ithiyas	67	62	64	62	60	0
5	812117115016	Mohammed Hussain	72	85	82	96	87	0
6	812117115017	N.MohammedNowfull	67	82	77	87	82	0
7	812117115026	Sowndarya L	75	82	76	82	86	0
8	812117115032	T. Varshini	75	79	69	67	80	0
GROUP B								
9	812117115002	Ahmed Rifath	49	60	55	64	49	3
10	812117115008	Hasan Harun. A	62	53	76	81	71	1
11	812117115010	Jagatheeswaran.K	50	60	73	74	49	2
12	812117115012	Mohamed Ashib.N	AB	36	46	68	62	3
13	812117115014	Mohamed Fahees. M. E	35	65	60	74	68	1
14	812117115019	Parthiban R	48	70	45	68	47	3
15	812117115022	Raj Kumar M	50	76	53	60	72	2
16	812117115024	Selvamani A	50	39	72	60	82	2
17	812117115302	Dhanush R M	37	51	62	60	65	2
18	812117115303	Praveen S	60	72	67	76	26	1
GROUP C								
19	812117115003	A.Balaji	43	48	27	57	70	4
20	812117115006	Hariharadass G	26	41	51	78	0	4
21	812117115013	Mohammed Fahath S	AB	5	30	61	0	4
22	812117115018	S.NiyasAhamed	35	71	47	49	55	4
23	812117115028	Suriyaprakash S	AB	4	47	60	38	4
24	812117115031	A.Thiruneelan	25	75	4	60	0	3
25	812117115301	Abdul Basith	AB	60	36	39	58	4
26	812117115304	R.SubashChandran	0	50	20	36	26	5

[Signature]
HOD

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PROVISIONAL Results of UG/PG Examinations - APRIL/MAY 2018

College :- 81-8121:M.A.M. SCHOOL OF ENGINEERING
 Branch :- 114:B.E. Mechanical Engineering
 Semester :- 08

Reg. No.	Name	Subj. Code.	ME2041
812111114038	Sakthikumar M		Grade E

Branch :- 115:B.E. Mechatronics Engineering
 Semester :- 02

Reg. No.	Name	Subj. Code.	BE8253	BE8261	GE8261	GE8291	GE8292	HS8251	MA8251	PH8251
812117115002	Ahmed Rifath S		B	O	A	B	B	B+	B	U
812117115003	Balaji A		U	A	A	U	U	U	B	U
812117115004	Balakrishnan Y		B	A	A+	B	B	B	B	B
812117115005	Deepak M		B	A+	A	A	B	B	B	B
812117115006	Hanharadass G		B	O	A	U	U	U	B	U
812117115008	Hasan Harun A		B+	A+	A	A	U	B+	U	B+
812117115009	Imam Thashhaheer K		SA	SA	SA	SA	SA	SA	SA	SA
812117115010	Jagatheeswaran K		U	A+	A	B	U	B	B	U
812117115011	Magathwaran N		B+	A+	A+	B	B	B	B	B
812117115012	Mohamed Ashib N		U	A	A	B	B	B	U	U
812117115013	Mohamed Fahath S		U	A+	A	U	U	U	U	U
812117115014	Mohamed Fahees M E		U	A	A	B	B	B+	B	U
812117115015	Mohamed Ithayas I		B	O	O	B	B	B+	B	B
812117115016	Mohammed Hussain M R		A	A+	O	B	B	B	B	B
812117115017	Mohammed Nowfal N		B	O	O	-B	A	A	B+	B+
812117115018	Niyas Ahmed S		U	A	A	U	U	B+	U	B
812117115019	Parthiban R		B	A+	A	U	U	B	B	U
812117115021	Ragud M		SA	SA	SA	SA	SA	SA	SA	SA
812117115022	Rajkumar M		B	A+	A	B	B	B	B+	U
812117115023	Santhoshkumar A		U	UA	A	U	U	U	U	U
812117115024	Selvamani A		B	A+	A	U	B	B	B	U
812117115025	Sofiahamed P		SA	SA	SA	SA	SA	SA	SA	SA
812117115026	Sowndarya L		B	A+	A+	B	B	A	B+	B+
812117115027	Suhairahnan S		SA	SA	SA	SA	SA	SA	SA	SA
812117115028	Sunayaprakash S		U	A	A	U	U	U	U	U
812117115029	Syed Ibrahim A		SA	SA	SA	SA	SA	SA	SA	SA
812117115030	Syed Ibrahim S		SA	SA	SA	SA	SA	SA	SA	SA
812117115031	Thiruneelan A		U	A+	A+	U	B	B	U	U
812117115032	Varshini T		B	O	A+	B+	B	B+	B	B

Semester :- 01

Reg. No.	Name	Subj. Code.	CY6151	GE6151	GE6152	HS6151	MA6151	PH6151
812113115021	Prabakaran N						UA	
812113115023	Sathish Kumar S		U				UA	
812114115007	Agnel Ilin M						UA	UA
812114115007	Mathiyazhakan K			UA			UA	
812114115002	Vajeeth C		UA	UA				
812114115007	Gowthamanikandan S						UA	
812115115006	Flemingloothuraj A			UA			UA	
812115115006	Janarthanan S		UA	UA			UA	
812115115009	Karthik A					UA	U	
812115115014	Mohamed Abdullah A					UA	UA	U
812115115016	Mukeshkanna P						E	
812115115023	Ranjithkumar S						U	
812115115025	Sathishkumar T				UA		UA	

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S.No	Register Number	Name of the student
1	812117115004	T.Balakrishnan
2	812117115005	M.Deepak
3	812117115011	N.Mageshwaran
4	812117115015	Mohamed Ithyas
5	812117115016	Mohammed Hussain
6	812117115017	N.MohammedNavfal
7	812117115026	Sowndarya L
8	812117115032	T. Varshini

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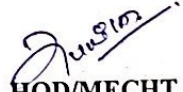
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ACADEMIC YEAR 2020-2021
NAMELIST FOR SLOW LEARNERS

S.No	Register Number	Name of the student
1	812117115002	Ahmed Rifath
2	812117115003	A.Balaji
3	812117115006	Hariharadass G
4	812117115008	HasanHarun. A
5	812117115010	Jagatheeswaran.K
6	812117115012	Mohamed Ashib.N
7	812117115013	Mohammed Fahath S
8	812117115014	Mohamed Fahees. M. E
9	812117115018	S.NiyasAhamed
10	812117115019	Parthiban R
11	812117115022	Raj Kumar M
12	812117115024	Selvamani A
13	812117115028	Suriyaprakash S
14	812117115031	A.Thiruneelan
15	812117115301	Abdul Basith
16	812117115302	Dhanush R M
17	812117115303	Praveen S
18	812117115304	R.SubashChandran


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Sample Reports of Activities Conducted for Advanced Learners

Ref:MAMSE/MECHT/SEMINAR/2020-2021

Date:02.5.2021

CIRCULAR


This is to inform that, seminar will be conducted by the active students of II,III and IV year of Mechatronics Engineering students to improve their learning skills and academic performance. The students concerned are instructed to attend the seminar from 03.05.2021 -08.05.2021 at 9.00am to 9.45 am. The seminar schedule will be shared through the whatsapp group.

Gmeet link: <https://meet.google.com/nht-fkfy-rsy>


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**DEPARTMENT OF MECHATRONICS ENGINEERING
ACADEMIC YEAR 2020-2021
SEMINAR TIMETABLE**

Year/Sem :IV/VIII
Venue: Google meet

Batch:2017-2021
Time:9.00-9.45 A.M

Date	Subject Name	Topic
3.5.2021	ME8591-AHP	Pascal's Law ,Principles of flow
4.5.2021	GE8075-IPR	Digital innovation and development as knowledge assets
5.5.2021	MT8601-DMS	Advanced approaches in mechatronics design
6.5.2021	ME8593-DME	Keyways and splines
7.5.2021	MG8591-POM	Planning Tools and Techniques
8.5.2021	MT8602-IA	Advantages of PLC system


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DEPARTMENT OF MECHATRONICS ENGINEERING ACADEMIC YEAR 2020-2021 ATTENDANCE SHEET

Name of the Subject			AHP	IPR	DMS	DME	POM	IA
S.No	Register No.	Name of the Student	3/5/21	4/5/21	5/5/21	6/5/21	7/5/21	8/5/21
1	812117115002	Ahmed Rifath	P	P	P	P	P	P
2	812117115003	A.Balaji	P	P	P	P	P	P
3	812117115004	T.Balakrishnan	P	P	P	P	P	P
4	812117115005	M.Deepak	P	P	P	P	P	P
5	812117115006	Hariharadass G	P	P	P	P	P	P
6	812117115008	HasanHarun. A	AB	P	P	AB	P	P
7	812117115010	Jagathees Waran.K	P	P	P	P	P	P
8	812117115011	N.Mageshwaran	P	P	P	P	P	P
9	812117115012	Mohamed Ashib.N	P	P	P	P	P	P
10	812117115013	Mohammed Fahath S	P	P	P	P	P	P
11	812117115014	Mohamed Fahees. M. E	P	AB	P	P	P	P
12	812117115015	Mohamed Ithiyas	AB	P	P	P	P	P
13	812117115016	Mohammed Hussain	P	P	P	P	P	P
14	812117115017	N.MohammedNavfal	P	P	P	P	P	P
15	812117115018	S.NiyasAhamed	P	P	P	P	P	P
16	812117115019	Parthiban R	P	P	P	P	P	P
17	812117115022	Raj Kumar M	P	P	P	P	P	P
18	812117115024	Selvamani A	P	P	P	P	P	P
19	812117115026	Sowndarya L	P	P	P	P	AB	P
20	812117115028	Suriyaprakash S	P	P	P	P	P	P
21	812117115031	A.Thiruneelan	P	P	P	P	AB	P
22	812117115032	T. Varshini	AB	P	P	AB	P	P
23	812117115301	Abdul Basith	P	P	P	P	P	P
24	812117115302	Dhanush R M	P	P	P	P	P	P
25	812117115303	Praveen S	P	P	P	P	P	P
26	812117115304	R.SubashChandran	P	P	P	P	AB	P

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SAMPLE SEMINAR TOPIC

Pascal's Law & Principles of flow

Presented by
Ajay.A

Pascal's principle, also called **Pascal's law**, in fluid (gas or liquid) mechanics, statement that, in a fluid at rest in a closed container, a pressure change in one part is transmitted without loss to every portion of the fluid and to the walls of the container. The principle was first enunciated by the French scientist Blaise Pascal.

Pressure is equal to the force divided by the area on which it acts. According to Pascal's principle, in a hydraulic system a pressure exerted on a piston produces an equal increase in pressure on another piston in the system. If the second piston has an area 10 times that of the first, the force on the second piston is 10 times greater, though the pressure is the same as that on the first piston. This effect is exemplified by the hydraulic press, based on Pascal's principle, which is used in such applications as hydraulic brakes.

Formula

$$P = \frac{F}{A}$$

P = pressure

F = force

A = area

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Video inside

THE PROPERTIES OF FLUIDS

- u VISCOSITY
- u SURFACE TENSION
- u COMPRESSIBILITY

Video inside

Viscosity is a measure of a fluid's resistance to flow.

It describes the internal friction of a moving fluid.

A fluid with large viscosity resists motion because its molecular makeup gives it a lot of internal friction.

A fluid with low viscosity flows easily because its molecular makeup results in very little friction when it is in motion.

Video inside

SURFACE TENSION

"Surface tension is a contractive tendency of the surface of a fluid that allows it to resist an external force."

Video inside

FLUID FLOW

A fluid is a substance that continually deforms (flows) under an applied shear stress.

Fluids are a subset of the phases of matter and include liquids, gases.

Fluid flow may be defined as the flow of substances that do not permanently resist distortion

The subject of fluid flow can be divided into fluid statics and fluid dynamics

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video

TYPES OF FLOW

Laminar flow is one in which the fluid particles move in layers or laminar with one layer sliding with other

• There is no exchange of fluid particles from one layer to other

• Avg velocity = $0.5 V_{max}$

• $Re < 2000$

• When velocity of the water is increased the thread of the colored water disappears and mass of the water gets uniformly colored

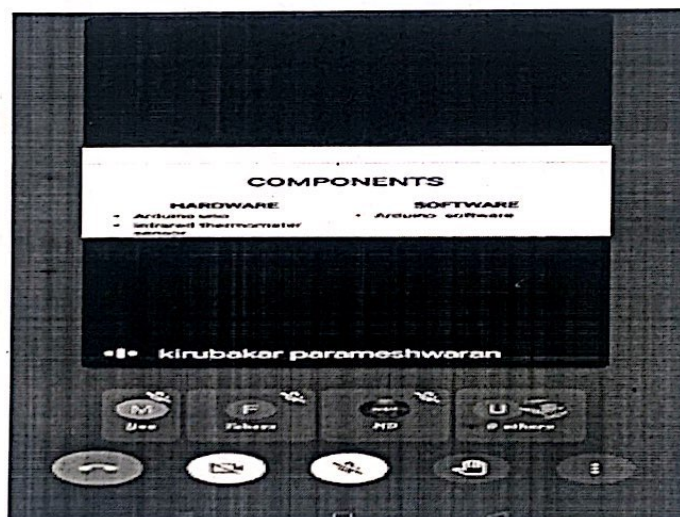
• There is complete mixing of the solution and the flow of the fluid is called as **turbulent flow**

• Avg velocity = $0.8 V_{max}$

• $Re > 4000$

The velocity at which the fluid changes from laminar flow to turbulent flow that velocity is called as **critical velocity**

Thank you



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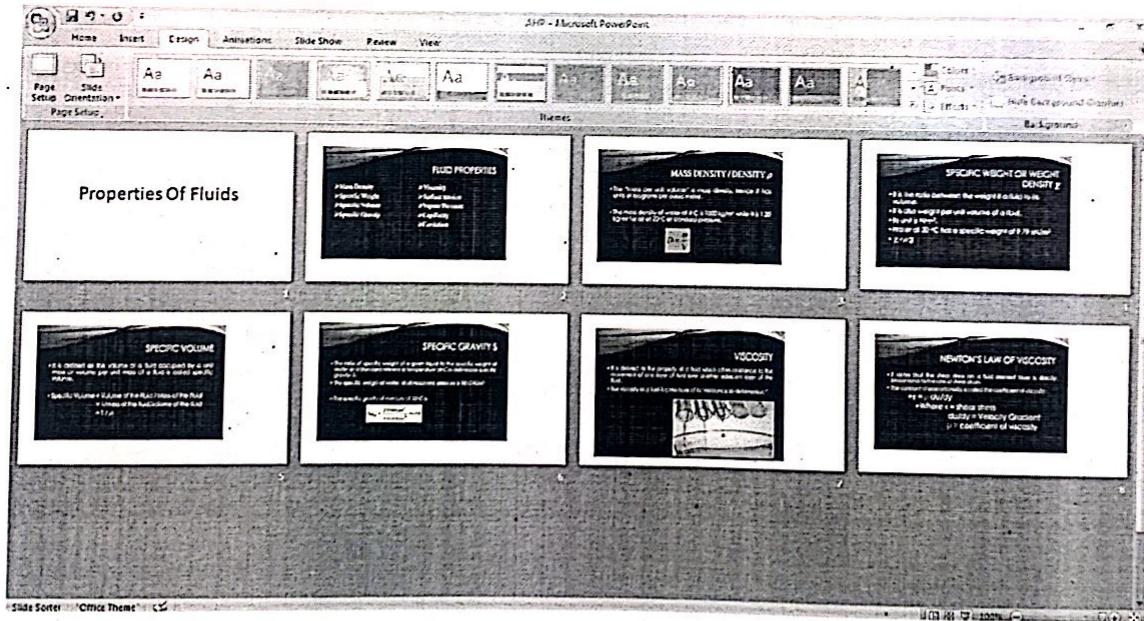
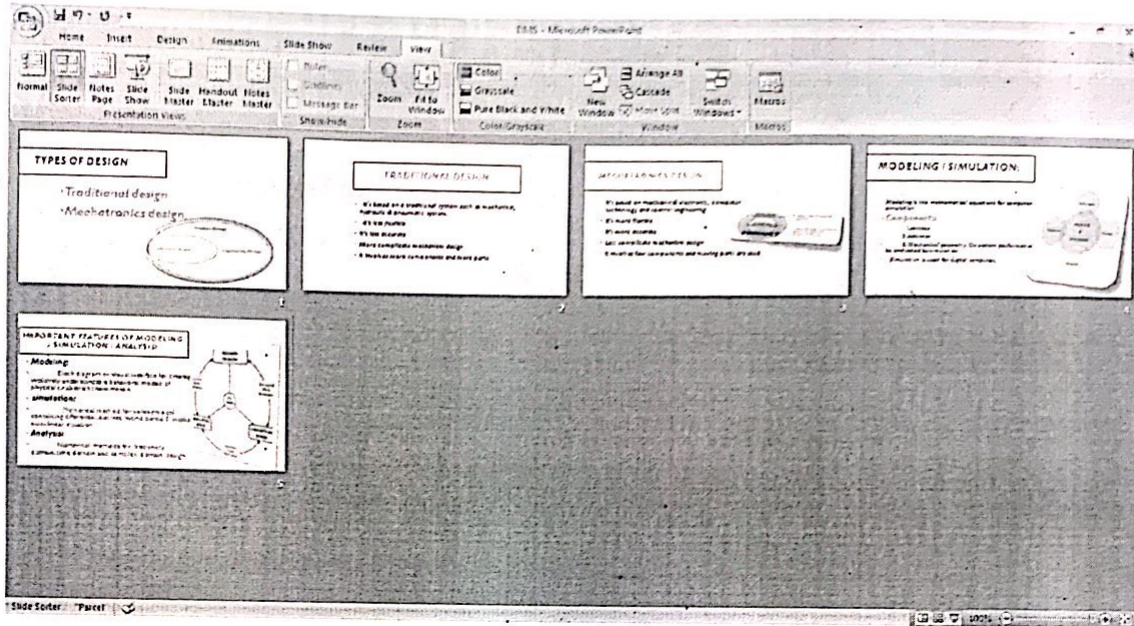
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DEPARTMENT OF MECHATRONICS ENGINEERING ACADEMIC YEAR 2018-2019

Encourage to participate in other college activities and Inplant Training

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CERTIFICATE OF EXCELLENCE

This is to certify that Mr/Ms. Sowadaxya
of M.A.M. SCHOOL OF ENGINEERING has
undergone Inplant Training/ Industrial visit at our premises during the
period from 23.12.18 to 25.12.18.

G. Po
Manager
Pantech ProEd Pvt Ltd

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CERTIFICATE OF EXCELLENCE

This is to certify that Mr/Ms. VARSHINI.T
of M.A.M. SCHOOL OF ENGINEERING has
undergone Inplant Training/ Industrial visit at our premises during the
period from 23.12.18 to 25.12.18.

G. Po
Manager
Pantech ProEd Pvt Ltd

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HOD/MECHT
Head of the Department
Dept. of Mechatronics Engineering
M.A.M. School of Engineering
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HOD/MECHT
Head of the Department
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DEPARTMENT OF MECHATRONICS ENGINEERING ACADEMIC YEAR 2020-2021


Encourage to participate in other college activities and Inplant Training

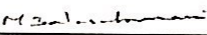
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**NATIONAL CONFERENCE ON
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FAME 2021**


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This is to certify that
Ms. L. SOWNDARYA
MAM SCHOOL OF ENGINEERING has presented a paper titled
GENERATION OF HIGH VOLTAGE WITH VOLTAGE MULTIPLIER
in the Tenth National Conference on "Fascinating Advancements in Mechanical Engineering" organised by the Department of Mechanical Engineering & Mechanical Engineering Association, R.M.K College of Engineering and Technology held on 05th April 2021.


COORDINATOR
Dr.C.Bibin


CONVENER
Dr.M.Balasubramanian



PRINCIPAL
Dr.T.Rengaraja

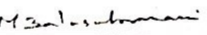
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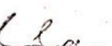


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FAME 2021**

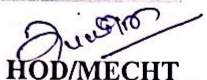
CERTIFICATE OF PARTICIPATION
This is to certify that
Ms. T. VARSHINI
MAM SCHOOL OF ENGINEERING has presented a paper titled
GENERATION OF HIGH VOLTAGE WITH VOLTAGE MULTIPLIER
in the Tenth National Conference on "Fascinating Advancements in Mechanical Engineering" organised by the Department of Mechanical Engineering & Mechanical Engineering Association, R.M.K College of Engineering and Technology held on 05th April 2021.



COORDINATOR
Dr.C.Bibin



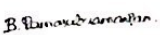


CONVENER
Dr.M.Balasubramanian



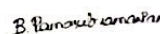


PRINCIPAL
Dr.T.Rengaraja


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CERTIFICATE OF APPRECIATION	
This is to certify that Dr./Mr./Ms. Mohammed Nowfull.N of M.A.M.SCHOOL OF ENGINEERING has presented a paper titled SMART SPEED BREAKING SYSTEM FOR EMERGENCY VEHICLES BY USING RFID	
In the Virtual National Conference on "Recent Advances In Communicative Electronics (NCRACE 2021)" conducted by the Department of Electronics and Communication Engineering, SRM TRP Engineering College, Tiruchirappalli on 25.03.2021.	
 Dr.B.Ramasubramanian HOD/ECE SRM TRP Engineering College	 Dr.B.Ganesh Babu PRINCIPAL SRM TRP Engineering College

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CERTIFICATE OF APPRECIATION	
This is to certify that Dr./Mr./Ms. MAGESHWARAN.N of M.A.M.SCHOOL OF ENGINEERING has presented a paper titled SMART SPEED BREAKING SYSTEM FOR EMERGENCY VEHICLES BY USING RFID	
In the Virtual National Conference on "Recent Advances In Communicative Electronics (NCRACE 2021)" conducted by the Department of Electronics and Communication Engineering, SRM TRP Engineering College, Tiruchirappalli on 25.03.2021.	
 Dr.B.Ramasubramanian HOD/ECE SRM TRP Engineering College	 Dr.B.Ganesh Babu PRINCIPAL SRM TRP Engineering College


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CERTIFICATE

OF PUBLICATION

This is to certify that

MohammedHussain.M. R

Student, Department of Mechatronics Engineering, M.A.M School of Engineering,
Trichy, Tamilnadu, India

Published a paper entitled

"IMPLEMENTATION OF AUTOMATIC GARMENTS FOLDING MACHINE USING SERVO MOTOR"

in

Journal of Huazhong University of Science and Technology

VOLUME 50 ISSUE 05 - 2021

PAPER ID: HST-0521-115

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This is to certify that the paper entitled
Smart Sewage Water System Using GSM Enabled Sensor

Authored by
M. DEEPAK

from
M.A.M School of Engineering, Trichy

Has been published in
INFOKARA RESEARCH, VOLUME 10, ISSUE 5, MAY - 2021


Mathew Hull, Editor-In-Chief, INFOKARA RESEARCH



Mathew Hull
HOD/MECHT

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Sample Reports of Measures taken for Slow Learners

DEPARTMENT OF MECHATRONICS ENGINEERING ACADEMIC YEAR 2018-2019

Ref:MAMSE/MECHT/REMEDIAL/2018-2019

Date:3.2.2019


CIRCULAR

This is to inform that, Remedial classes will be conducted for the slow learners of II, III and IV year of Mechatronics Engineering students to improve their learning skills and academic performance. The slow learners were identified based on the performance of the First internal assessment test. The students concerned are advised to attend the remedial classes from 4.02.2019 onwards at 4.30pm to 5.30pm till university exam scheduled. The remedial class schedule will be displayed in the department notice board.

Copy to
 1. Department Notice board
 2. II, III and IV year MECHT Classroom

M. Chellay
 HOD/MECHT
 Head of the Department
 Dept. of Mechatronics Engineering
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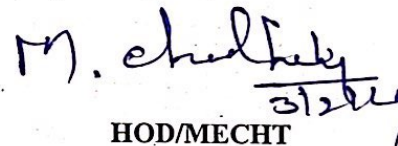
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ACADEMIC YEAR 2018-2019
REMEDIAL CLASS TIMETABLE FOR SLOW LEARNERS**


Year/Sem :II/IV
Venue: II MECHT Classroom

Batch:2017-2021
Time:4.30-5.30 P.M

Date	Subject Name	Faculty Name
04.02.2019	ME8492-Kinematics of Machinery	P.Selvakumar
05.02.2019	ME8392-Manufacturing Technology	S.Tamilarasan
06.02.2019	MT8491-Microprocessors and Microcontrollers	M.Chandrasekar
07.02.2019	MT8401-Thermodynamics and Heat Transfer	K.Parthiban
08.02.2019	MA8452-Statistics and Numerical Methods	K.Balamurugan


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DEPARTMENT OF MECHATRONICS ENGINEERING
ACADEMIC YEAR 2018-2019
DETAILS OF THE TOPIC COVERED
ME8392-Manufacturing Technology


S.No	Name of the Faculty	Signature of the Faculty
1	S.Tamilarasan	<i>S. girey</i>

S.No	Date	Topics Covered during coaching class
1	05.2.2019	Unit 1-Casting & Moulding
2	28.2.2019	Unit 2-Welding processes & welding
3	01.3.2019	Unit 3-Machining process & its operations
4	13.3.2019	Unit 4-Types of plastics & Thermoforming
5	14.3.2019	Unit 5-Metal forming & metallurgy
6	08.4.2019	Revision

S. girey
Faculty In-Charge

M. Chandrasekaran
HOD/MECHT
Head of the Department
Dept. of Mechatronics Engineering
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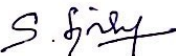
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DEPARTMENT OF MECHATRONICS ENGINEERING
ACADEMIC YEAR 2018-2019
ATTENDANCE FOR SLOW LEARNERS
ME8392-Manufacturing Technology

Year/Sem :II/IV

Batch:2017-2021

S.No	Register Number	Name of the student	05/02/19	28/02/19	1/03/19	13/03/19	14/03/19	8/04/19
1	812117115002	Ahmed Rifath	P	P	P	P	P	P
2	812117115003	A.Balaji	P	P	P	P	P	P
3	812117115006	Hariharadass G	P	P	P	P	P	P
4	812117115008	HasanHarun. A	AB	P	P	P	P	P
5	812117115010	JagatheesWaran.K	P	P	P	P	P	P
6	812117115012	Mohamed Ashib.N	P	P	P	P	P	AB
7	812117115013	Mohammed Fahath S	P	P	P	P	P	P
8	812117115014	Mohamed Fahees. M. E	P	P	P	P	P	P
9	812117115018	S.NiyasAhamed	P	P	P	P	P	P
10	812117115019	Parthiban R	P	P	P	P	P	P
11	812117115022	Raj Kumar M	P	P	P	P	P	P
12	812117115024	Selvamani A	P	P	P	P	P	P
13	812117115028	Suriyaprakash S	P	AB	AB	AB	AB	P
14	812117115031	A.Thiruneelan	P	P	P	P	P	P
15	812117115301	Abdul Basith	P	P	P	P	P	AB
16	812117115302	Dhanush R M	P	P	P	P	P	P
17	812117115303	Praveen S	P	P	P	P	P	P
18	812117115304	R.SubashChandran	P	P	P	P	P	AB


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Department of MECHATRONICS

II - Year / 4 - Sem / A - Section

UNIT TEST-2 - Tracking Sheet

Name of the Subject: Manufacturing Technology

Name of the Faculty: S. Thiruvengadam

5.2.19

S.No	Reg.Id	Student Name	Group	Part A						Part B Mark out of 20
				1	2	3	4	5	6	
1		Praveen	B	P						
2	812117000000	Ahmed Rifath.S	B	9	8					6
3	812117000000	A.Balaji	C	8	9	10	12			18
4	812117000000	Balakrishnana T	A	15	14	12	12			
5	812117000000	M.Deepek	A							
6	812117000000	Hariharadas G	C	9	10	12				
7	812117000000	Hasan Harun A	B	AB						
8	812117000000	Jagatheeswaran.K	B	13	10	11				
9	812117000000	Mageshwaran N	A	8	9	10	11	12		
10	812117000000	Mohamed Ashib.N	B	8	9	13				
11	812117000000	Mohamed Fahath S	C	8	8	12	14	13	15	14
12	812117000000	Mohamed Fahees Me	B	8	9	9	11			
13	812117000000	Mohamed Ithiyas I	A	P	8	10	8	12		
14	812117000000	M.R.Mohamed Hussain	A							
15	812117000000	Mohammed Nowfull.N	A	8	10	11				
16	812117000000	Niyas Ahamed S	C	8	9	11	10			
17	812117000000	Parthiban R	B	8	10	12	11			
18	812117000000	Raj Kumar.M	B	8	10	12	11			4
19	812117000000	A.Santhoshkumar	C	Long Absent						
20	812117000000	Selvamani A	B	8	9	11	12	14	15	8
21	812117000000	Sowndarya L	A							
22	812117000000	Suriyaprakash S	C	12	10					
23	812117000000	Thirunelcan A	C	9	8	10	12	8	6	4
24	812117000000	Varshini.T	A							
25	Lateral entry	Subash Chandran	C	11	12	11	10	8		
26	Lateral entry	Dhanush R M	B	12	14	13	10	11		10
27	Lateral entry	Abdul Basith	C	AB						

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PRINCIPAL

Full day AB - 1
Avg. AB - 1
Percentage - 21

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M.A.M. SCHOOL OF ENGINEERING, TIRUCHIRAPPALLI Department of MECHATRONICS II - Year / 4 - Sem / A - Section CIA 3 - Tracking Sheet

Name of the Subject: ME6392 - MANUFACTURING TECHNOLOGY
Name of the Faculty: S. TAMILARASAN

Date: 28/12/2019

S.No	Reg.Id	Student Name	Group	Part A						Part B Mark out of 20
				1	2	3	4	5	6	
1		Praveen	B	8	10					6
2	812117000000	Ahmed Rifath.S	B	10	8					8
3	812117000000	A.Balaji	C	8	8	8				4
4	812117000000	Balakrishnana T	A	9	10	11				
5	812117000000	M.Deepak	A							
6	812117000000	Haribharadas G	C	7	7	8	11			
7	812117000000	Hasan Harun A	B	8	8	8				
8	812117000000	Jagatheeswaran.K	B	8						
9	812117000000	Mageshwaran N	A							
10	812117000000	Mohamed Ashib.N	B							
11	812117000000	Mohamed Fahath S	C	8	7	8				4
12	812117000000	Mohamed Fahees Me	B	12	8					8
13	812117000000	Mohamed Ithiyas I	A	← →						
14	812117000000	M.R.Mohamed Hussain	A							
15	812117000000	Mohammed Nowfull.N	A							
16	812117000000	Niyas Ahamed S	C	8	8	8				
17	812117000000	Parthiban R	B	7	8	10				
18	812117000000	Raj Kumar.M	B	10	8					
19	812117000000	A.Santhoshkumar	←				10			10
20	812117000000	Selvamani A	B	13	11	8				
21	812117000000	Sowndarya L	A							
22	812117000000	Suriyaprakash S	C	←		10				
23	812117000000	Hiruneeelan A	C	8	8					
24	812117000000	Varshini.T	A							10
25	Lateral entry	Subash Chandran	C	8	7	8				
26	Lateral entry	Dhanush R M	B	8	10	8	8			
27	Lateral entry	Abdul Basith	C	7	7					10

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PRINCIPAL

M. Chuludaty
HOD/MECHT

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Department of MECHATRONICS

II - Year / 4 - Sem / A - Section

Model Exam I - Tracking Sheet

Name of the Subject: MANUFACTURING TECHNOLOGY

Name of the Faculty: S. TAMILARASAN

Date: 13/03/19 to 14/03/19

S.No	Reg.No	Student Name	Group	Part A								Part B Mark out of 20
				1	2	3	4	5	6	7	8	
1	812117115002	Ahmed Rifath.S	B	6	7							
2	812117115003	A.Balaji	C	6	6							
3	812117115004	Balakrishna T	A	10	11	8	5					
4	812117115005	M.Deepek	A	9								
5	812117115006	Hariharadas G	C	8	8							
6	812117115008	Hasan Harun A	B	7	6							
7	812117115010	Jagatheeswaran.K	B	5	5							
8	812117115011	Mageshwaran N	A									
9	812117115012	Mohamed Ashib.N	B	7	5							
10	812117115013	Mohamed Fahath S	C	8	8	3						
11	812117115014	Mohamed Fahees Me	B	9	5							
12	812117115015	Mohamed Ithias I	A	8	8	7	9					4
13	812117115016	M.R.Mohamed Hussain	A									
14	812117115017	Mohammed Nowfull.N	A									
15	812117115018	Niyas Ahamed S	C	6	7	5						
16	812117115019	Parthiban R	B	11	6	7	6	8				
17	812117115022	Raj Kumar.M	B	10	10							
18	812117115023	A.Santhosh:kumar	B	9	8	6	7	10				8
19	812117115024	Selvamani A	A									
20	812117115026	Sowndarya L	C	6				10				
21	812117115028	Suriyaprakash S	C	9	6	6	10					
22	812117115031	Thirumelalan A	C	9	6	6	10					
23	812117115032	Varshini.T	A									
24	812117115301	Abdul Basith	C	6	5	4						
25	812117115302	Dhanush R M	B	5	5	6	7					
26	812117115303	Praveen	B	6	5	7						
27	812117115304	Subash Chandran	C	5	5	5						

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Principal

M. Chellay
14/3/19

HOD/MECHT

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Department of MECHATRONICS

II - Year / 4 - Sem / A - Section

Date : 08/04/19

Subject : Manufacturing Technology - I

SN O	REG NO	STUDENT NAME	Day Scholar/ Hosteler	No of Univ. Arrears	Group	Part B Questions						No of Part A Questions Written	Remarks
						1	2	3	4	5	6		
1	812117115002	Ahmed Rifath S	D	11	B	08	7	5	7	8		2	
2	812117115003	A Balaji	H	11	C	06	2	7	3	8		4	
3	812117115004	Balakrishnan T	H	3	A	06	7	6	5	7		3	
4	812117115006	Harisharan G	D	14	C	7	7	8	1	6		3	
5	812117115008	Hasan Harun A	D	7	B	8	7	5	8	7		2	
6	812117115010	Jagatheeswaran K	D	8	B	9	6	5	7	7		3	
7	812117115012	Mohamed Ashraf N	D	12	B	2	7	7	6	8		6	
8	812117115013	Mohamed Fahadh S	D	16	C	AB	7	AB	SE	7		AB	
9	812117115014	Mohamed Fahad Me	H	8	B	6	8	8	9			2	
10	812117115015	Mohamed Irfayaz I	D	1	A	5	8	7	7			2	
11	812117115018	Niyas Ahmed S	D	10	C	2	7	5	5	7		4	
12	812117115019	Parthiban R	H	11	B	8	7	5	4			2	
13	812117115022	Raj Kumar M	H	7	B	6	7	7	8	7		2	
14	812117115024	Selvarajini A	H	5	B	9	8	8	9			2	
15	812117115028	Suryaprakash S	H	13	C	2	7	8	9	8		3	
16	812117115031	Thiruvellur A	H	11	C	2	7	2	8	8		3	
17	812117115501	Abdul Basith	D		C	AB	7	AB	SE	7		AB	
18	812117115502	Abiraj R M	D	3	B	04	7	5	5	5		2	
19	812117115505	Praveen	D	2	B	07	8	7	5			2	
20	812117115504	Narath Chandran	D	6	C	AB	7	AB	SE	7		AB	

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Unit Hand Written Notes

METAL CASTING PROCESSES

Sand Casting

- * Casting is one of the processes used for making components of complicated shapes in large quantities.
- * It is the process of producing metal parts by pouring molten metal into mould cavity.
- * The solidified metal piece is called as casting.

Sand Moulding

Mould is the cavity of the required shape made in moulding sand or in other material. The moulding process consists of all operations done to make a mould.

Types of pattern:-

Patterns are classified according to the usage and forms of the pattern. Following factors are considered at the time of selection of pattern.

- * Size and complexity of the shape
- * Number of components to be produced
- * method of casting to be used.

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Types

- * Solid pattern
- * Split pattern
- * Loose piece pattern
- * Match plate pattern
- * Sweep pattern
- * Skeleton pattern
- * Segmented pattern
- * Shell pattern

Pattern materials:-

Patterns are made by different materials which have their own advantages, limitations and their field of applications.

- * Wood (Teak wood, mahogany, white pine, etc...)
- * metal (Cast iron, Brass, aluminium, white metal etc)
- * Plaster
- * Plastics
- * Wax

The following factors are considered for the selecting of pattern materials.

- * Design of casting.
- * Number of castings to be produced.
- * Degree of accuracy and surface finish required.
- * Shape, Complexity and size of the casting.
- * Casting or moulding method adopted.

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Pattern Allowances:-

- * Patterns are not made into the exact size of the castings to be produced.
- * Patterns are made slightly larger than the required castings.
- * The extra size given on the pattern is called Pattern allowances.

Types of Pattern allowances:-

- * Shrinkage Allowance.
- * Machining Allowance.
- * Draft Allowance
- * Distortion Allowance
- * Rapping Allowance.

Moulding Sand:-

The special type of sand is used for making mould. Moulding sand essentially contains the following three constituents.

- * Refractory sand
- * Binder.
- * Additive.


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Types of Moulding Sand:-

- * Green Sand
- * Dry Sand
- * Facing Sand
- * Lean Sand
- * Backing Sand
- * Parting Sand

Properties of Moulding Sand:-

A good casting can be produced only with the use of good quality moulding sand. These properties are

- * Porosity (or) Permeability
- * Plasticity (or) Flowability
- * Adhesiveness
- * Strength (or) Cohesiveness
- * Refractoriness
- * Collapsibility

Testing of Moulding Sand:-

* Moulding sand have to be correct in size to ensure the proper sand quality as per the required level of accuracy and good surface finished castings.

* Generally it contains silica and grains, clay content and moisture content.

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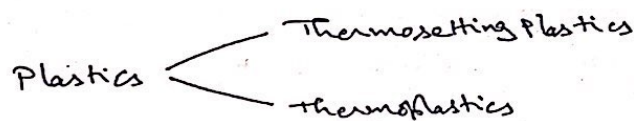
UNIT-5

Manufacture of Plastic components

Characteristics of Plastics

- (i) Elongation
- (ii) heat resistance
- (iii) high rigidity
- (iv) Surface hardness
- (v) high viscosity
- (vi) Maximum usage temperature
- (vii) Density
- (viii) Ignition temperature
- (ix) Humidity absorption
- (x) Chemical resistance

Types of Plastics



Thermosetting Plastics

- Plastics which are hardened by heat effecting a non-reversible chemical change are called Thermo-setting.
- do not soften on reheating & cannot be reworked
- formed by condensation polymerization
 - 2 or more unlike monomers are linked
- molecules of such type have 3D network & have very strong binding force b/w molecules.

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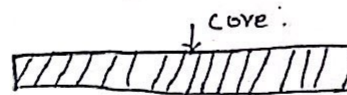
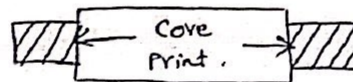
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The following Sand Control tests are carried out on moulding sand.

- * Moisture Content test.
- * Clay Content test.
- * Grain fineness test.
- * Permeability test.
- * Strength test.
- * Deformation and toughness test.
- * Hot strength test.
- * Refractoriness test.
- * Mould hardness test.

Cores:

- * A core is a body made of sand which is used to make a cavity (or) a hole in the casting.
- * The shape of the core is similar to the required cavity in the casting to be made.
- * It is also used to make recesses, projections, undercuts, and internal cavities.



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Thermoplastics

- has separate long and large size molecules arranged side by side.
- does not have any cross-linking
- Some are amorphous in nature & some are crystalline in nature
- formed by addition polymerization
 - similar monomers of large ~~molecules~~ numbers are chemically added one by one
- hardens on cooling & softens on heating
- can be easily extended & remoulded to any shape
- does not have definite melting temperature

Thermoplastics

1. Softened by heating
2. Structure is made of linear chain molecules
3. Produced by addition polymerization process
4. Can be reproduced by heating & cooling
5. Temp. increases with increase in plasticity
6. Strong & less strong
7. Scrap can be reused

Thermosetting plastics

- Cannot be softened
- Structure is made of cross-linked molecules
- Produced by condensation polymerization process
- Cannot be reproduced
- Plasticity is stable @ high temp.
- Harder & strong
- Scrap cannot be reused

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Moulding of Thermoplastics

1. Injection moulding ← Ram / plunger type injection moulding
Screw type injection moulding
2. Blow moulding
3. Rotational moulding
4. Film Blowing
5. Extrusion or process
6. Vacuum forming (thermoforming)

Injection moulding

Principle - used to achieve high speed moulding of thermoplastics.
- here the molten thermoplastic is injected into a mould under high pressure.

Operation

- The moulding mtl. is loaded into a hopper from which it is ~~trans~~ transferred to a heating section by a feeding device maintained @ 150°C to 370°C .
- The mtl. melts & is forced by an injection ram / plunger through a nozzle & sprue in a closed mold which forms the part.

Ram / plunger type injection moulding:

- Consists of 2 units
 1. Injection unit
 2. Clamping unit


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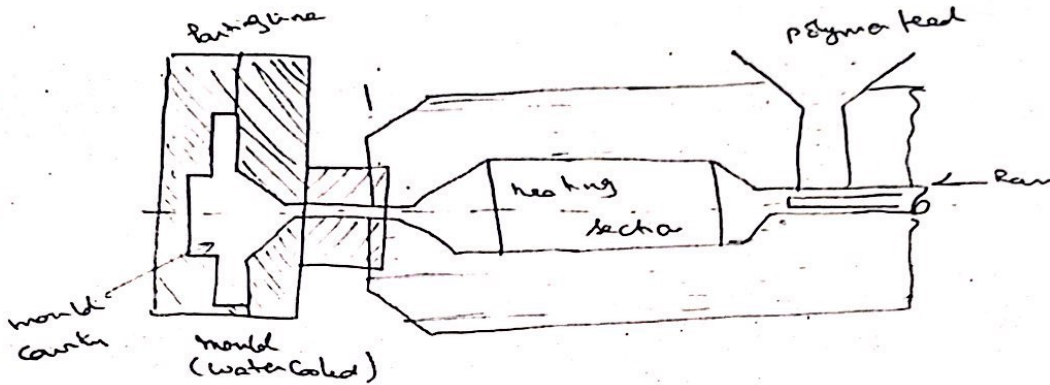
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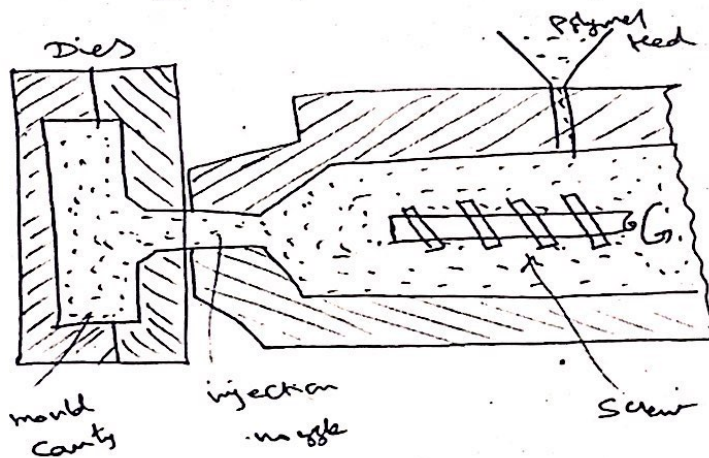
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- Polymer is filled & fed into the heating section by means of a hopper.
- The heated mtl. is injected by means of a ram, which forces the mtl. to fill in the mould cavity through nozzle, to get reqd. shape of plastics.

Screw type injection moulding

- consists of 2 units
 1. Injection unit (hopper, screw & heating section)
 2. clamping unit (mould)



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- Pellets are fed into hopper & screws are pushed along with the heated reciprocating screw.
- Screw is moved forward to force the plastic melt into mold.
- The rotation of screw provides the plasticizing action by shearing & frictional effects.
- Injection Capacity of moulding m/c (injection) ranges from 12 cm^3 to $2.2 \times 10^6 \text{ cm}^3$.

Advantages

- high Production capacity
- low cost
- complex threads can be made
- Accuracy of $\pm 0.02 \text{ mm}$ is achieved
- wide range of shape can be moulded

Applications

- used in making parts of complex threads
- Intricate shapes such as thin walled parts can be produced
- Typical shapes like toys, plumbing fittings, knobs are produced
- Electrical & Communication components can be produced

Limitation:

1. Equipment like cylinder & die must be non-corrosive
2. reliable temp. control is essential.

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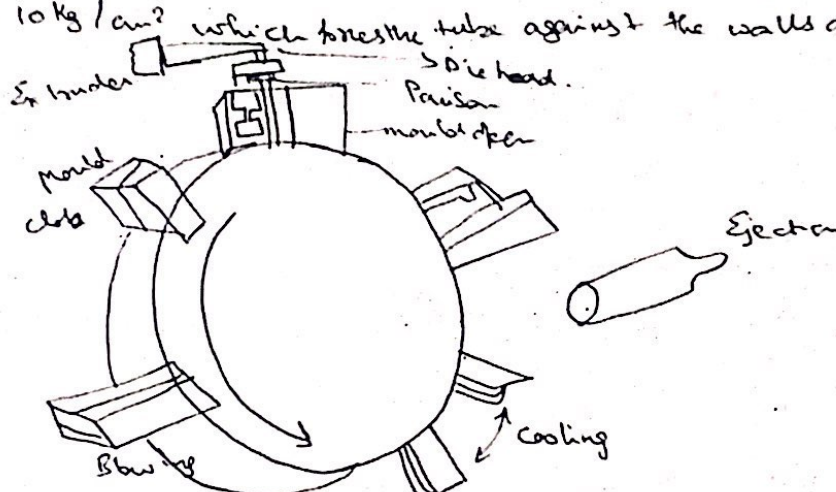
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Blow moulding

- Hot extruded tube of plastic called Parison is placed b/w 2 parts of open moulds
- Bottom end of parison is sealed
- Compressed air is used to blow the molten plastic into the mould about 0.7 to 10 kg/cm² which forces the tube against the walls of mold



- Component is cooled & the mould opens to release the component.
- Blow moulding method ranges from simple manual opn. to complicated automatic ones.

Applications:

1. used in making plastic bottles & toys
2. hollow containers are produced by this process
3. multi-layer blow moulding is used in cosmetic & pharmaceutical industries.

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Rotational molding:

- used to make thin walled hollow parts.
- The mold is closed & it is rotated about 2 mutually \perp axes as it is heated.
- The rotation will cause the powder to smother against the mold walls.
- After heating & skinning, the mold is cooled by using water or air.
- The rotation is stopped when the moulded component is removed.
- A measured quantity of powdered plastic mat. is placed inside the mold.
- Most of the thermoplastics & some thermosets can be formed into large hollow parts by rotational moulding.
- In some parts chemical agents are added.
- Large sized parts 1.5m x 1.5m x 3-6m can also be formed by this process.
- The temp. time relationship during the oven cycle is very important.

Applications:

1. used to produce toys in P.V.C
2. used to make large containers of Polyethylene
3. used to make petrol tanks for motor cars from Polyethylene & nylon.
4. used to produce tanks of various sizes, boat hulls & football.

Ex 2 Film Blowing

- Initially heated Plastic powder is extruded by extruder.
- Crystalline sharp melting polymers are suited for the film productions by melt casting techniques.

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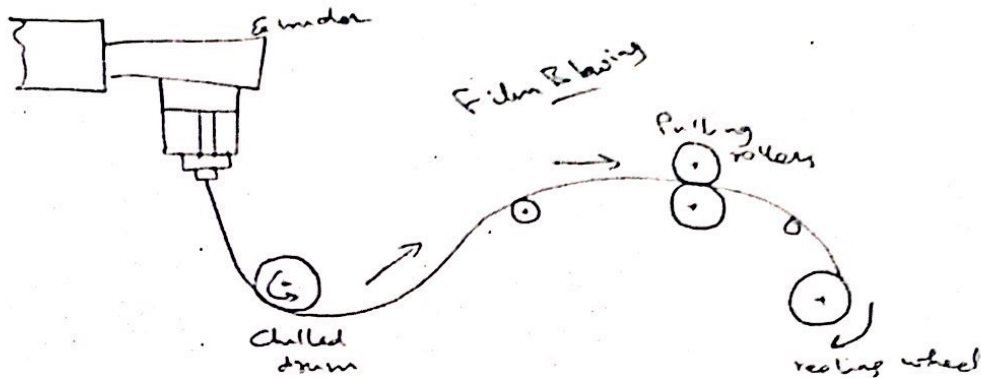
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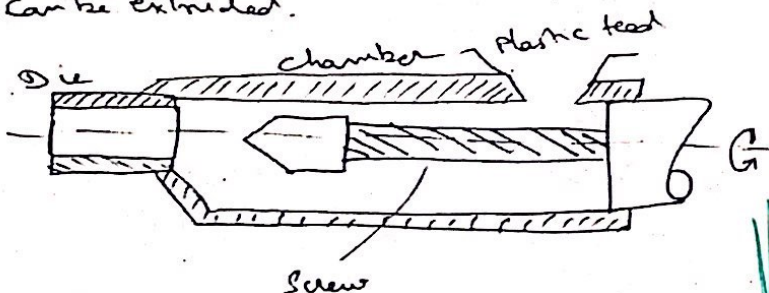
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- After extruding the thin film, it is stretched by the pulling rollers.
- The thin film is cooled in the chilled drum & rollers are used to pull the film from chilled drum.

Extrusion Process

- A rotating screw carries the powder料 through hopper into the heated chamber & forces it out through the heated orifice of the die.
- The mould is suitably cooled by water or air-blast & carried away by a running belt.
- For the extrusion of plastics, a single screw machine has completely replaced the ram type machine.
- The screw imparts both axial & rotary motions. The restricting effect of the die will build up a pressure until it is in a plastic state & can be extruded.



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DEPARTMENT OF MECHATRONICS ENGINEERING

ME8392 MANUFACTURING TECHNOLOGY -1

L-METALCASTING PROCESSES

PART-B (16 MARKS)

1. i. Discuss the properties of mouldings
ii. What are the various moulding methods, explain them
2. i. Explain the working principle of investment casting
ii. Discuss the casting defects and their inspection methods
3. i. What are the pattern making allowances and briefly explain them
ii. Describe centrifugal casting process
4. i. Describe the shell moulding process
ii. Explain the ceramic moulding process and state its merits and demerits
5. i. What are the factors which govern the selection of a proper material for pattern making?
ii. What are the specific advantages of match plate patterns? Explain how they are used for making mould
6. i. Classify the types of patterns and sketch any three of them
ii. What is core and explain how to make a core?
7. i. Explain the construction and operation of Cupola furnace with diagram
ii. Write a short note on "Chills"
8. i. Describe various materials used for making patterns. What are its merits and demerits
ii. What are the basic requirements of cores and? How does it differ from the moulding sand?
9. i. What are the different types of furnace used in foundry? Describe in detail with neat sketches any one of them
ii. Describe the steps involved in the preparation of green sand mould with cope and drag pattern
10. i. Briefly explain cold-chamber die casting process with a neat sketch
ii. What are the advantages of centrifugal casting?

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II-JOINING PROCESSES

PART-B(16 MARKS)

1. i. Distinguish between gas and arc welding
ii. What are the advantages of welding?
iii. Explain percussion welding
2. i. Describe Electroslag welding
ii. Distinguish between soldering and brazing
3. i. Explain spot welding
ii. Explain submerged arc welding
4. i. Explain the electron beam welding process with a neat sketch
ii. Write a brief note on "Welding defects"
5. i. Sketch the three types of Oxy-acetylene flames and state their characteristics and applications.
ii. Describe the electro-slag welding process with a neat sketch.
6. i. What is the principle of resistance welding and explain the seam welding?
ii. Describe plasma arc welding
7. i. What are the different types of electrode? What are the functions of flux coating?
ii. What is the principle of friction welding?
8. i. Describe metal inert Gas arc welding process with a neat sketch.
ii. Briefly explain on butt welding process
9. i. Give a brief account of classification of welding processes?
ii. Explain TIG welding process variables and enumerate its advantages
10. i. Describe shielded metal arc welding process with suitable diagram. What are its applications?
ii. What is the difference between welding, brazing and soldering process?

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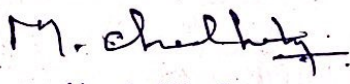
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III-BULK DEFORMATION PROCESSES **PART-B(16 MARKS)**

1. Classify the types of forging machines and explain any one
2. Explain the forward and back extrusion process
3. i. Classify the types of rolling mills and sketch them
ii. List out various forging defects
4. i. Describe hydrostatic extrusion process.
ii. Compare press forging and hammer forging
5. i. Explain the tube piercing process
ii. Distinguish hot and cold extrusion process and briefly explain one in each.
6. i. Describe the principle of rolling. Write the various kinds of rolling mills along with their applications
ii. What are the types of power hammers available and explain the pneumatic hammer with a neat sketch
7. i. Describe the difference between a bloom, slab and billet. Explain the features of different types of rolling process.
ii. Discuss the effects of temperature, strain rate and friction on metal forming process
8. i. Explain with a sketch, what is meant by flat strip rolling.
ii. Explain the procedure for making the head of Bolt by forging operation
9. i. Name the hand forging operation and explain briefly about them.
ii. Explain with a neat sketch of roll forging process.
10. Describe the following processes
a. Roll die forging b. Skew rolling c. Ring rolling


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IV-SHEET METAL PROCESSES

PART-B(16 MARKS)

1. i. Explain any one stretch forming operation
- ii. Define form ability and how it is tested?
- iii. What is drawing operation?
2. i. Explain the metal spinning operation
- ii. Describe the magnetic pulse forming process
3. What is deep drawing operation? Explain with a neat sketch.
4. i. Explain rubber pad forming process
- ii. Describe the electro hydraulic forming process
5. i. Describe the explosive forming process
- ii. How are aluminium kitchen utensils produced?
6. i. Describe the process of hydro forming
- ii. Describe the various methods of rubber forming. Where are these processes used?
7. i. What is super plastic forming?
- ii. Describe the hydro forming process with the help of neat diagram
8. i. Explain the characteristic features of sheet metal used in forming process
- ii. Explain peen forming process
9. i. Find the total pressure, dimensions of tools to produce a washer 5cm outside dia with a 2.4cm diameter hole, from a material 14mm thick, having a shear strength of 360 N/mm^2
- ii. Determine a) blank diameter b) Least no. drawing operations c) force and energy for the first draw with 40% reduction to produce a cup of 5 cm in diameter and 7.5cm deep to be drawn from 1.5mm thick drawing steel with a tensile strength of 315 N/mm
10. i. Estimate the blanking force to cut a blank 30mm and 35 mm long from a 1.5 mm thick metal strip, if the ultimate shear stress of the material is 450 N/mm^2 . Also determine the work done if the percentage penetration is 25% of material thickness
- ii. A blank has a perimeter of 31.75cm. The metal is 1mm thick cold worked 0.15% carbon steel with a shear strength of 420 N/mm^2 and percent penetration of 25%. Two holes of 1.25cm diameter each are to be pierced during the same stroke when the piece is blanked. What are the forces required for blanking and for piercing? What is the maximum force the press must exert at any one time without shear?
- iii. Estimate the blanking force to cut a blank 30 mm wide and 35 mm long from a 1.8mm strip if the ultimate shear stress of the material is 450 N/mm^2 . Also determine the work done if the percentage penetration is 25% of material thickness.

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V-MANUFACTURING OF PLASTIC COMPONENTS

PART- B(16 MARKS)

1. Explain the principle of injection moulding process
2. i. Describe any method of bonding thermo plastics
ii. What is laminating? Explain the low pressure method of laminating
3. i. Explain the transfer moulding process
ii. Why screw injection moulding machine is better than a ram type injection moulding machine?
4. i. Describe the compression moulding process
ii. Describe briefly any two thermo plastics and thermosetting plastics
5. What are the process used for processing of thermoplastic. Explain any one process with suitable sketches
6. What is thermo forming process. Explain with a neat sketch
7. Describe film blowing operation
8. Explain Rotational moulding
9. i. Explain blow moulding process with its salient features
ii. What are the additives to be mixed in processing plastics and explain the purpose of each.
10. i. Describe different types of plastics with applications of each type
ii. How do thermoplastics differ from thermo setting plastics?

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