CRITERION -2 TEACHING-LEARNING AND EVALUATION

KEY INDICATOR 2.5- EVALUATION PROCESS AND REFORMS

Metric No 2.5.1 Mechanism of Internal Assessment is Transparent and Robust in Terms of Frequency and Mode

Dr. J.SUNDARARAJAN,
B.E., M.Tech., Ph.D.,
Principal
N.P.R. College of Engineering & Technology
Natham, Dindigul (Dt) - 624 401.

ACADEMIC YEAR
2022 - 23

Internal Assessment Schedule

ANNA UNIVERSITY:: CHENNAI 600 025

Internal Assessment Schedule for Non Autonomous Affiliated Institutions

AUGUST2022 - DECEMBER 2022 - For all UG - Programmes (ODD SEMESTER-EXCEPT III SEMESTER)

Report No	Report Period	Test Period	Report Entry Period
I	10-08-2022 –23-08-2022	----	29-09-2022 – 06-10-2022
II	24-08-2022 -- 21-09-2022	16-09-2022 -- 21-09-2022	29-09-2022 -- 06-10-2022
III	22-09-2022 -- 21-10-2022	17-10-2022 -- 21-10-2022	21-10-2022 --29-10-2022
IV	22-10-2022 -- 19-11-2022	14-11-2022 -- 19-11-2022	19-11-2022 -- 21-11-2022

Saturdays may be included as working days to make good the Shortages, if any.

19.09.2022
CONTROLLER OF EXAMINATIONS

19-09-22

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NPRCET/Exam Cell/2022-23/01

05.09.2022

CIRCULAR

All the Head of the department are instructed to check the quality of the internal test –I question Papers of their respective departments. Please follow the below mentioned procedures and report to the undersigned.

- Allocation of questions must be based on bloom taxonomy.
- Submit the Question Bank for all the respective subjects within prescribed date.
- Instruct the faculty members to complete the evaluation process on the fourth day from the date of their respective test.
- Submit the internal and squad invigilators list to the COE section prior to the Internal test-I.

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Copy to

1. COE
2. All Hods/ Concerned Faculties
3. File

S. No.	Name of the HoD	Department	Signature
1.	Dr. A. Hemalatha	Civil	
2.	Dr. R. Ramanan	CSE	
3.	Dr. A. Gopi Saminathan	ECE	
4.	Dr. K. Kanimozhi	EEE	
5.	Dr. T. Saravana Kannan	MECH	
6.	Dr. B. Velmurugan	MBA	
7.	Dr. N. Prabakaran	S&H	

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NPRCET/Exam Cell/2022-23/02

05.09.2022

ODD SEMESTER (2021-22)-SEPTEMBER 2021

FIRST INTERNAL ASSESSMENT TEST –INSTRUCTIONS

First Internal tests for II, III & IV years will be conducted from 14.09.2022 (Wednesday) to 21.09.2022 (Wednesday). All the faculty members handling subject for III, V, and VII semester are requested to submit their question bank through the respective HoDs on or before 09.09.2022 (Friday).

Syllabus: First two units only

Important instructions regarding question paper setting

- Faculty handling members are requested to submit the question bank for their respective subjects
- The file name of the question bank is to be saved as (year-semester-department-subject code and name)
- Example: III-6 MECANICAL-ME8692-Finite Element Analysis.
- Late submission of the question bank is not encouraged

Exam Cell Coordinator

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Natham, Dindigul (Dt), 624 401.

Copy to

1. All Hods/ Concerned Faculties
2. File

INTERNAL QUESTION PATTERN

Register Number:

Department of …… Engineering

INTERNAL TEST- I / II

Subject code & Name:

Year &Semester:

Duration: 90 Minutes **Date:** **Maximum marks: 50**

Course Outcomes, Question Number, Marks:

COs	CO1	CO2
Ques. No.		
Max. Marks		

COs & K-Level:

CO1:

CO2:

K-Levels	K1: Remember	K2: Understand	K3: Apply	K4: Analyse	K5: Evaluate	K6: Create

Q.No.	Answer All Questions	Bloom's Taxonomy K-level
PART – A (5 x 2 = 10 marks)		
1.		

2.			
3.			
4.			
5.			
PART – B (1 x 8 = 8 marks)			
6.		(8)	
PART – C (2 x16 = 32 marks)			
7.		(16)	
8.	(i)	(8)	
	(ii)	(8)	

Faculty In-Charge **HoD**

Note: In Part C, questions can be set for 16 marks if the answer is very lengthy otherwise two or more sub-divisions can be included in each full question with break-up of marks indicated in brackets.

INTERNAL QUESTION PAPER

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Register Number: | | | | | | | | | | | | |

INTERNAL EXAMINATION I – SEPTEMBER 2022

7th Semester – Mechanical Engineering

OIE751 – ROBOTICS

Duration: **90 Minutes** Date:21.09.2022 Maximum marks: **50**

Course Outcomes ,Question Number, Marks:

COs	CO1	CO2	CO3	CO4	CO5
Ques. No.	1,2,3,6,8	4,5,7	-	-	-
Max. Marks	30	20	-	-	-

COs & K-Level:

CO1: Explain the concepts of industrial robots, classification, specifications, and coordinate systems. Also summarize the need and application of robots in different sectors.

CO2: Illustrate the different types of robot drive systems as well as robot end effectors.

C03: Apply the different sensors and image processing techniques in robotics to improve the ability of robots.

C04: Develop robotic programs for different tasks and familiarize with the kinematics motions of robot

C05: Examine the implementation of robots in various industrial sectors and interpolate the economic analysis of robots.

K-Levels	K1: Remember	K2: Understand	K3: Apply	K4: Analyze	K5: Evaluate	K6: Create

Q. No.	Answer All Questions	Bloom's Taxonomy K-level
	PART – A (5 x 2 = 10 marks)	
1.	Define Pitch, yaw and roll.	K2
2.	What is work volume?	K2
3.	Identify the three degrees of freedom related to arm and body motion.	K2
4.	Give some examples of Robot End Effector.	K2
5.	Define end effectors.	K1
	PART – B (1 x 8 = 8 marks)	
6.	Classify the industrial robots and briefly describe it.	K2
	PART – C (2 x16 = 32 marks)	
7.	Briefly Explain about Pneumatic actuators system with neat sketch.	K2
8.	Describe in detail the anatomy of an industrial robot	K2

Faculty In-Charge HOD-MECH.

B.E - INTERNAL TEST - I - September - 2021

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INTERNAL TEST SCHEDULE

Time: 11.15 a.m. – 12.45 p.m. **Date: 08.09.2022**

DATE	IV YEAR / VII SEMESTER				
	CIVIL	CSE	EEE	ECE	MECH
14.09.2022 Wednesday	CE8701 Estimation, Costing and Valuation Engineering	MG8591 Principles of Management	EE8703- Renewable Energy Systems	EC8751 Optical Communication	ME8792 Power Plant Engineering
15.09.2022 Thursday	CE8702 Railways, Airports, Docks and Harbour Engineering	CS8792 Cryptography and Network Security	EE8702-Power System Operation and Control	EC8702 Ad hoc and Wireless Sensor Networks	ME8793 Process Planning and Cost Estimation
16.09.2022 Friday	CE8703 Structural Design and Drawing	CS8791 Cloud Computing	EE8701-High Voltage Engineering	EC8791 Embedded and Real Time Systems	ME8791 Mechatronics
19.09.2022 Monday	EN8591 - Municipal Solid Waste Management	CS8079 - Human Computer Interaction	EI6703-Fibre Optics and Laser Instruments	EC8701 Antennas and Microwave Engineering	OIE751 - Robotics
20.09.2022 Tuesday	OME754 - Industrial Safety	GE8077 - Total Quality Management	EE8010- Power System Transients	EC8092 - Advanced Wireless Communication	ME8073 - Unconventional Machining Processes
21.09.2022 Wednesday	-	OIE751 - Robotics	OML555 – Testing of Materials	OIC751 - Transducers Engineering	ME8097 - Non-Destructive Testing and Evaluation

DATE	III YEAR / V SEMESTER				
	CIVIL	CSE	EEE	ECE	MECH
14.09.2022 Wednesday	CE8501-Design of Reinforced Cement Concrete Elements	CS8591-Computer Networks	CS8392-Object Oriented Programming	EC8501-Digital Communication	ME8595-Thermal Engineering-II
15.09.2022 Thursday	CE8502-Structural Analysis I	MA8551-Algebra and Number Theory	OMD551-Basic of Bio-Medical Instrumentation	EC8553-Discrete-Time Signal Processing	ME8593-Design of Machine Elements
16.09.2022 Friday	CE8591-Foundation Engineering	EC8691 -Microprocessors and Microcontrollers	EE8551-Microprocessors and Microcontrollers	EC8552-Computer Architecture& Organization	ME8501-Metrology and Measurements
19.09.2022 Monday	EN8491-Water Supply Engineering	CS8501 -Theory of Computation	EE8552-Power Electronics	EC8551-Communication Networks	ME8594-Dynamics of Machines
20.09.2022 Tuesday	GI8013-Advanced Surveying	CS8592 -Object Oriented Analysis and Design	EE8501-Power System Analysis	EC8073-Medical Electronics	OAT551-Automotive Systems
21.09.2022 Wednesday	OA1551-Environmental and Agriculture	OMD553 -Telehealth Technology	EE8591-Digital Signal Processing	OMD551-Basic of Bio-Medical Instrumentation	-

DATE	II YEAR / III SEMESTER				
	CIVIL	CSE	EEE	ECE	MECH
14.09.2022 Wednesday	MA8353- Transforms and Partial Differential Equations	MA8351-Discrete Mathematics	MA8353- Transforms and Partial Differential Equations	MA8352- Linear Algebra and Partial Differential Equations	MA8353- Transforms and Partial Differential Equations
15.09.2022 Thursday	CE8301-Strength of Materials I	CS8351-Digital Principles & System Design	EE8391- Electromagnetic Theory	EC8351- Electronic Circuits- I	ME8391- Engineering Thermodynamics
16.09.2022 Friday	CE8302- Fluid Mechanics	CS8391-Data Structures	ME8792-Power Plant Engineering	EC8352- Signals and Systems	CE8394-Fluid Mechanics and Machinery
19.09.2022 Monday	CE8351- Surveying	CS8392-Object Oriented Programming	EE8301-Electrical Machines - I	EC8392- Digital Electronics	ME8351- Manufacturing Technology - I
20.09.2022 Tuesday	CE8391- Construction Materials	EC8395- Communication Engineering	EC8353-Electron Devices and Circuits	EC8391- Control Systems Engineering	EE8353-Electrical Drives and Controls
21.09.2022 Wednesday	CE8393- Engineering Geology	-	EE8351-Digital Logic Circuits	EC8393- Fundamentals Of Data Structures in C	-

Exam Cell Coordinator

Principal

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2. Notice Board
3. All class rooms

ANNA UNIVERSITY ASSESSMENT ENTRY

The sample of Internal marks entered in Anna University web portal is attached below.

Period 1 – Entry of Attended hours only
Period 2 – Entry of internal marks **(IM1)**
Period 3 – Entry of internal marks **(IM2)**
Period 4 – Entry of internal marks **(MODEL)**

ANNA UNIVERSITY :: CHENNAI - 600 025
OFFICE OF THE CONTROLLER OF EXAMINATIONS
Assessment Details Entered
NOV. / DEC. EXAMINATION,2022 - EXAMINATIONS

Inst Code & Name : 9208 - N P R COLLEGE OF ENGINEERING AND TECHNOLOGY

Branch Code / Name : 114 : B.E. Mechanical Engineering **University : AUC**
Semester : 07

Register No.	Name of the Student	Subjects	Attend hr 1	Total hr 1	Attend hr 2	Total hr2	IM 2	Attend hr 3	Tot hr 3	IM 3	Attend hr 4	Total hr4	IM 4
920819114001	ABILASH A	ME8073	6	10	10	16	60	10	13	78	8	10	80
		ME8097	7	11	11	15	82	10	16	68	9	10	60
		ME8711									57	60	98
		ME8712									30	30	96
		ME8781									48	60	85
		ME8791	8	11	10	15	88	11	19	88	12	12	80
		ME8792	11	17	11	17	74	10	15	80	12	12	70
		ME8793	11	19	13	21	82	16	22	96	16	17	90
		OIE751	12	15	11	14	92	9	13	90	9	9	96
		SB8011											
920819114003	ANBARASAN V	ME8073	9	10	11	16	56	13	13	72	9	10	89
		ME8097	8	11	12	15	80	13	16	76	8	10	86
		ME8711									54	60	96
		ME8712									30	30	92
		ME8781									60	60	90
		ME8791	9	11	11	15	56	17	19	98	11	12	90
		ME8792	13	17	12	17	60	13	15	80	11	12	75
		ME8793	15	19	13	21	76	19	22	78	15	17	90
		OIE751	12	15	12	14	90	11	13	94	7	9	90
		SB8006											
920819114004	ASWINBALAJI S	ME8073	6	10	15	16	36	9	13	85	6	10	89
		ME8097	8	11	14	15	60	12	16	65	5	10	85
		ME8711									52	60	94
		ME8712									28	30	94
		ME8781									48	60	80
		ME8791	7	11	14	15	30	11	19	85	7	12	96
		ME8792	12	17	16	17	64	10	15	60	7	12	86
		ME8793	13	19	18	21	62	14	22	62	8	17	86
		OIE751	10	15	12	14	80	8	13	92	5	9	74
		SB8011											
920819114005	AYYAM PERUMAL P	ME8073	5	10	11	16	50	13	13	70	7	10	90
		ME8097	6	11	8	15	80	14	16	68	6	10	62
		ME8711									42	60	96
		ME8712									28	30	94
		ME8781									54	60	85
		ME8791	7	11	8	15	30	16	19	87	8	12	96
		ME8792	10	17	9	17	34	13	15	82	8	12	94
		ME8793	11	19	15	21	72	21	22	64	11	17	75
		OIE751	8	15	6	14	92	12	13	92	6	9	80
		SB8006											
920819114006	BALAKUMARESAN S	ME8073	10	10	13	16	64	10	13	82	8	10	93
		ME8097	10	11	14	15	88	14	16	86	9	10	73
		ME8711									57	60	92
		ME8712									30	30	96
		ME8781									60	60	92
		ME8791	10	11	14	15	68	16	19	76	11	12	95
		ME8792	16	17	15	17	56	14	15	84	11	12	92
		ME8793	17	19	20	21	70	20	22	80	17	17	90
		OIE751	13	15	13	14	96	12	13	94	8	9	95
		SB8006											
920819114008	DINESHPANDI B	ME8073	9	10	12	16	60	10	13	70	8	10	80
		ME8097	8	11	12	15	84	15	16	88	8	10	58
		ME8711									54	60	94

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	ME8712									28	30	98
	ME8781									48	60	90
	ME8791	8	11	12	15	82	18	19	92	11	12	84
	ME8792	14	17	13	17	82	15	15	82	11	12	93
	ME8793	14	19	17	21	84	20	22	88	16	17	92
	OIE751	13	15	11	14	92	13	13	92	8	9	60
	SB8011											
920819114010 GOWTHAMAN M	ME8073	8	10	13	16	50	12	13	80	9	10	90
	ME8097	7	11	13	15	78	15	16	84	9	10	50
	ME8711									60	60	94
	ME8712									30	30	94
	ME8781									54	60	92
	ME8791	7	11	13	15	70	18	19	92	12	12	82
	ME8792	11	17	15	17	84	15	15	84	12	12	90
	ME8793	13	19	19	21	76	20	22	94	16	17	92
	OIE751	9	15	11	14	92	13	13	94	9	9	78
	SB8005											
920819114012 IMAN MOHAMMED T	ME8073	7	10	11	16	62	9	13	84	8	10	73
	ME8097	6	11	13	15	64	14	16	80	9	10	68
	ME8711									51	60	96
	ME8712									30	30	96
	ME8781									54	60	96
	ME8791	6	11	13	15	72	17	19	100	12	12	50
	ME8792	8	17	13	17	88	13	15	84	12	12	87
	ME8793	12	19	13	21	84	19	22	78	16	17	93
	OIE751	7	15	12	14	96	9	13	94	9	9	81
	SB8005											
920819114013 MAHA LAKSHMI G	ME8073	7	10	16	16	96	10	13	98	8	10	92
	ME8097	7	11	15	15	94	16	16	98	9	10	92
	ME8711									57	60	98
	ME8712									30	30	98
	ME8781									54	60	98
	ME8791	8	11	15	15	92	19	19	100	12	12	86
	ME8792	9	17	17	17	96	15	15	92	12	12	90
	ME8793	12	19	21	21	90	22	22	96	16	17	90
	OIE751	8	15	14	14	98	13	13	98	9	9	89
	SB8008											
920819114014 MANIKANDAN N	ME8073	7	10	12	16	68	10	13	80	9	10	90
	ME8097	6	11	11	15	88	16	16	66	10	10	60
	ME8711									54	60	94
	ME8712									30	30	92
	ME8781									54	60	90
	ME8791	6	11	11	15	72	19	19	74	11	12	81
	ME8792	9	17	14	17	74	13	15	82	11	12	58
	ME8793	11	19	16	21	70	21	22	94	15	17	93
	OIE751	8	15	10	14	94	10	13	94	8	9	85
	SB8006											
920819114015 MANIKANDAN R	ME8073	7	10	12	16	64	13	13	72	8	10	75
	ME8097	8	11	9	15	84	15	16	90	8	10	42
	ME8711									54	60	96
	ME8712									30	30	90
	ME8781									48	60	86
	ME8791	8	11	9	15	90	16	19	82	11	12	72
	ME8792	13	17	13	17	72	12	15	62	11	12	76
	ME8793	12	19	16	21	66	19	22	80	16	17	90
	OIE751	8	15	8	14	92	10	13	92	7	9	96
	SB8008											
920819114016 MEENAKSHI SUNDARAM G	ME8073	7	10	10	16	30	9	13	85	9	10	95

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	ME8097	6	11	12	15	30	9	16	86	7	10	94
	ME8711									54	60	92
	ME8712									26	30	90
	ME8781									48	60	85
	ME8791	6	11	12	15	30	10	19	89	9	12	92
	ME8792	8	17	14	17	50	11	15	70	9	12	91
	ME8793	10	19	18	21	50	12	22	74	14	17	89
	OIE751	5	15	10	14	30	7	13	94	7	9	86
	SB8008											
920819114018 MOHAMED SIDDIQ A	ME8073	7	10	11	16	56	13	13	72	9	10	85
	ME8097	4	11	11	15	82	13	16	66	8	10	65
	ME8711									52	60	92
	ME8712									28	30	92
	ME8781									57	60	89
	ME8791	4	11	11	15	82	14	19	74	11	12	59
	ME8792	9	17	13	17	78	14	15	86	11	12	52
	ME8793	12	19	16	21	70	18	22	88	15	17	93
	OIE751	6	15	12	14	82	12	13	92	7	9	82
	SB8011											
920819114019 MOHANA RAGUL P	ME8073	6	10	13	16	50	12	13	84	9	10	77
	ME8097	5	11	10	15	86	13	16	70	8	10	55
	ME8711									54	60	90
	ME8712									28	30	94
	ME8781									48	60	85
	ME8791	5	11	10	15	90	15	19	76	10	12	81
	ME8792	10	17	14	17	52	13	15	75	10	12	84
	ME8793	12	19	14	21	74	18	22	70	15	17	92
	OIE751	6	15	12	14	86	10	13	92	7	9	84
	SB8008											
920819114020 MUGESHWARAN N	ME8073	8	10	13	16	50	10	13	70	8	10	90
	ME8097	6	11	14	15	58	16	16	65	8	10	90
	ME8711									54	60	90
	ME8712									30	30	96
	ME8781									48	60	90
	ME8791	6	11	13	15	32	19	19	89	11	12	90
	ME8792	9	17	15	17	50	15	15	70	11	12	91
	ME8793	12	19	20	21	70	22	22	56	15	17	92
	OIE751	8	15	11	14	88	13	13	94	7	9	78
	SB8008											
920819114021 MUTHUSAMY P	ME8073	9	10	9	16	64	10	13	60	8	10	88
	ME8097	10	11	13	15	74	13	16	58	9	10	80
	ME8711									56	60	92
	ME8712									30	30	94
	ME8781									60	60	92
	ME8791	9	11	12	15	34	15	19	85	10	12	91
	ME8792	16	17	13	17	56	13	15	70	10	12	85
	ME8793	18	19	13	21	52	19	22	70	14	17	90
	OIE751	14	15	12	14	82	9	13	92	8	9	84
	SB8008											
920819114022 NAGARAJ S	ME8073	9	10	12	16	60	13	13	78	8	10	83
	ME8097	10	11	14	15	86	14	16	74	9	10	71
	ME8711									60	60	94
	ME8712									30	30	92
	ME8781									60	60	95
	ME8791	9	11	13	15	86	15	19	82	11	12	90
	ME8792	16	17	17	17	66	12	15	80	11	12	70
	ME8793	18	19	20	21	72	20	22	84	15	17	90
	OIE751	13	15	13	14	96	10	13	96	9	9	86

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NOV. / DEC. EXAMINATION,2022 - EXAMINATIONS

Inst Code & Name : 9208 - N P R COLLEGE OF ENGINEERING AND TECHNOLOGY

	SB8008											
920819114023 NAVEEN RAJ K	ME8073	6	10	16	16	64	10	13	62	9	10	84
	ME8097	8	11	15	15	78	14	16	60	7	10	76
	ME8711									54	60	96
	ME8712									30	30	94
	ME8781									57	60	85
	ME8791	8	11	15	15	56	16	19	72	9	12	88
	ME8792	12	17	17	17	70	13	15	72	9	12	84
	ME8793	12	19	21	21	72	17	22	80	12	17	94
	OIE751	11	15	14	14	82	12	13	94	4	9	82
	SB8008											
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	ME8711									51	60	94
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	ME8793	14	19	16	21	66	19	22	78	10	17	94
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	SB8008											
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	ME8791	5	11	10	15	74	16	19	70	10	12	76
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	ME8793	9	19	15	21	72	17	22	52	13	17	89
	OIE751	7	15	10	14	94	12	13	94	8	9	74
	SB8011											
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	ME8793	13	19	19	21	80	19	22	80	12	17	96
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	ME8097	7	11	14	15	88	8	16	72	8	10	55
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	ME8712									30	30	92
	ME8781									48	60	90
	ME8791	7	11	14	15	82	9	19	70	10	12	76
	ME8792	14	17	16	17	72	6	15	50	10	12	89

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	OIE751	12	15	13	14	92	5	13	94	7	9	87
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	SB8008											
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	ME8711									54	60	92
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	ME8781									54	60	90

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	ME8793	13	19	21	21	86	20	22	98	17	17	90
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	OIE751	15	15	12	14	98	13	13	98	8	9	91
	SB8008											
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	ME8711									60	60	94

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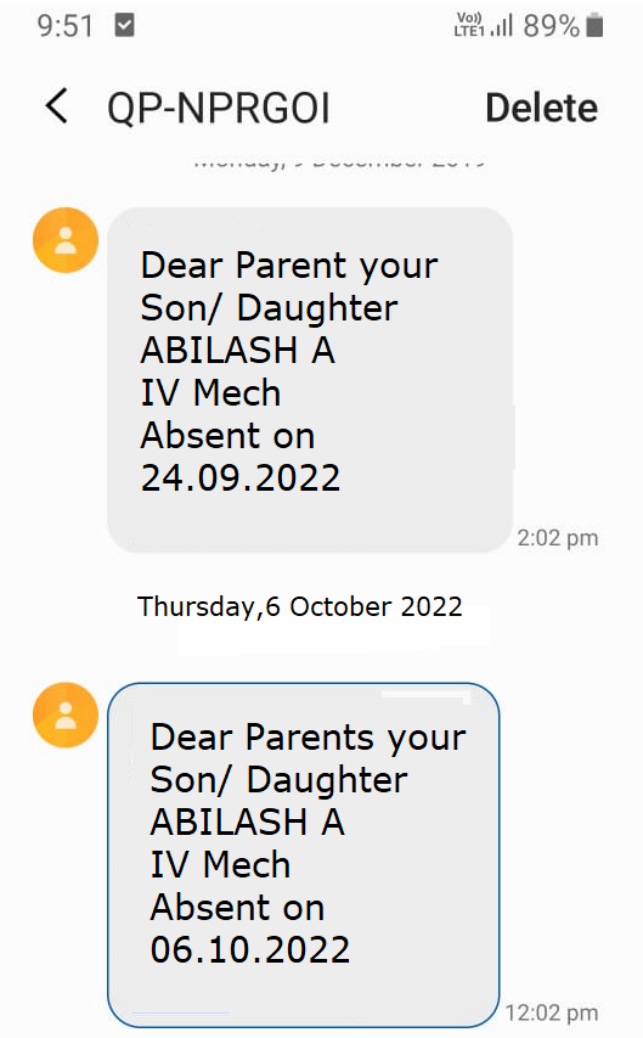
STUDENT ABSENT REPORT TO THE PARENTS



A. Abilash -IV-Mech Absent SMS

ERP STUDENT LOGIN

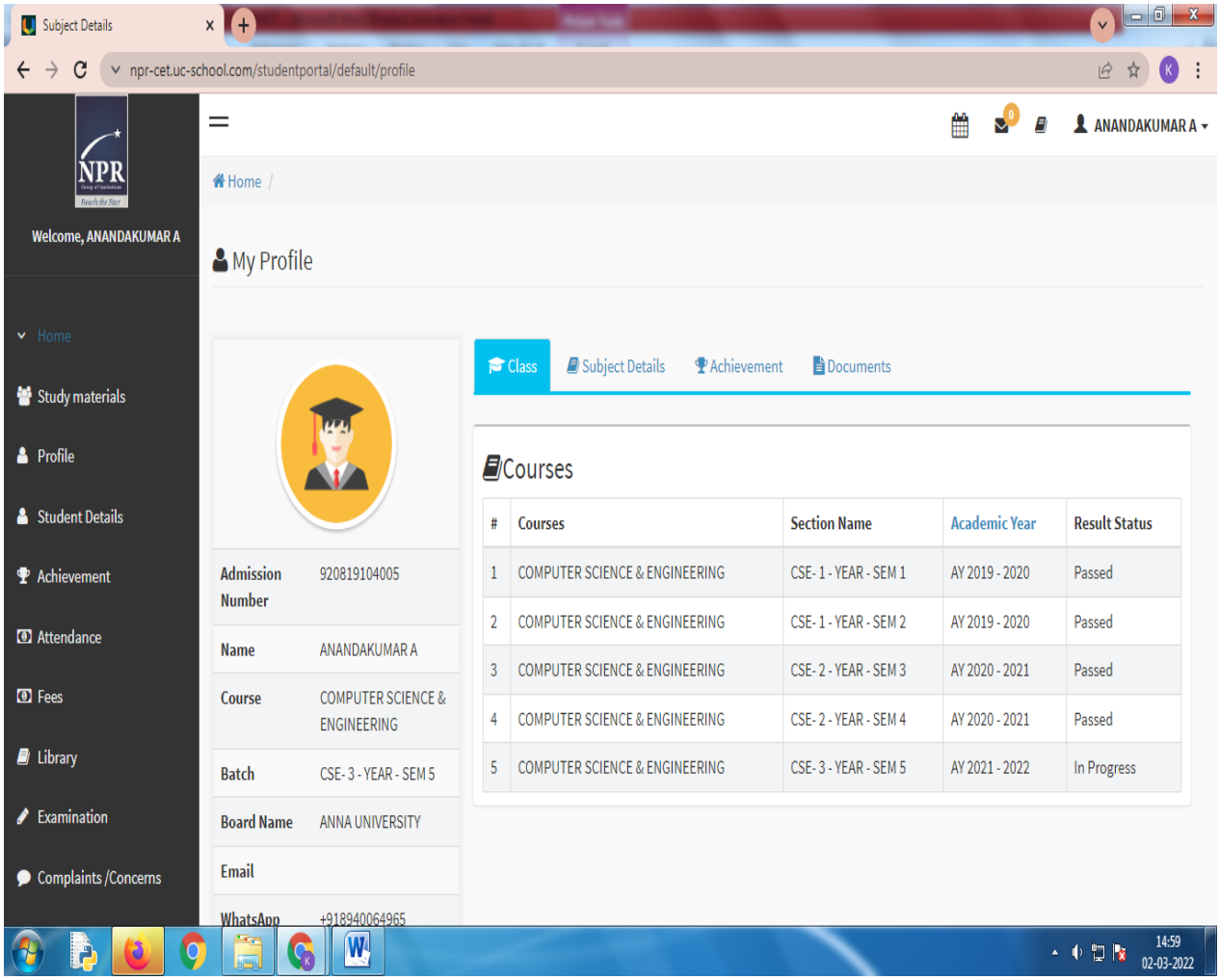
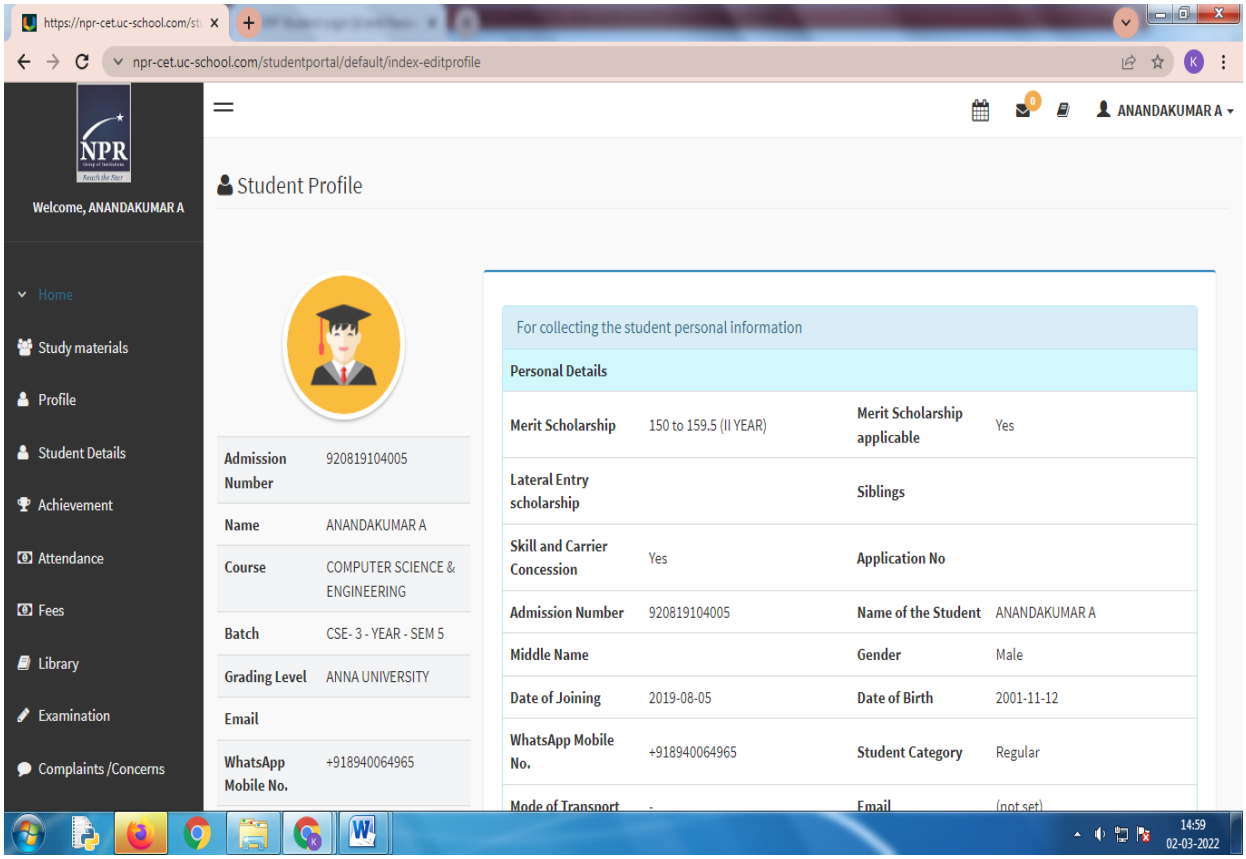
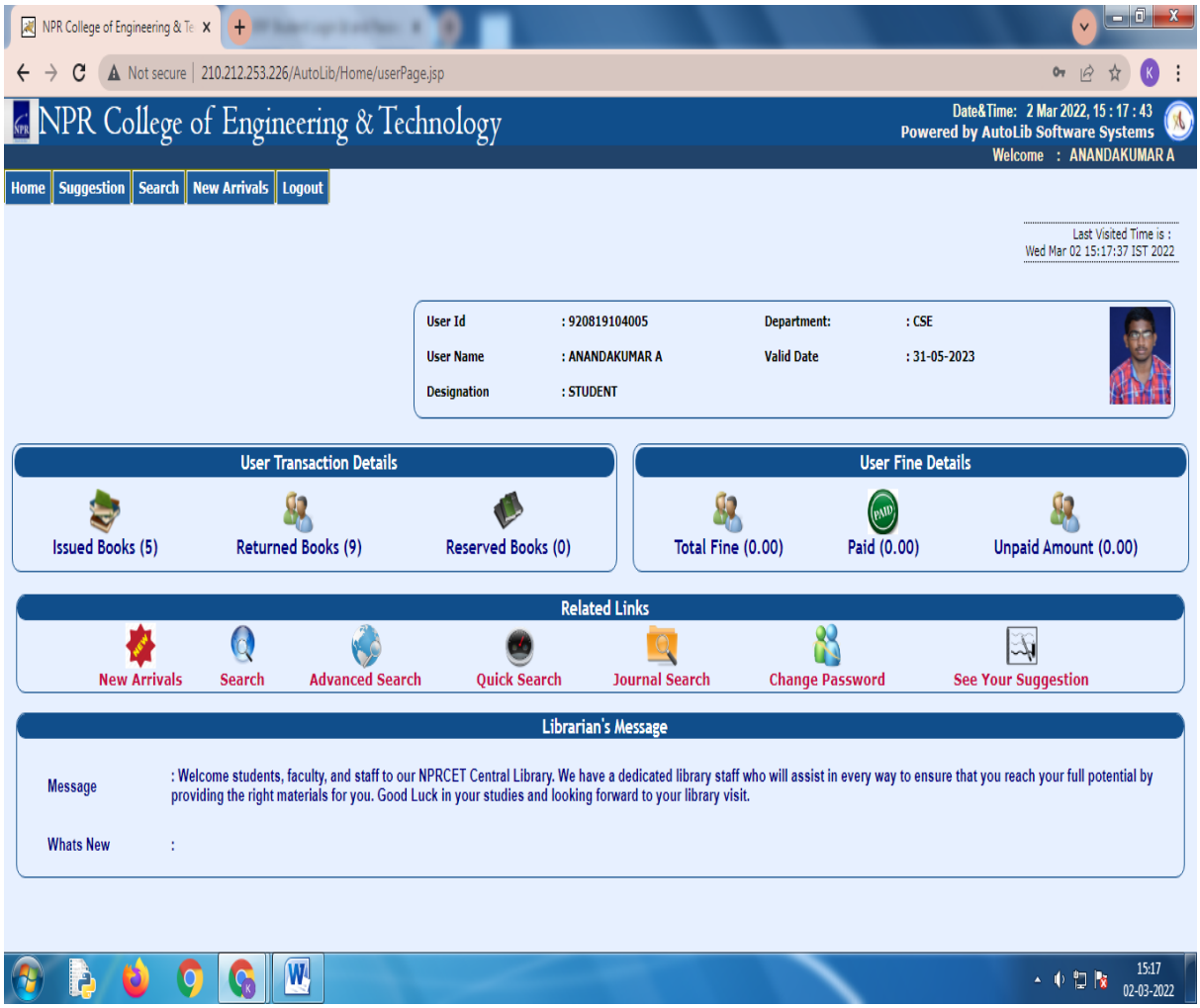


Fig:

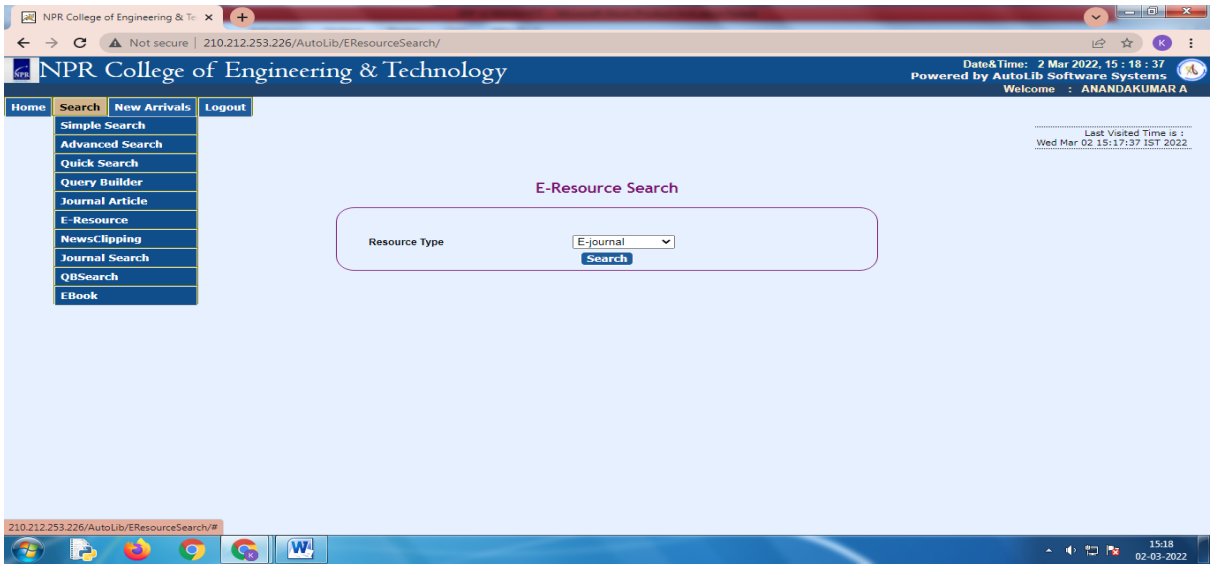
Students ERP Web portal Page



Students Profile in ERP Portal



Library Book Links Utilized details in ERP



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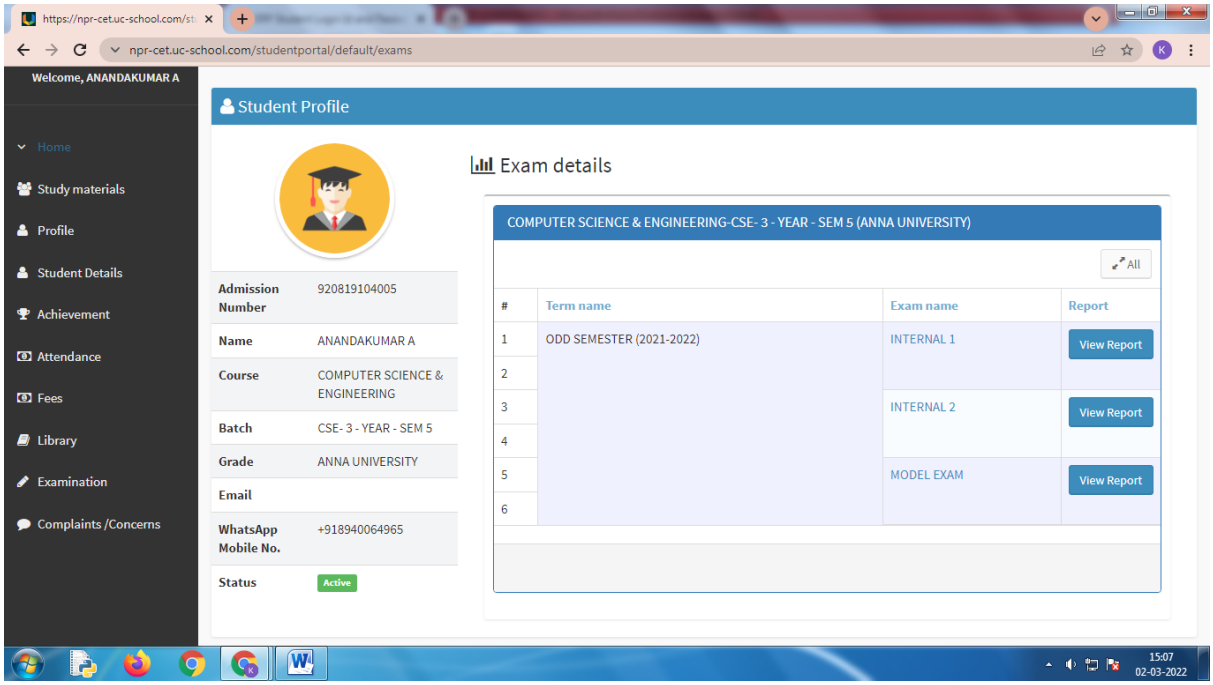
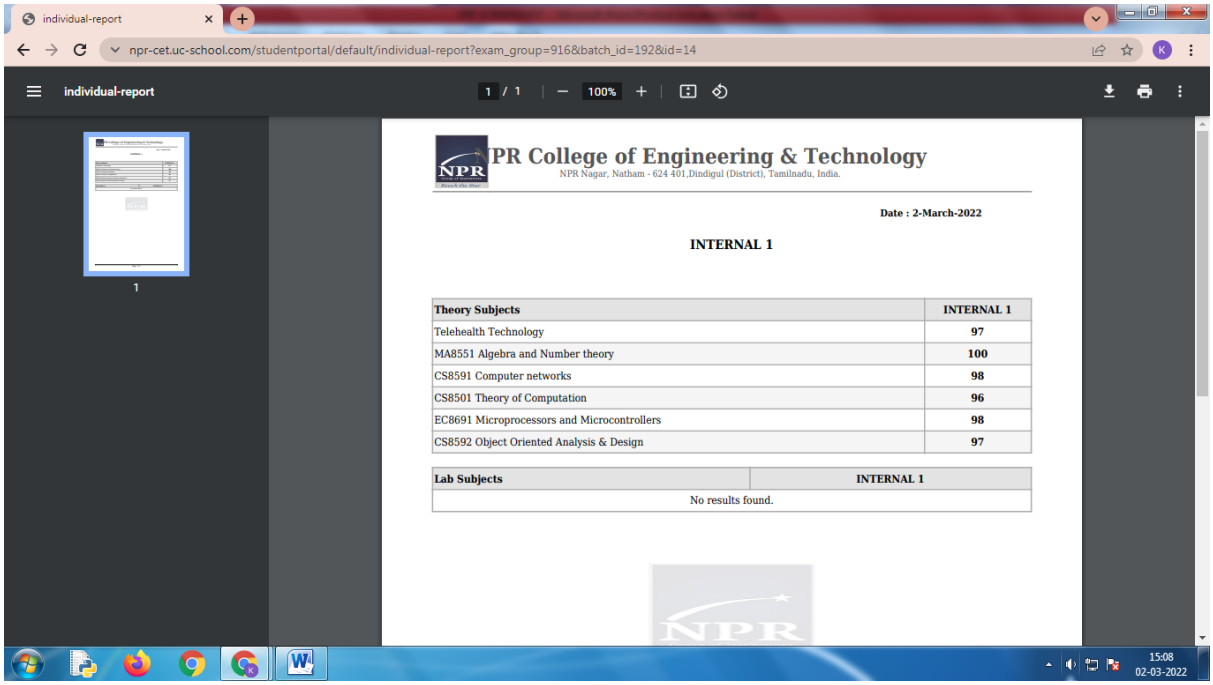


Internal Examination Details in ERP



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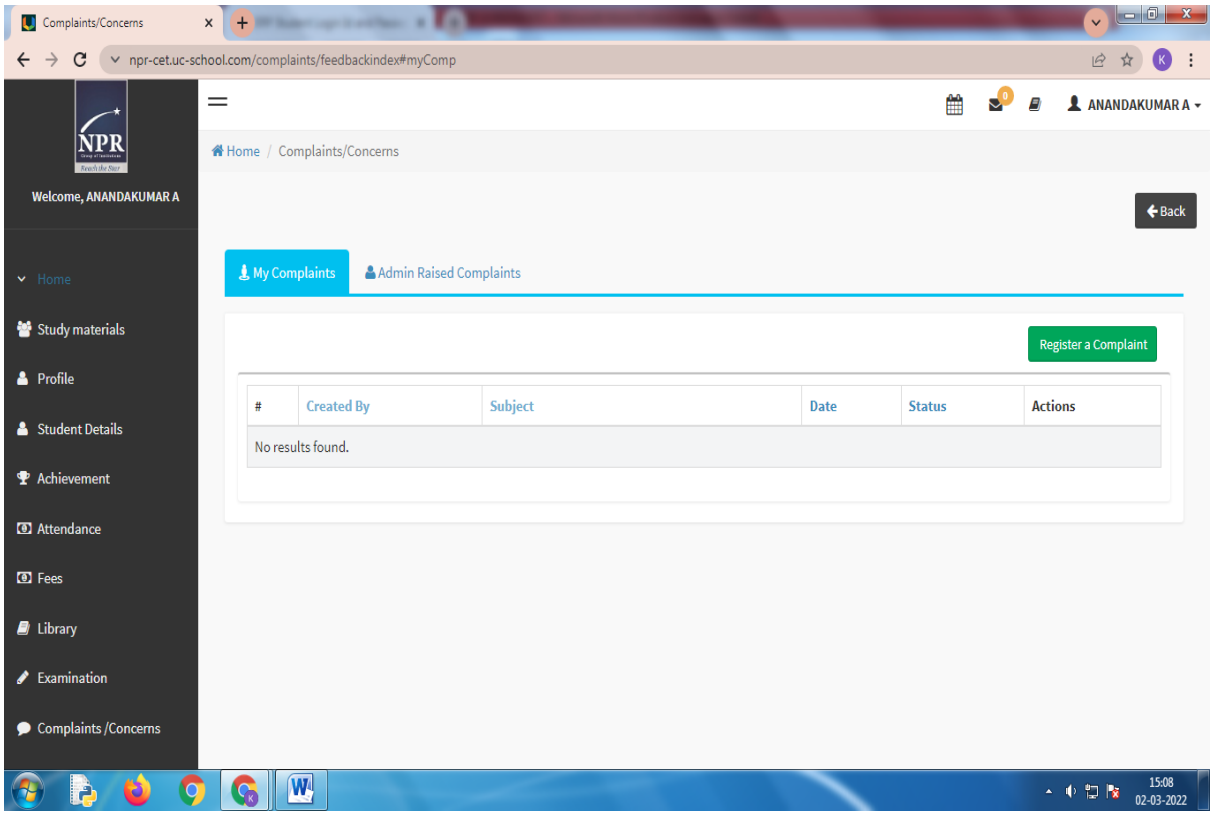
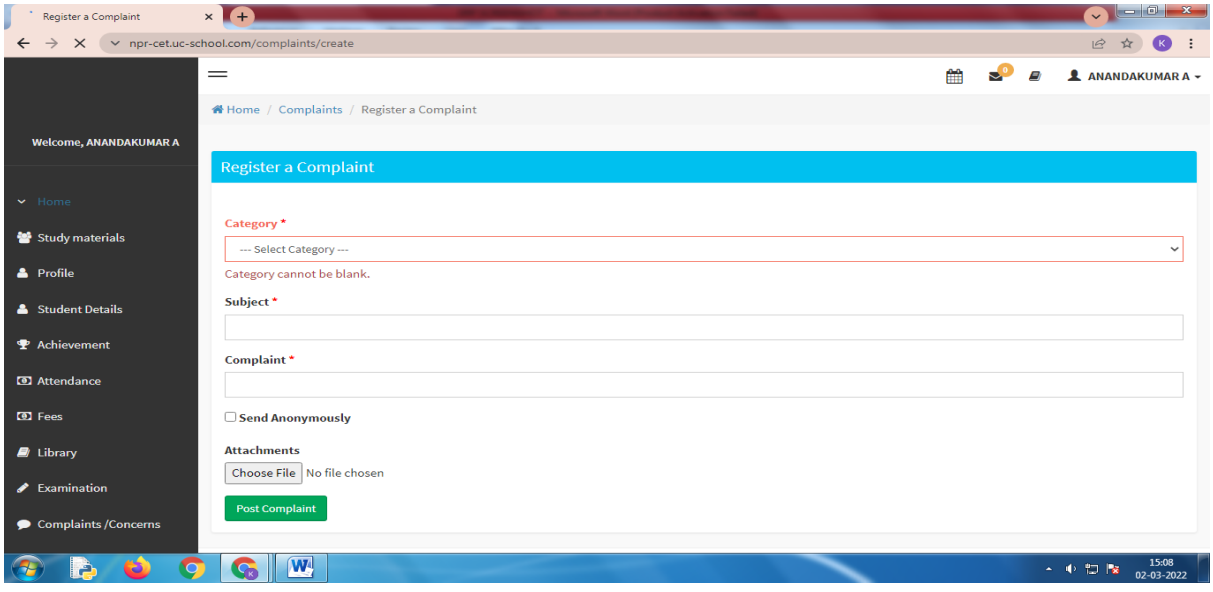
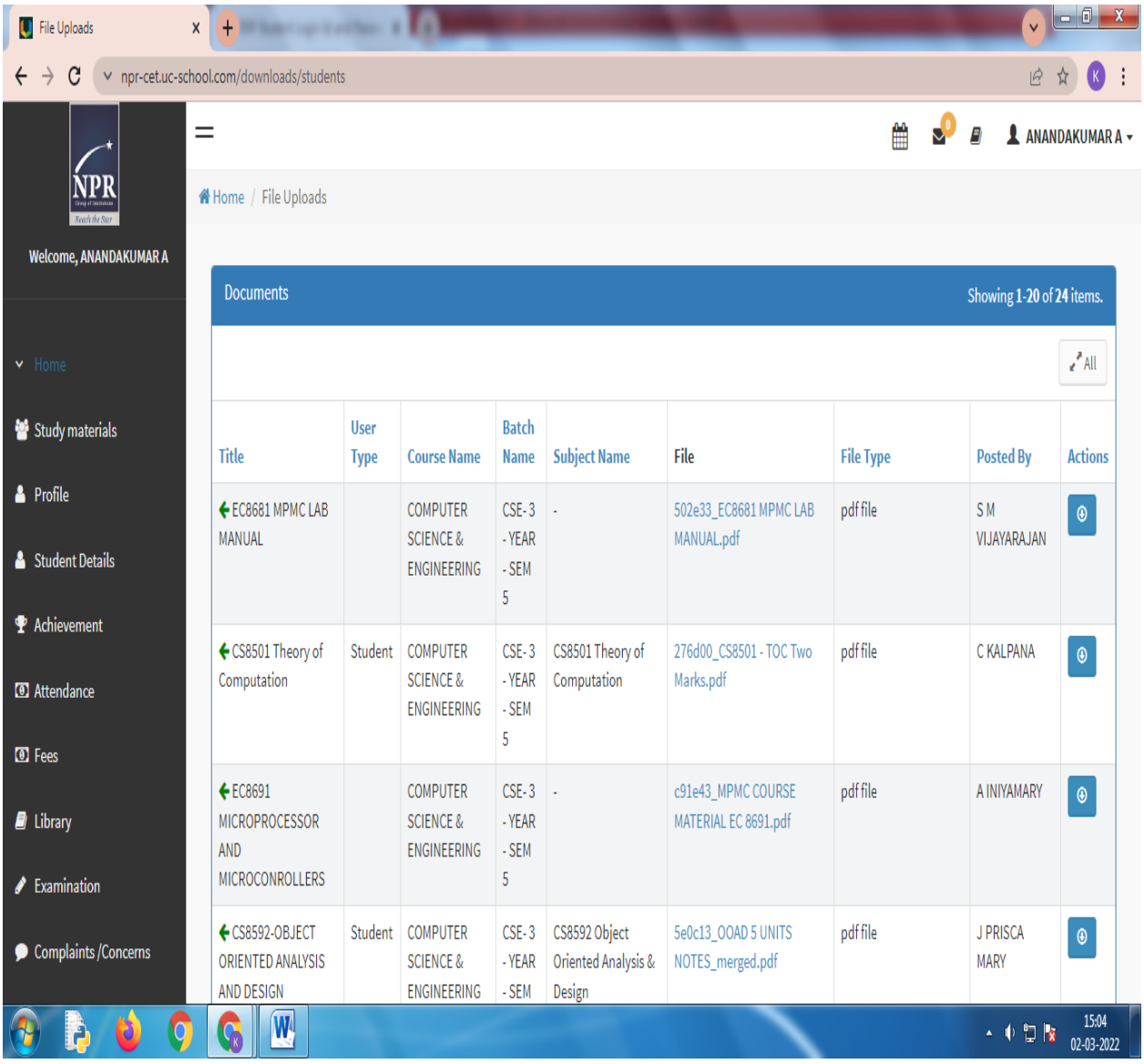


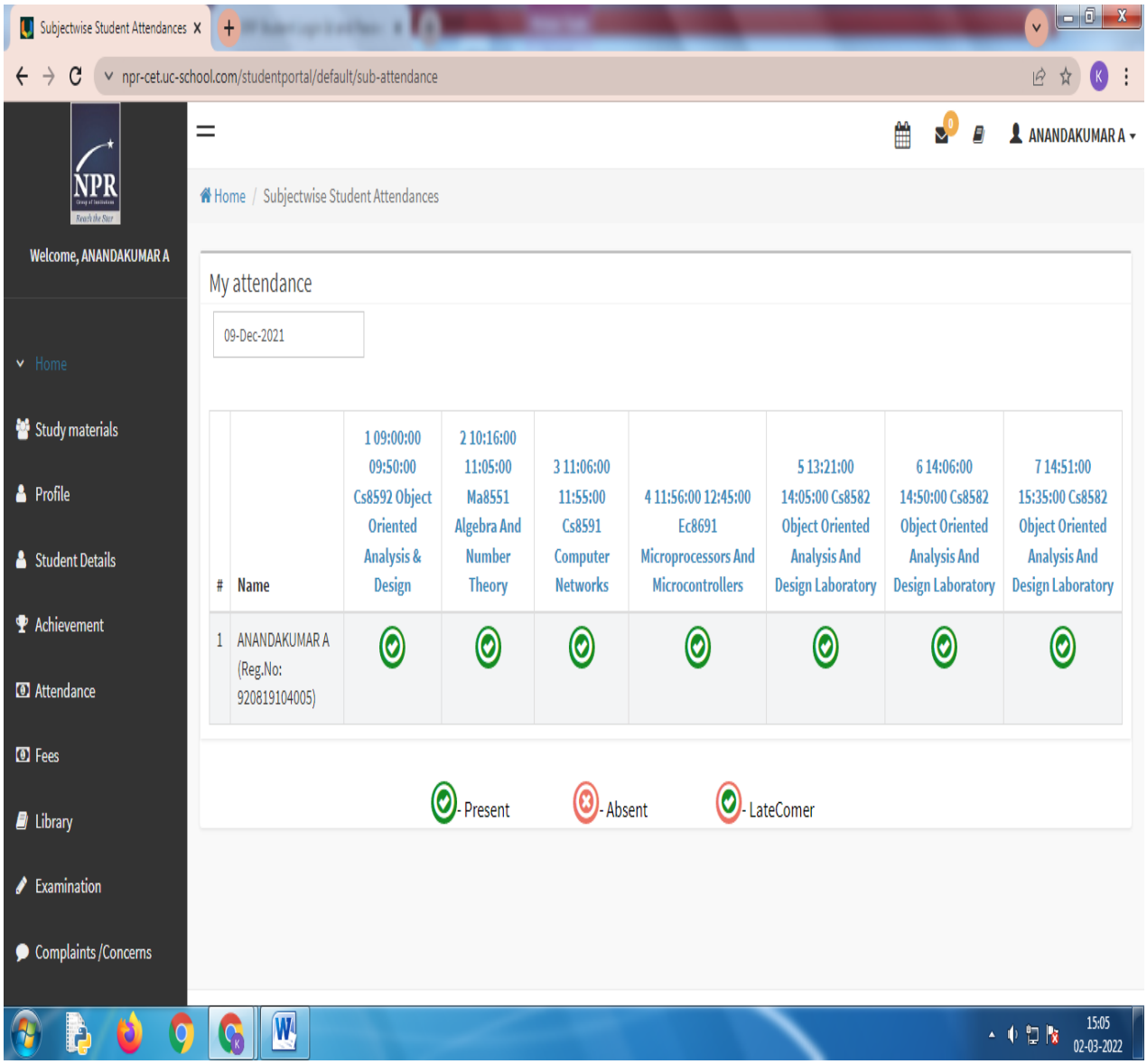
Students Grievance in ERP



Students Grievance in ERP



Study Materials in ERP Student Login



Students Attendance in ERP web portal

INTERNAL QUESTION PAPER

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Accredited by NAAC WITH 'A' GRADE | Recognized by UGC under 2 (f)
Natham, Dindigul - 624 401. Web: www.nprcet.org

Register Number: | | | | | | | | | | | | |

INTERNAL EXAMINATION I – SEPTEMBER 2022

7th Semester – Mechanical Engineering

OIE751 – ROBOTICS

Duration: **90 Minutes** Date:21.09.2022 Maximum marks: **50**

Course Outcomes ,Question Number, Marks:

COs	CO1	CO2	CO3	CO4	CO5
Ques. No.	1,2,3,6,8	4,5,7	-	-	-
Max. Marks	30	20	-	-	-

COs & K-Level:

CO1: Explain the concepts of industrial robots, classification, specifications, and coordinate systems. Also summarize the need and application of robots in different sectors.

CO2: Illustrate the different types of robot drive systems as well as robot end effectors.

C03: Apply the different sensors and image processing techniques in robotics to improve the ability of robots.

C04: Develop robotic programs for different tasks and familiarize with the kinematics motions of robot

C05: Examine the implementation of robots in various industrial sectors and interpolate the economic analysis of robots.

K-Levels	K1: Remember	K2: Understand	K3: Apply	K4: Analyze	K5: Evaluate	K6: Create

Q. No.	Answer All Questions	Bloom's Taxonomy K-level
	PART – A (5 x 2 = 10 marks)	
1.	Define Pitch, yaw and roll.	K2
2.	What is work volume?	K2
3.	Identify the three degrees of freedom related to arm and body motion.	K2
4.	Give some examples of Robot End Effector.	K2
5.	Define end effectors.	K1
	PART – B (1 x 8 = 8 marks)	
6.	Classify the industrial robots and briefly describe it.	K2
	PART – C (2 x16 = 32 marks)	
7.	Briefly Explain about Pneumatic actuators system with neat sketch.	K2
8.	Describe in detail the anatomy of an industrial robot	K2

Faculty In-Charge **HOD-MECH.**

INTERNAL ANSWER KEY

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INTERNAL EXAMINATION I – SEPTEMBER 2022

7th Semester – Mechanical Engineering

OIE751 – ROBOTICS

Duration: **90 Minutes** Date:21.09.2022 Maximum marks: **50**

Course Outcomes ,Question Number, Marks:

COs	CO1	CO2	CO3	CO4	CO5
Ques. No.	1,2,3,6,8	4,5,7	-	-	-
Max. Marks	30	20	-	-	-

COs & K-Level:

CO1: Explain the concepts of industrial robots, classification, specifications, and coordinate systems. Also summarize the need and application of robots in different sectors.

CO2: Illustrate the different types of robot drive systems as well as robot end effectors.

C03: Apply the different sensors and image processing techniques in robotics to improve the ability of robots.

C04: Develop robotic programs for different tasks and familiarize with the kinematics motions of robot

C05: Examine the implementation of robots in various industrial sectors and interpolate the economic analysis of robots.

K-Levels	K1: Remember	K2: Understand	K3: Apply	K4: Analyze	K5: Evaluate	K6: Create

Q. No.	Answer All Questions	Bloom's Taxonomy K-level
	PART – A (5 x 2 = 10 marks)	
1.	**Define Pitch, yaw and roll.** 1.Pitch: Up and down rotation. 2.Yaw Left and right rotation. 3. Roll Side-to-side rotation.	K2
2.	**What is work volume?** Work volume refers to the three-dimensional space within which a robot or a robotic system can perform its tasks or operations. It defines the reachable area or space where the end effector or tool of the robot can move and interact with objects.	K2
3.	**Identify the three degrees of freedom related to arm and body motion.** **Translation (X, Y, Z):** Movement along three axes, typically representing forward/backward (X), left/right (Y), and up/down (Z) motion. **Rotation (Roll, Pitch, Yaw):** Rotational movements around three axes, typically representing side-to-side (roll), up-and-down (pitch), and left-to-right (yaw) rotation.	K2

	Flexion/Extension (Elbow, Knee, etc.): Bending or straightening movement, such as bending the elbow or knee.	
4.	**Give some examples of Robot End Effector.** 1. Grippers: Grasping devices for object manipulation. 2. Welding Guns: Tools for automated welding processes. 3. Suction Cups: Used for lifting smooth objects. 4. Cutting Tools: Blades for trimming or machining tasks. 5. 3D Print Heads: Nozzles for additive manufacturing.	K2
5.	**Define end effectors.** End effectors are devices or tools attached to the end of a robotic arm or manipulator, designed to perform specific tasks such as grasping objects, welding, cutting, or any other action required by the application. They are essentially the "hands" of the robot, enabling it to interact with its environment to accomplish tasks.	K1
	PART – B (1 x 8 = 8 marks)	
6.	**Classify the industrial robots and briefly describe it.** Industrial robots can be classified into several types based on their mechanical structure, application, and control systems. Here's a brief overview: 1. **Articulated Robots:** These robots have rotary joints resembling a human arm, allowing for multi-axis movement. They are versatile and commonly used in assembly, welding, and painting applications. **2. SCARA Robots (Selective Compliance Assembly Robot Arm):** SCARA robots have two parallel rotary joints for horizontal motion and one linear joint for vertical motion. They are suitable for tasks requiring high-speed and precision, such as pick-and-place operations and assembly tasks. **3. Cartesian/Gantry Robots:** These robots move along three linear axes (X, Y, Z), similar to a CNC machine. They are often used in applications requiring precise linear motion, such as material handling, packaging, and CNC machining. **4. Delta Robots:** Delta robots consist of three arms connected to a central platform. They are known for their high-speed and precision, making them ideal for tasks like pick-and-place operations in industries such as food processing and electronics manufacturing. **5. Parallel Robots:** Also known as parallel manipulators, these robots have multiple limbs connected to the end-effector and base through parallel linkages. They offer high rigidity and precision, making them suitable for applications like machining, inspection, and surgery. **6. Collaborative Robots (Cobots):** Cobots are designed to work alongside humans in a shared workspace safely. They feature advanced sensors and programming to detect and respond to human presence, enabling collaborative tasks such as assembly, machine tending, and quality inspection. **7. Mobile Robots:** These robots are equipped with wheels or tracks for autonomous movement within a workspace. They are used for tasks such as material transport, warehouse logistics, and surveillance in industries like manufacturing and e-commerce. Each type of industrial robot has its own strengths and limitations, making them suitable for different applications depending on factors such as speed, precision,	K2

payload capacity, and workspace requirements.

PART – C (2 x16 = 32 marks)

7. **Briefly Explain about Pneumatic actuators system with neat sketch.** K3

A pneumatic actuator system is a mechanism that uses compressed air to generate motion. It typically consists of a pneumatic cylinder, valves, tubing, and an air compressor. Here's a brief explanation along with a simple sketch:

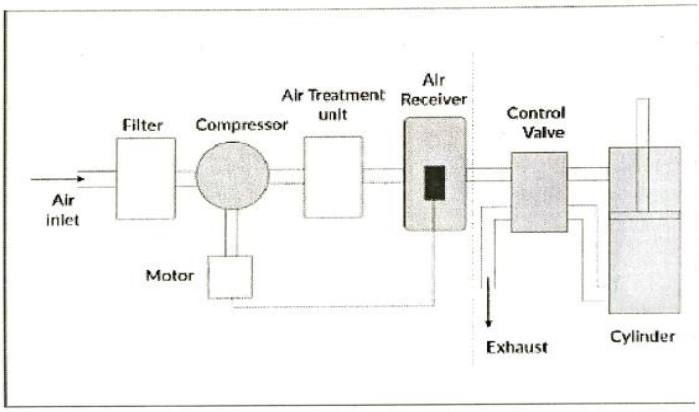
Components of a Pneumatic Actuator System:

Pneumatic Cylinder: The core component responsible for converting compressed air energy into linear motion. It consists of a cylindrical chamber with a piston inside. When compressed air enters the cylinder, it pushes the piston, causing linear motion.

Valves: Valves control the flow of compressed air into and out of the pneumatic cylinder. A directional control valve directs air flow to either extend or retract the piston in the cylinder.

Tubing: Tubing connects the pneumatic cylinder to the valves and the air compressor, allowing the compressed air to flow through the system.

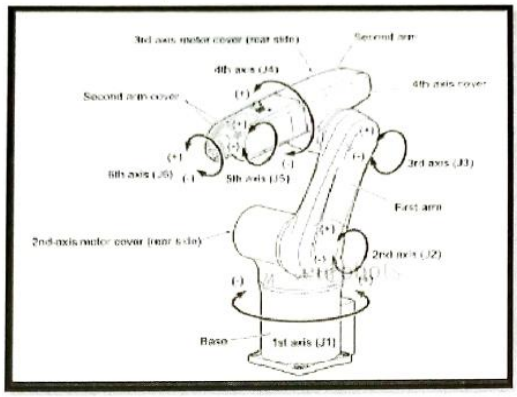
Air Compressor: The air compressor supplies compressed air to the system. It pressurizes the air, which is then stored in a reservoir and distributed to the pneumatic actuators as needed.



Working Principle:

Extension: When compressed air is directed into one side of the pneumatic cylinder by the directional control valve, it pushes the piston, causing it to extend outward.

Retraction: By reversing the direction of the airflow using the directional control valve, the piston retracts back into the cylinder.
pneumatic cylinder with a piston inside is connected to a directional control valve through tubing. The valve is connected to an air compressor. When the valve directs compressed air into one side of the cylinder, the piston extends. Reversing the airflow direction causes the piston to retract.]

	This basic setup illustrates how pneumatic actuators generate linear motion using compressed air, making them suitable for various applications in industries such as manufacturing, automation, and robotics.	
8.	**Describe in detail the anatomy of an industrial robot.**  Industrial robots are complex machines designed to automate various manufacturing processes, performing tasks such as welding, painting, assembly, palletizing, packaging, and more. The anatomy of an industrial robot typically consists of several key components: **1.Base:** The base is the foundation of the robot, providing stability and support. It often contains the robot's motors and drive mechanisms, which allow it to move. **2. Arm:** The arm is the main body of the robot, consisting of multiple segments called links. These links are connected by joints that allow the arm to move in different directions. Common types of joints include: Revolute joint: Allows rotation around an axis, like the human shoulder. Prismatic joint: Enables linear motion along a single axis, similar to a piston. **3. End Effector:** Also known as the robot's "hand," the end effector is the tool or attachment that interacts with the workpiece. End effectors can vary widely depending on the specific task the robot is performing. Examples include grippers, welding torches, suction cups, and specialized tools for tasks like painting or assembly. **4. Actuators and Motors**: Actuators are devices that convert energy into mechanical motion. In industrial robots, electric motors are commonly used as actuators to drive the movement of the robot's joints. These motors are controlled by the robot's controller, which sends commands to dictate the desired motion. **5. Sensors:** Sensors play a crucial role in industrial robots by providing feedback about the robot's environment and its own state. Common types of sensors used in industrial robots include: Position sensors: Provide information about the position and orientation of the robot's joints. Force/torque sensors: Measure the forces and torques exerted on the robot's end effector, allowing for precise control and interaction with the workpiece. Vision systems: Cameras and other vision sensors enable robots to perceive and analyze	K3

their surroundings, aiding in tasks such as object detection, localization, and quality inspection.

6. Controller: The controller is the brain of the industrial robot, responsible for interpreting commands, coordinating motion, and managing interactions with peripheral devices such as sensors and actuators. It typically includes hardware components such as processors, memory, and input/output interfaces, as well as software for programming and controlling the robot's behavior.

7. Safety Features: Industrial robots are equipped with various safety features to protect human operators and prevent accidents. These may include:

Emergency stop buttons: Allows immediate halting of robot motion in case of emergencies.

Safety fences/guards: Physical barriers that restrict access to the robot's workspace.

Collision detection systems: Sensors that detect unexpected collisions between the robot and its surroundings, triggering a safety response.

Safety-rated software: Programming and control software designed to comply with safety standards and regulations, ensuring safe operation of the robot.

Overall, the anatomy of an industrial robot is engineered to provide versatility, precision, and efficiency in automating manufacturing processes while prioritizing safety and reliability.

Faculty In-Charge

HoD-Mech.

INTERNAL ANSWER SHEET

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INTERNAL TEST – I / II

a) Register Number : 9 2 0 8 1 9 1 1 4 0 2 2

b) Year & Department : IV – Mech.

c) Subject code & Title : 01E751 – Robotics

d) Date & Session (FN/AN) : 21/09/2022/FN

e) Number of pages used : 08

21/9/22
[S. SUDHAKARAN]
Name and Signature of the Hall Superintendent with Date

Students has to put a tick (✓) mark for the questions attended in tick mark column

PART-A

Question No.	✓	CO..1. Marks	CO..2. Marks
1.	✓	2	
2.	✓	2	
3.	✓	2	
4.	✓		2
5.	✓		2
TOTAL		6	4
TOTAL MARKS		10	

Students has to put a tick (✓) mark for the questions attended in tick mark column

PART-B & C

Question No.		(i) ✓	i CO..1. Marks	i CO..2. Marks	(ii) ✓	ii CO...1 Marks	ii CO..2. Marks	Total Marks
6.		✓	8					8
7.	a)	✓		15				15
	b)							
8.	a)	✓	15					15
	b)							
TOTAL			23	15				38

CO. No.	Total Marks	Attained Marks
CO...1...	30	29
CO...2...	20	19

Grand Total	48
	50

Verified S Nath

Name and Signature of the Faculty

T. Balasubramani

Name and Signature of the HoD

INTERNAL EXAM

OIE 751 - ROBOTICS

Part - A

1. Pitch, Yaw, roll.

* Pitch :- up and down rotation.
* Yaw :- left and right rotation.
* Roll :- side to side rotation.

2 Work volume.

Work volume refers to the three dimensional space within which a robot or a robotic system can perform its tasks or operations. It defines the reachable area or space where the end effector or tool of the robot can move and interact with objects.

3. Three degrees of Freedom

Translation (x, y, z) :- movement along three axes, typically representing forward/backward (x), left right (y), up/down (z) motion.

Rotation (Roll, Pitch, Yaw) :- Rotational movements around three axes typically representing side to side roll, upward down (pitch), left to right (yaw) rotation.

Flexion/Extension :- Bending or straightening movement. such as bending the Elbow or knee.

4| Robot and end effector

* Grippers :- Grasping devices for object manipulation.
* Welding Guns :- Tool for automated welding process.
* Suction Cups :- Used for lifting smooth object.
* Cutting Tools :- Blades for trimming or machining tasks
* 3D Print Heads :- Nozzles for additive manufacturing.

5. End effector.

End effector are devices or tools attached to the end of a robotic arm or manipulator, designed to perform specific task such as grasping objects, welding, cutting or any other action required by the application.

PART – B

6. The Industrial robot

Industrial robot can be classified into several types based on their mechanical structure, application, and control system. Here's a brief overview:

Articulated Robots :-

These robots have rotary joints resembling a human arm allowing for multi axis movement they are versatile and commonly used in assembly, welding, and painting applications.

SCARA robots :-

SCARA robots have two parallel rotary joints for horizontal motion and one linear joint for vertical motion.

Cartesian / gantry Robots :-

these robots move along three linear axes (x, y, z) similar to a CNC machine. To applications requiring precise linear motion, such as material handling, packaging, and CNC machining.

Delta robot :-

Delta robot contist of three arms connected to a central platform. They are known for their high-speed and precision, making them ideal.

Parallel robot :-

Also known as parallel manipulators these robot have multiple limbs connected to the end effector and base through parallel linkages.

Collaborative robots :-

robots are designed to work alongside humans in a shared workspace safety. They feature advanced sensors and programming to detect and respond to human presence machine tending, and quality inspection.

Mobile robot :-

* These robot are equipped with wheels are tracks for autonomous movement within a workspace.

* Each type of industrial robot has it own strength and limitation, making them suitable for different applications depending on factors such as speed requirement.

PART - C

7. Pneumatic Actuator

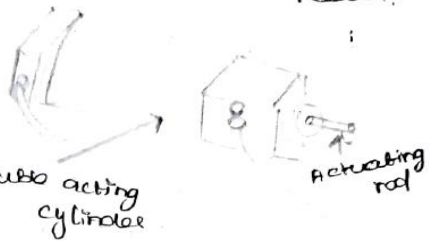
A pneumatic actuator system is a mechanism that uses compressed air generate motion. It typically consists of a pneumatic cylinder, valves, hose and an air compressed. Here is a brief explanation along with a simple sketch.

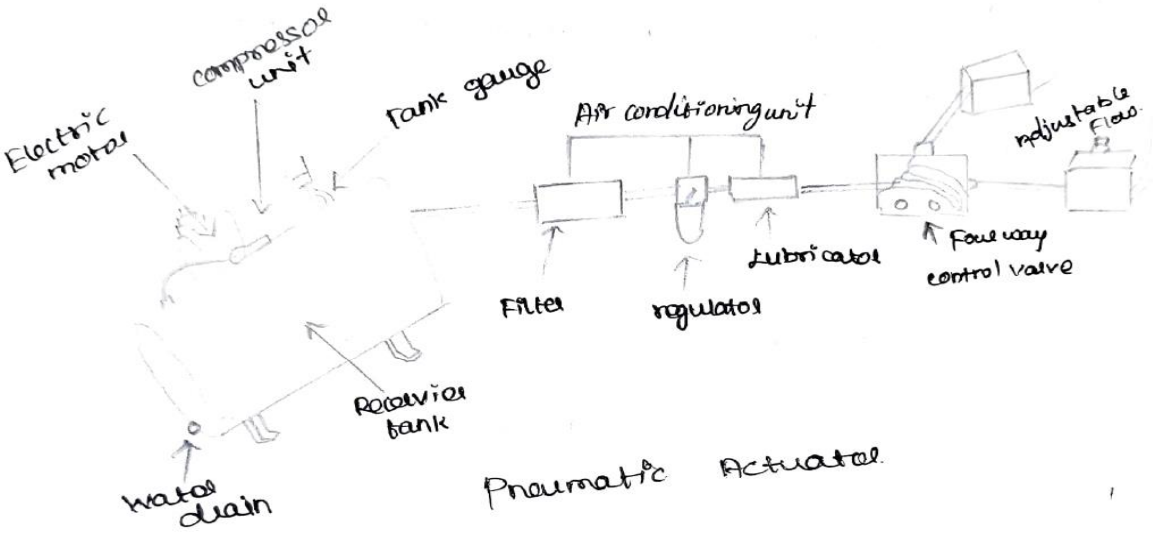
Component of pneumatic Actuator system.

Pneumatic cylinder :- The core components responsible for converting compressed air energy into linear motion. It consists of a cylindrical chamber with a piston inside.

Valve :- Valve control the flow of compressed air into and out of the pneumatic cylinder. A directional control valve direct air flow to either extend or retract the piston in the cylinder.

Air compressor :- The air compressor supplies compressed air to the system. It pressurizes the air, which is then stored in a reservoir and distributed to the pneumatic actuators as needed.





Pneumatic Actuator

Working Principle :-

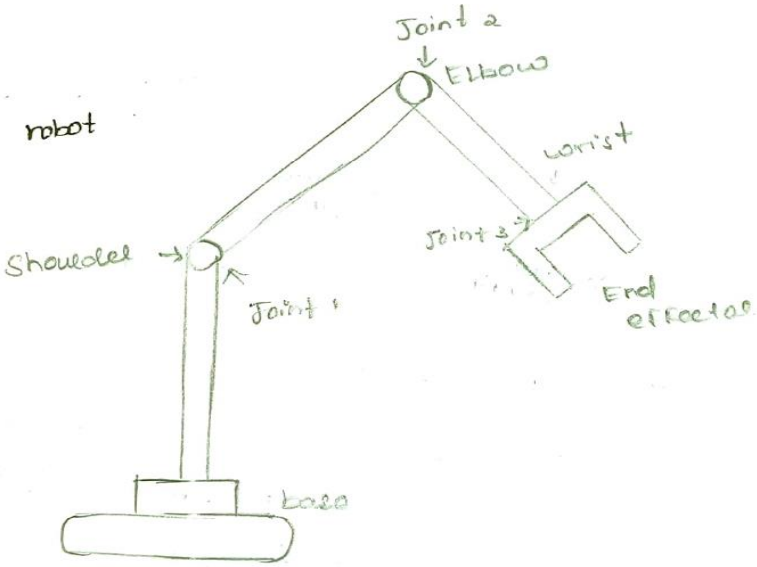
* Extension :- When compressed air is directed into one side of the pneumatic cylinder by the directional control valve, it pushes the piston, causing it to Extend outward.

* Retraction :- By reversing the direction of the air flow using the directional control valve, the piston retracts back into the cylinder.

* Pneumatic cylinder with a piston inside is connected to an air compressor. When the valve directs compressed air into one side of the cylinder, the piston extends.

* The basic setup illustrates how pneumatic actuators generates linear motion using compressed air, making them suitable for various applications in industries such as manufacturing, automation, and robotics.

8. End effector of an robot



Industrial robot are complex machines designed to automate various manufacturing processes, performing tasks such as welding, painting, assembly, palletizing, Packaging, and more.

Base :-

The base is the foundation of the robot providing stability and support. It often contains the robot's motors and drive mechanisms. Which allow it to move.

Arm :-

The arm is the main body of the robot, consisting of multiple segments called links. These links are connected by joints that allow the arm to move in different directions. Common types of joint includes.

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* Prismatic joint :- Enables linear motion along a single axis, similar to a piston.

End effector :-

Also known as the robot's hand the end effector is the tool or attachment that interacts with the workpiece. End effectors can vary widely depending on the specific task the robot is performing. Examples include grippers, welding torches, suction cups, and specialized tools for the tasks like painting or assembly.

Actuator and motors :-

Actuator are devices that convert energy into mechanical motion. these motors are controlled by the robot's controller, which sends commands to dicate the desired motion.

Sensor :-

* Sensors play a crucial role in industrial robots by providing feedback about the robot's environment and its own state.

* position sensor :- provide information about the position and orientation of the robot joint.

Controller :-

* The controller is the brain of the industrial robot, responsible for interpreting commands, coordinating motion, and managing interactions with peripheral devices such as sensor and Actuator.

* It typically includes hardware components such are processors, memory, and input / output interface programming and controlling the robotic behaviour.

Safety features :-

* Industrial robots are equipped with various safety features to protect human operators and prevent accidents. these may include.

* Emergency stop buttons :- Allows immediate halting of robot motion in case of emergencies.

* collision detection systems :- sensors that detect unexpected collisions between the robot and its surroundings, triggering a safety response.

Model Practical Examination Schedule

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Department of Mechanical Engineering

Model Practical Examination

Laboratory Schedule

ME3461-Thermal Engineering Laboratory

S. No.	Degree/Branch	Date & session of exam	Register number	Total Number of students
1.	B.E/MECH-BATCH-I	28.04.2023 9.30 a.m. to 12.30 p.m.	920821114001 - 920821114008, 920821114011 - 920821114014, 920821114016, 920821114018-920821114020	16
2.	B.E/MECH-BATCH-II	28.04.2023 1.00 p.m. to 4.00 p.m.	920821114021 – 920821114030 920821114301 - 920821114306	16

HOD - MECH

PRINCIPAL

Dr. J.SUNDARARAJAN
B.E., M.Tech., Ph.D
Principal
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Department of Mechanical Engineering

Model Practical Examination

Laboratory Schedule

CE3481-Strength of Materials and Fluid Machinery Laboratory

S. No.	Degree/Branch	Date & session of exam	Register number	Total Number of students
1.	B.E/MECH-BATCH-I	29.04.2023 9.30 a.m. to 12.30 p.m.	920821114001 - 920821114008, 920821114011 - 920821114014, 920821114016, 920821114018-920821114020	16
2.	B.E/MECH-BATCH-II	29.04.2023 1.00 p.m. to 4.00 p.m.	920821114021 – 920821114030 920821114301 - 920821114306	16

HOD - MECH

PRINCIPAL

Dr. J.SUNDARARAJAN, B.E., M.Tech., Ph.D.,
Principal
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Natham, Dindigul

MODEL PRACTICAL QUESTION SET

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Department of Mechanical Engineering

Model Practical Examinations

Fourth Semester

ME3461- THERMAL ENGINEERING LABORATORY

(Regulations 2021)

Time: 3 Hours Answer any one Question Max. Marks 100

Aim/Principle/Apparatus required/Procedure	Tabulation/Circuit/ Program/Drawing	Calculation & Results	Viva-Voce	Record	Total
20	30	30	10	10	100

1. Determine the valve timing and port timing diagram for a 4-stroke diesel engine and observe the different readings of opening and closing of ports **(100 Marks)**

2. Conduct an experiment to draw the actual P-V diagram for a 4- stroke diesel engine **(100 Marks)**

3. Determine the performance characteristics of a 4-stroke diesel engine at 20%, 40%, 60% & 80% of different loads using Mechanical Loading and draw the performance curves **(100 Marks)**

4. Determine the heat balance sheet calculations at 0%, 20%, 40%, 60% & 80% of different loads in minutes basis for 4-stroke diesel engine **(100 Marks)**

5. Plot the curves of BP vs TFC, SFC, A/F and mechanical efficiency for multi cylinder petrol engineby Morse test and also calculate the frictional power **(100 Marks)**

6. Plot the curves of BP vs TFC, SFC, A/F and mechanical efficiency for diesel engine by retardationtest and also calculate the frictional power **(100 Marks)**

7. Conduct an experiment to draw the actual P-Θ diagram and determine the heat release characteristics of IC engine **(100 Marks)**

8. Determine the flash point and fire point of given fuel/lubricant by using BITUMEN closed cup /open cup apparatus **(100 Marks)**

9. Determine the performance characteristics of a Two – stage reciprocating air compressor and and calculate its volumetric efficiency and overall efficiency. Draw the performance curves of a compressor. **(100 Marks)**

10. Calculate the co-efficient of performance of vapour compression refrigeration system and determine the refrigeration effect, actual COP and theoretical COP of the system. **(100 Marks)**

11. Study about the different types of steam generator and steam turbines. **(100 Marks)**

12. Determine the performance characteristics and energy balance test on steam generator and draw the necessary curves. **(100 Marks)**

13. Determine the performance characteristics and energy balance test on steam turbine and draw the necessary curves. **(100 Marks)**

14. Determine the performance characteristics on a fluidized bed cooling tower unit and find outthe overall efficiency of cooling tower **(100 Marks)**

15. Determine the performance characteristics on HC refrigeration rig and calculate the C.O.P refrigeration efficiency. **(100 Marks)**

16. Conducting the performance test on steam boiler and write the relevant equations to determine performance parameters.**(100 Marks)**

17. Conducting the performance test on steam turbine and write the relevant equations to determine performance parameters.**(100 Marks)**

18. Study the working of Impulse and Reaction steam turbines in detail **(100 Marks)**

19. Study the working principle of steam generator **(100 Marks)**

INTERNAL EXAMINER

HOD-MECH

MODEL PRACTICAL ANSWER SHEET

B. Karthick
9208211124019
II - mech

ME3461 - Thermal Engineering Lab

Aim:

To draw the port timing diagram of given two Stroke petrol engine.

Apparatus required:

-> Two Stroke petrol engine
-> measuring tape
-> Chalk

96/100

Procedure:

-> mark the diagram of rotation of the flywheel always rotate only in clockwise direction when viewing in-front of the flywheel.

-> mark the TPO, TPC, EPO and EPC on the flywheel observing the following condition.

-> Transfer port open (TPO) when the top edge of the piston just open the top most part of the transfer port during its downward movement.

-> Transfer port close (TDC) when the top edge of the piston fully reaches the upper most part of the transfer port during upward movement.

Time Duration for Exhaust port opening

$\theta_e = 65^\circ 38^6 + 63^\circ 31^6$

$\theta_e = 128^\circ 59^6$ (Assume engine speed = 2000 rpm)

$t_e = 128^\circ 59^6 \times 60 / (360 \times 2000)$

$t_e = 0.011$ sec

Time Duration for Transfer port opening

$\theta_z = 58^\circ 35^6 + 53^\circ 10^6$

$\theta_z = 111^\circ 45^6$

$t_z = 111^\circ 45^6 \times 60 \ (360 \times 2000)$

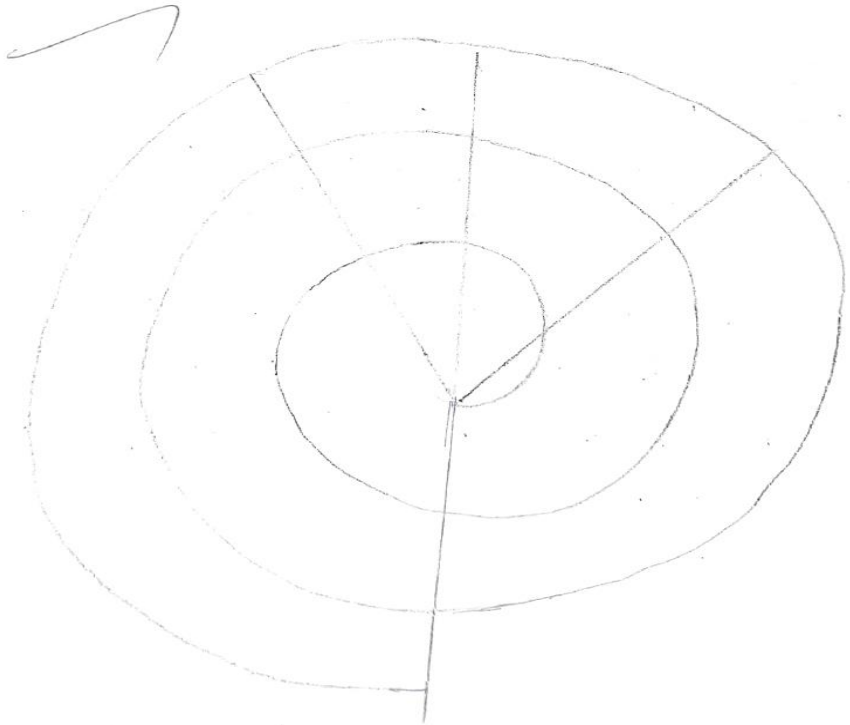
$t_z = 0.00938$ sec

TABULATION

Sl No	Description	Position from dead centre	Distance in mm	Angle in degrees
1	Exhaust port closing (EPC)	After BDC	8.3	$58^\circ 35^6$
2	Exhaust port opening (EPO)	Before BDC	9.3	$65^\circ 38^6$
3.	Transfer port closing (TPC)	After BDC	8.1	$57^\circ 10^6$
4.	Transfer port opening (TPO)	Before BDC	9.0	$63^\circ 31^6$

TABULATION

S.NO	Description	Position from Deadcentre	Distance in mm	Angle in degrees
1	Intel value opening (IVO)	After TDC	8.0	23°24'
2	Intex value closing (IVC)	After BDC	3.3	9°39'
3.	Exhaust value opening (EVO)	Before BDC	12.1	35°24'
4	Exhaust value closing (IVC)	After TDC	6.9	20°11'



Aim:

To draw the valve timing diagram of the given four stroke cycle Diesel engine.

Apparatus Required:

-> Four stroke cycle Diesel engine
-> measuring tape
-> chalk

PROcedure

-> mark the direction of rotation of the flywheel. Alway rotate in clockwise direction when viewing in-front of the flywheel.

-> mark the top Dead centre (TDC) position on the flywheel with reference point when the piston reaches the top most position during the rotation of flywheel.

-> mark the Bottom Dead centre (BDC) position on the flywheel with the reference point when the piston reaches the lower most position during rotation of the flywheel.

-> mark the opening and closing event of the inlet and exhaust valve on the flywheel.

-> measure the circumferential distance of the above event either from TDC or from BDC nearer and calculate their respective angle.

-> Exhaust port open (EPO) when the top edge of the piston just opens the top most part of the exhaust port during it downward movement

-> Exhaust port closed (EPC) when the top edge of the piston fully reaches the upper most part of the exhaust port during it upward movement

-> Draw a circle and mark the angle.

Formulas:

Angle = L/k x 360 degrees

where

L -> distance from nearest dead centre in mm

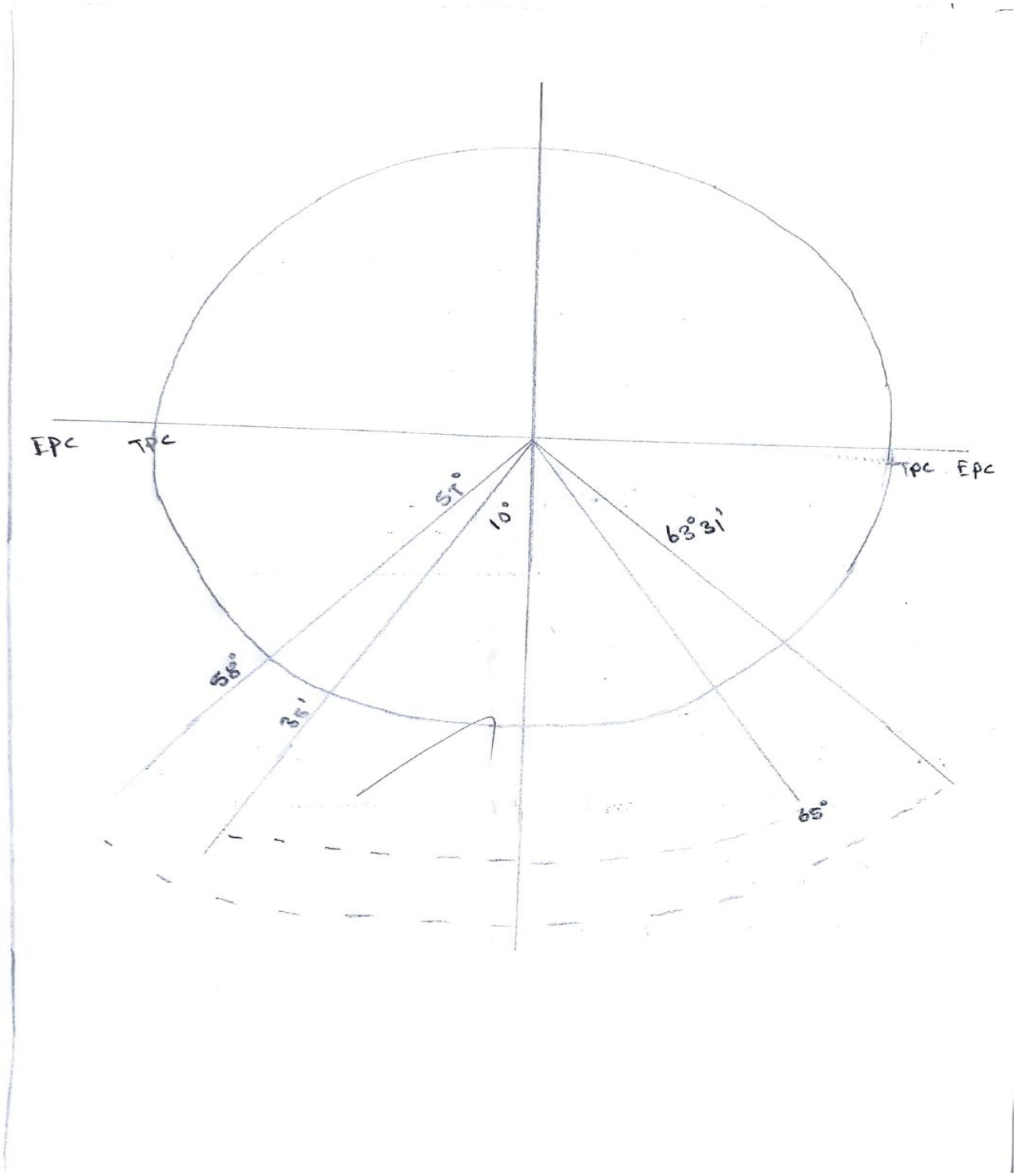
X -> circumference of the flywheel in mm = 51cm

RESULT:

Thus the port timing diagram is drawn for the given petrol.

engine time Duration for Exhaust port opening = 0.011sec

Time Duration for transfer port opening = 0.00922 sec


FPC
TPC
TPC
EPC
51°
10°
63°31'
55°
35'
65°

Time Duration for Exhaust valve opening

$\theta_e = 180 + 35^\circ 24' + 20^\circ 11' = 235^\circ 35'$

(Assume Speed = 1500 rpm)

$t_e = 235^\circ 35' / (360 \times 1500)$

$t_e = 0.0262$ sec

Time Duration for Inlet valve opening

$\theta_z = 180 - 23^\circ 24' + 9^\circ 39'$

$\theta_z = 166^\circ 15'$

$t_z = 166^\circ 15' \times 60 (360 \times 1500)$

$t_z = 0.0185$ sec

→ Draw the valve timing diagram and indicate the valve opening and closing periods.

FORMULAS:

Angle = $l/k \times 360$ degree

where l → Distance from nearest dead centre in mm

x → circumference of the flywheel in mm = πd

RESULT

Thus the valve timing diagrams is drawn for the given diesel engine.

Time Duration for Exhaust valve opening = 0.02625 sec

Time Duration for Inlet valve opening = 0.0185 sec

PROJECT DETAILS

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Department of Mechanical Engineering

ME8811-Project Work

Year/Semester: IV/VIII **Batch:2019-2023**

The below table shows the project details of academic year 2022-23

Batch No.	Students Register Number	Students Name	Title of the Project	Area of Specialization	Type of Project (Application, Product, Research, Review)	Relevance (Environment, safety, ethics, cost, standards)	Name of the Supervisor	Contribution / Achievements / Research Output	Mapping with stated Pos and PSOs	
									POs	PSOs
1.	920819114001	Abilash A	Design and Fabrication of Multipurpose Machine using CAM Operated Mechanism	Design Engineering	Application	cost	Mr. T. Balasubramani AP/Mech	Development of a versatile multipurpose machine utilizing CAM-operated mechanism for diverse applications.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
	920819114014	Manikandan N								
	920819114029	Ramakrishnan B								
	920819114035	Saravanakumar M								
	Impact Analysis: Students are able to design and fabricate a multipurpose machine using CAM operated mechanism, with impact analysis indicating improved efficiency, versatility, and precision in various industrial applications.									
2.	920819114013	Mahalakshmi G	Design and Fabrication of Mobile operated Medical Assistance Robot in Hospital	Production Engineering	Product	cost	Mr. M. Mathan Raj AP/Mech	Creation of a mobile-operated medical assistance robot for enhanced patient care and efficiency in hospital settings.	PO1, PO2 PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
	920819114028	Rakesh S								
	920819114037	Shobana K								
	920819114039	Velpackiyaraj M								
	Impact Analysis: Students are able to design and fabricate a mobile-operated medical assistance robot in hospitals, enabling efficient and precise patient care and enhancing healthcare delivery.									

Batch No.	Students Register Number	Students Name	Title of the Project	Area of Specialization	Type of Project (Application, Product, Research, Review)	Relevance (Environment, safety, ethics, cost, standards)	Name of the Supervisor	Contribution / Achievements / Research Output	Mapping with stated Pos and PSOs	
									POs	PSOs
3.	920819114002	Anbarasan V	Self-Rechargeable Electric Car	Production Engineering	Product	Environment	Mr. G. Sundararajan AP/Mech	Development of a self-rechargeable electric car system to enhance sustainability	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
	920819114016	Meenakshi Sundaram G								
	920819114022	Nagaraj S								
	920819114026	Raghulpandian B								
	Impact Analysis: Students are able to assess the negative environmental impacts of self-rechargeable electric cars, including resource depletion and electronic waste.									
4.	920819114004	Ashwin S.J	Study of Mechanical Properties of Aluminum Graphene Composites	Production Engineering	Research	cost	Dr. M. Pal Pandi AP/Mech	Characterization of mechanical properties in Al-graphene composites for advanced applications.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
	920819114015	Manikandan R								
	920819114019	Mohana Ragul P								
	920819114030	Ramanan M								
	Impact Analysis: Students are able to conduct impact analysis on mechanical properties of aluminum graphene composites, revealing potential for lightweight, high-strength materials.									
5.	920819114010	Gowthaman M	Design and Fabrication of Development of Humanoid Robot system for cleaning Sewage by 3D Printed Parts	Automobile Engineering	Application	Environment	Mr. T. Bala subramani AP/Mech	Creation of a humanoid robot system utilizing 3D printed parts for efficient sewage cleaning operations.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
	920819114012	Iman Mohammed T								
	920819114027	Rakesh M								
	920819114032	Ruban P								
	Impact Analysis: Students are able to analyze the impact of developing a humanoid robot system for cleaning sewage using 3D printed parts, showcasing advancements in sanitation automation.									

Batch No.	Students Register Number	Students Name	Title of the Project	Area of Specialization	Type of Project (Application, Product, Research, Review)	Relevance (Environment, safety, ethics, cost, standards)	Name of the Supervisor	Contribution / Achievements / Research Output	Mapping with stated Pos and PSOs	
									POs	PSOs
6.	920819114005	Ayyamperumal P	Retrofittings of normal Bicycle into Electrical Bicycle	Production Engineering	Product	Environment	Mr. P. Gopi AP/Mech	Development of retrofitting technology to convert conventional bicycles into electric bicycles	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2,
	920819114006	Balakumaresan S								
	920819114021	Muthusamy P								
	920819114023	Naveenraj K								
	Impact Analysis: Students are able to analyze the impact of converting regular bicycles into electric ones, promoting eco-friendly transportation and reducing carbon emissions.									
7.	920819114008	Dineshpandi B	Performance and Emission Characteristics of Bio Diesel from Orange Peel with Cashew Nut Shell Liquid	Automobile Engineering	Research	Environment	Mrs. K. R. Kavitha AP/Mech	Performance and emission attributes of biodiesel derived from orange peel and cashew nut as a sustainable alternative fuel.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO 1, PSO 2
	920819114018	Mohamed Siddiq A								
	920819114033	Sangaran S								
	920819114701	Veeramanikandan M								
	Impact Analysis: Students are able to analyze the impact of retrofitting normal bicycles into electric bicycles, highlighting benefits such as reduced carbon emissions and enhanced sustainable transportation.									
8.	920819114020	Mugeshwaran N	Mechanical Properties of Alkali Treated Madar Hibiscus Cannabinus and Gongura Fiber Reinforced Polymer Composites	Automobile Engineering	Research	cost	Dr. S. Paul singarayar ASP/Mech	Testing strength of polymer composites with treated Madar Hibiscus Cannabinus and Gongura fibers.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO 1, PSO 2
	920819114024	Nitheswar M								
	920819114025	Payavulla Sai Prasad								
	Impact Analysis: Students are able to explore the mechanical properties of alkali-treated Madar Hibiscus Cannabinus and Gongura fiber reinforced polymer composites, suggesting advancements in lightweight, eco-friendly materials.									

Batch No.	Students Register Number	Students Name	Title of the Project	Area of Specialization	Type of Project (Application, Product, Research, Review)	Relevance (Environment, safety, ethics, cost, standards)	Name of the Supervisor	Contribution / Achievements / Research Output	Mapping with stated Pos and PSOs	
									POs	PSOs
9.	920819114031	Ramkumar A	An Investigation of corrosion Behaviors on Mg-Ag Alloy	Automobile Engineering	Research	Standards	Dr. N. Mathan Kumar ASP/Mech	Study on corrosion behavior of Mg-Ag alloy.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO 1, PSO 2
	920819114034	Sankar G								
	920819114036	Shaarif Ahamed S								
	920819114038	Sivakumar S								
	Impact Analysis: Students are able to investigate the corrosion behavior of Mg-Ag alloy, providing insights into potential improvements in corrosion resistance for magnesium-based materials.									

Project Coordinator
Dr. M. PalPandi

HoD-MECH
Dr. T. Saravana Kannan

Department of Mechanical Engineering
ME8811 Project Work
First Review Mark

Academic Year 2022-23 Date: 23.03.2023

S. No.	Batch No.	Students Register Number	Students Name	Presentation	Domain Explanation	Communication	Queries	Total Marks
1.	B1	920819114001	Abilash A	23	23	24	23	93
		920819114014	Manikandan N	22	24	23	22	91
		920819114029	Ramakrishnan B	24	23	22	24	93
		920819114035	Saravanakumar M	25	24	24	23	96
2.	B2	920819114013	Mahalakshmi G	25	24	24	24	97
		920819114028	Rakesh S	24	23	22	24	93
		920819114037	Shobana K	24	21	23	24	92
		920819114039	Velpackiyaraj M	21	22	23	24	90
3.	B3	920819114003	Anbarasan V	24	23	22	24	93
		920819114016	Meenakshi Sundaram	23	22	24	23	92
		920819114022	Nagaraj S	24	22	23	25	94
		920819114026	Raghulpandian B	24	23	22	24	93
4.	B4	920819114004	Aswinbalaji S	22	23	24	24	93
		920819114015	Manikandan R	24	23	24	22	93
		920819114019	Mohana Ragul P	23	24	22	23	92
		920819114030	Ramanan M	24	23	25	22	94
5.	B5	920819114010	Gowthaman M	23	24	22	23	92
		920819114012	Iman Mohammed T	24	23	22	23	92
		920819114027	Rakesh M	23	24	23	22	92
		920819114032	Ruban P	23	24	22	23	92
6.	B6	920819114005	Ayyamperumal P	23	24	23	23	93
		920819114006	Balakumaresan S	23	22	23	20	88
		920819114021	Muthusamy P	24	23	24	22	93
		920819114023	Naveenraj K	23	24	23	21	91
7.	B7	920819114008	Dineshpandi B	23	24	23	21	91
		920819114018	Mohamed Siddiq A	23	24	23	25	95
		920819114033	Sangaran S	21	22	25	23	91
		920819114701	Veeramanikandan M	23	24	22	21	90

S. No.	Batch No.	Students Register Number	Students Name	Presentation	Domain Explanation	Communication	Queries	Total Marks
8.	B8	920819114020	Mugeshwaran N	23	24	23	22	92
		920819114024	Nitheswar M	21	22	24	21	88
		920819114025	Sai prasad P	23	22	24	22	91
9.	B9	920819114031	Ramkumar A	24	21	23	24	92
		920819114034	Sankar G	23	22	24	21	90
		920819114036	Shaarif Ahamed S	23	24	23	22	92
		920819114038	Sivakumar S	23	22	21	20	86

Project Coordinator
Mr. M. Palpandi, AP/Mech

HOD-Mech
Dr. T. Saravana Kannan

Department of Mechanical Engineering
ME8811 Project Work
Second Review Mark

Academic Year 2022-23 **Date: 04.04.2023**

S. No.	Batch No.	Students Register Number	Students Name	Presentation	Domain Explanation	Communication	Queries	Total Marks
1.	B1	920819114001	Abilash A	24	23	22	24	93
		920819114014	Manikandan N	23	22	20	21	86
		920819114029	Ramakrishnan B	22	21	20	22	85
		920819114035	Saravanakumar M	23	22	21	22	88
2.	B2	920819114013	Mahalakshmi G	25	25	25	20	95
		920819114028	Rakesh S	23	22	23	24	92
		920819114037	Shobana K	21	22	23	21	87
		920819114039	Velpackiyaraj M	24	23	22	21	90
3.	B3	920819114003	Anbarasan V	23	21	22	21	87
		920819114016	Meenakshi Sundaram	20	21	23	22	86
		920819114022	Nagaraj S	21	23	22	21	87
		920819114026	Raghulpandian B	21	22	23	21	87
4.	B4	920819114004	Ashwin S.J	22	21	23	21	87
		920819114015	Manikandan R	23	21	24	21	89
		920819114019	Mohana Ragul P	22	21	23	21	87
		920819114030	Ramanan M	22	21	23	21	87
5.	B5	920819114010	Gowthaman M	21	22	23	24	90
		920819114012	Iman Mohammed T	21	23	21	24	89
		920819114027	Rakesh M	21	22	21	23	87
		920819114032	Ruban P	21	23	21	22	87
6.	B6	920819114005	Ayyamperumal P	21	22	23	21	87
		920819114006	Balakumaresan S	22	21	23	21	87
		920819114021	Muthusamy P	20	20	21	20	81
		920819114023	Naveenraj K	21	22	21	20	84

S. No.	Batch No.	Students Register Number	Students Name	Presentation	Domain Explanation	Communication	Queries	Total Marks
7.	B7	920819114008	Dineshpandi B	21	22	23	20	86
		920819114018	Mohamed Siddiq A	21	22	21	24	88
		920819114033	Sangaran S	22	23	24	21	90
		920819114701	Veeramanikandan M	21	21	23	24	89
8.	B8	920819114020	Mugeshwaran N	21	22	21	21	85
		920819114024	Nitheswar M	21	22	24	21	88
		920819114025	Sai prasad P	23	22	24	22	91
9.	B9	920819114031	Ramkumar A	24	21	23	24	92
		920819114034	Sankar G	23	22	24	21	90
		920819114036	Shaarif Ahamed S	23	24	23	22	92
		920819114038	Sivakumar S	23	22	21	20	86

Project Coordinator
Mr. M. Palpandi, AP/Mech

HOD-Mech
Dr. T. Saravana Kannan

Department of Mechanical Engineering
ME8811 Project Work
Third Review Mark

Academic Year 2022-23 **Date: 20.04.2023**

S. No.	Batch No.		Students Name	Presentation	Domain Explanation	Communication	Queries	Total Marks
1.	B1	920819114001	Abilash A	22	21	23	21	87
		920819114014	Manikandan N	22	21	22	23	88
		920819114029	Ramakrishnan B	21	22	24	23	90
		920819114035	Saravanakumar M	21	23	25	24	93
2.	B2	920819114013	Mahalakshmi G	21	22	24	21	88
		920819114028	Rakesh S	21	22	23	21	87
		920819114037	Shobana K	23	25	25	25	98
		920819114039	Velpackiyaraj M	24	20	23	22	89
3.	B3	920819114003	Anbarasan V	24	22	23	24	93
		920819114016	Meenakshi Sundaram G	23	25	24	22	94
		920819114022	Nagaraj S	22	21	23	24	90
		920819114026	Raghulpandian B	23	23	21	23	90
4.	B4	920819114004	Ashwin S.J	23	24	22	23	92
		920819114015	Manikandan R	21	24	21	23	89
		920819114019	Mohana Ragul P	21	23	24	24	92
		920819114030	Ramanan M	23	24	25	23	95
5.	B5	920819114010	Gowthaman M	23	24	24	22	93
		920819114012	Iman Mohammed T	23	24	22	23	92
		920819114027	Rakesh M	23	24	25	23	95
		920819114032	Ruban P	23	25	22	23	93
6.	B6	920819114005	Ayyamperumal P	24	23	24	23	94
		920819114006	Balakumaresan S	23	24	23	22	92
		920819114021	Muthusamy P	23	24	23	23	93
		920819114023	Naveenraj K	23	23	22	22	90
7.	B7	920819114008	Dineshpandi B	20	23	21	21	85
		920819114018	Mohamed Siddiq A	23	24	23	23	93
		920819114033	Sangaran S	21	21	20	22	84
		920819114701	Veeramanikandan M	23	22	21	22	88

S. No.	Batch No.	Students Register Number	Students Name	Presentation	Domain Explanation	Communication	Queries	Total Marks
8.	B8	920819114020	Mugeshwaran N	23	24	23	25	95
		920819114024	Nitheswar M	23	22	23	24	92
		920819114025	Sai prasad P	23	22	24	23	92
9.	B9	920819114031	Ramkumar A	23	22	23	23	91
		920819114034	Sankar G	24	22	22	23	91
		920819114036	Shaarif Ahamed S	23	22	24	23	92
		920819114038	Sivakumar S	23	22	24	23	92

Project Coordinator
Mr. M. Palpandi, AP/Mech

HOD-Mech.
Dr. T. Saravana Kannan