Department of Electronics & Telecommunication Engineering

Academic Year – 2020-21	Class: Second Year
Semester – I	Date : 05-10-2020
CO: 3	PO: 1,2,8,10,12

Innovative Teaching Methods

Title of Innovation method/activity: Collaborative Jigsaw

1. **Name of Faculty**: Mr. Viraj R Sonawane.

2. **Subject:** System Programming and Operating System

3. **Objective of Method:**

   1. Acquire the various Concept of Combinational circuit and ability to share acquired knowledge.
   2. Analyze, design and implement combinational logic circuits.

4. **Topic Covered through Activity**:

   Combinational Circuits

CODE	Topic	BT Level
T1	Adders and their use as subtractor Design 4-bit Binary subtractor using IC-74LS83.	6
T2	Design 1-digit BCD adder usingIC-74LS83.	6
T3	Digital Comparator Design and Implement 8-bit Comparator IC-74LS85	6
T4	Parity generators/checkers, Design Parity generator for 3 bit variable using Multiplexer	6
T5	Multiplexers and their use in combinational logic designs, multiplexer trees Design 8:1 MUX using IC-74LS153	6
T6	De-multiplexers and their use in combinational logic designs, Decoders, Demultiplexer trees Design & Implement 3-bit code converter using IC-74LS138. (Gray to Binary)	6

5. **Description of method with Benefits (8 – 10 lines) :**

- Jigsaw is a collaborative learning technique that gives students practice in the acquisition and presentation of new material, in review, and in informed debate. Interdependence and status equalization are developed.
- **The method** :
    - Each student on the team becomes an "expert" on one topic
    - "Experts" group with members from other teams assigned the corresponding expert topic.
    - Upon returning to their teams, each one, in turn, teaches the group.

Roles and Responsibilities

- **Teacher**
    - Provide the Introduction to all the topic.
    - Aware the student about the length, Breadth, Depth of Topic
    - Provide the Study Material and appropriate guide lines at every stage
    - Remain available all the time during all stages of process.
    - Prepare assessment methodology.
- **Student**
    - Go through all the material provided on particular topic
    - Once topic assigned understand and gain expertise on topic through collaboration.
    - Actively participate in group and contribute by means of discussion, hand-out
    - Share the expertise topic when joins a new group.
- **Group**
    - Develop the guidelines to establish group.(i.e. Decide the roll of all participants)
    - Every group should gain the expertise on particular topic.
    - Prepare at least one page Hand-out / Report which cover all the details corresponding to the topic.
    - While preparing the report make sure all the content are covered.
    - Appropriate references should be given.
    - Grammatical mistake should be checked.
    - Develop the guidelines with which every group member can share the topic they learn

6. Assessment Tools & Rubrics :

- **Quiz** (60 %)
    - Individual performance would be checked through the quiz.
- **One Page Report / Hand out / Presentation Video (20 %)**
    - Group Report would be checked by teacher according to the rubrics.
- **Polling** (20 %)
    - Every student would rate understanding of all topics which reflect the communication skill of particular group through polling.

- **Overall Individual Performance**
  - Final Marks Obtained = (0.6 *(Quiz Marks/ 30) + 0.2 * Report_Marks +0.2* Polling Marks)

Rubrics for Assessment of One Page Report / Hand out

Criteria	Excellent (10-9)	High(8-7)	Moderate(6-5)	Slight (4-1)
Topic Content (60 %)	Highly relevant and concise	Highly Relevant	Moderately Relevant	Slightly Relevant
References (20 %)	Highly Relevant References used along with own comment	Highly Relevant	Moderately Relevant or improperly written	No / Wrong References
Presentation and Writing Skill (20 %)	Neat , Clean Diagrams & Grammatically Correct	Diagrams & Grammatically Correct	Diagrams included	Poorly Written

Marks for One page Report:

		OUT OF 10 MARK			
SN	**Group No**	**Topic Content (60 %)**	**References (20 %)**	**Presentation and Writing Skill (20 %)**	**Final Marks (100 %)**
1.	T1	10	5	10	9
2.	T2	10	5	8	8.6
3.	T3	9	5	8	8
4.	T4	10	7	9	9.2
5.	T5	8	5	6	7
6.	T6	6	6	7	6.2

Polling Marks

OUT OF 10 MARK				
SN	**Group No**	**How Much do you find explanation or notes or presentation material OR Video of particular topic helpful (CO3)**	**How Much do would rate understanding of topic (CO3)**	**Final Marks (100 %)**
1.	T1	4.15	4.00	8.15
2.	T2	4.17	4.23	8.40
3.	T3	4.09	3.96	8.04
4.	T4	4.21	4.30	8.51
5.	T5	4.09	4.06	8.15
6.	T6	4.23	4.17	8.40

7. **Evaluation Sheet**

Final Marks = 0.2 * Polling +0.2 * Report + 0.6 * (Quiz / 30)

			OUT OF 10 MARK			
Sn	**Name**	**Topic Code**	**Group Polling Marks (20 %)**	**Report (20 %)**	**Quiz (60 %)**	**Final Marks (100 %)**
1	Apurva Jitendra Sali	1	8.15	9	10	9.43
2	Jagruti Pratap Borse	1	8.15	9	10	9.43
3	Jaydip Gorakshanath Pathak	1	8.15	9	10	9.43
4	Nikita Ravindragir Gosavi	1	8.15	9	10	9.43
5	Dhirajkumar Saindani	1	8.15	9	10	9.43
6	Nikita Raosaheb Navale	1	8.15	9	10	9.43
7	Priyanka Janardhan Borse	1	8.15	9	9	8.83
8	Ishwar Changdev Devkar	1	8.15	9	8	8.23
9	Ayush Prashant Jadhav	1	8.15	9		3.43
10	Vishe Janhavi Sunil	1	8.15	9		3.43
11	Dipak Namdev Jadhav	2	8.4	8.6	10	9.4
12	Pooja Sandeep Kalgude	2	8.4	8.6	10	9.4
13	Siddhi Hemant Bafana	2	8.4	8.6	10	9.4
14	Vaishali Dnyaneshwar Mogal	2	8.4	8.6	10	9.4
15	Payal Chaudhari	2	8.4	8.6	10	9.4
16	Sanika Yogesh Suryawanshi	2	8.4	8.6	10	9.4
17	Prachi Govind Jorwar	2	8.4	8.6	9	8.8
18	Avhad Komal Govind	3	8.04	8	10	9.208

19	Dhvani Sanjay Patel	3	8.04	8	10	9.208
20	Durva Jivanchandra Kansepatil	3	8.04	8	10	9.208
21	Hemant Gotiram Jadhav	3	8.04	8	10	9.208
22	Rituja Sunil Bedse	3	8.04	8	10	9.208
23	Manisha Anil Tipare	3	8.04	8	10	9.208
24	Jayesh Pramod Gharate	3	8.04	8	9	8.608
25	Yash Rakesh Bhavsar	3	8.04	8	6	6.808
26	Aditya Sanjay Gangurde	4	8.51	9.2	10	9.542
27	Dipali Babasaheb Gore	4	8.51	9.2	10	9.542
28	Kaveri Govindrao Kardile	4	8.51	9.2	10	9.542
29	Tanvi Mahendra Patil	4	8.51	9.2	10	9.542
30	Nikhil Bhagwat Patil	4	8.51	9.2	10	9.542
31	Gayatri Sanjay Jadhav	4	8.51	9.2	9	8.942
32	Yash Vijay Gabale	4	8.51	9.2		3.542
33	Hemant Vilas Pelmahale	5	8.15	7	10	9.03
34	Parth Jitendra Patil	5	8.15	7	10	9.03
35	Dhake Niket Ravindra	5	8.15	7	8	7.83
36	Kamlesh Raju Gorade	5	8.15	7	7	7.23
37	vaishnavi bhavsar	5	8.15	7	6	6.63
38	Nimish Rajesh Bhangale	5	8.15	7	3	4.83
39	Aditya Shamrao Patil	5	8.15	7		3.03
40	Jadhav Shubham Pravin	5	8.15	7		3.03
41	Sonawane Anushka Ramesh	5	8.15	7		3.03
42	Yash Yatin Yeola	5	8.15	7		3.03
43	priyanka chaudhari	5	8.15	7		3.03
44	Janhvi Bharatkumar Desale	6	8.4	6.2	10	8.92
45	Madhura Nitin Birari	6	8.4	6.2	10	8.92
46	Sakshi Dipak Shewale	6	8.4	6.2	10	8.92
47	Aarti Sharad Shirsat	6	8.4	6.2	9	8.32
48	Gautami Anil Patil	6	8.4	6.2	9	8.32
49	Gayatri Bhavrao Bhamare	6	8.4	6.2	9	8.32
50	Dhanashri Sharad Sonawane	6	8.4	6.2		2.92
51	Rutuja Dattu Pingle	6	8.4	6.2		2.92
52	Sagar Rajendra Aher	6	8.4	6.2		2.92
53	Sonawane Vaishnavi	6	8.4	6.2		2.92
54	Atharva Sanjay Kothawade				10	6
55	Bodke Dipendra Uttam				10	6
56	Shivani Kundan Phadtare				10	6
57	Srushti Somnath Adhav				10	6
58	Sunny Ambadas Andhalkar				10	6
59	ansushka sonawane				10	6
60	Chaitrali Mukund Gaikwad					
61	Chetan Dilip Patil					

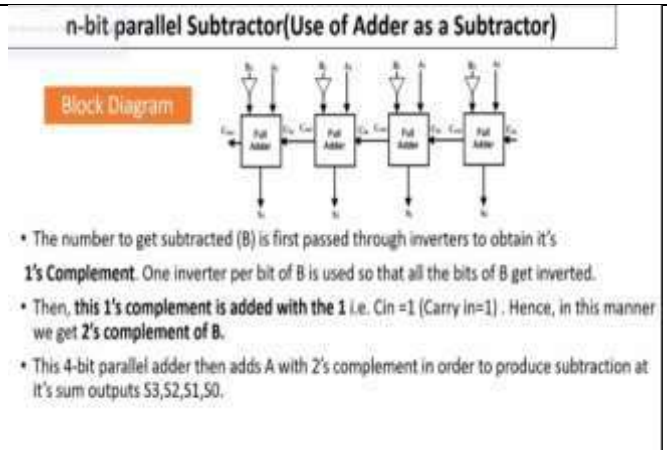
62	Mandar Narendra Tayade					
63	Sagar Jaysing Bharwad					
64	Sakshi Shailendra Udawant					

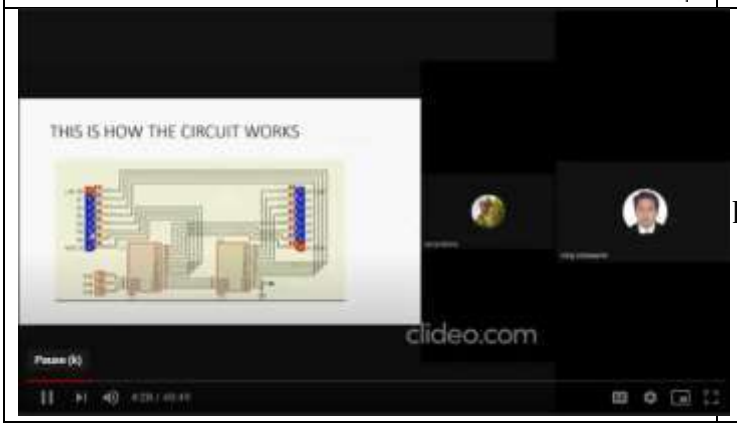
SN	Result Analysis	
1	**Total Student Present Student**	**59**
2	**Number of Student Scoring above 60%**	**46**
3	**Percentage of student Scoring above 60%**	**78%**

8. **Impact Analysis**

SN	4- Excellent	3- High	2- Moderate	1- Slight
Do you find Methodology Helpful	27	14	6	0
Does this helps for building a good team	36	7	4	0
Does the content covered are relevant	27	15	5	0
Are you able to understand the concept and design of combinational circuits (CO3)	26	16	5	0
Would You Like To Participate in This Methodology again	47-YES	0 - NO		

9. **Activity Picture**





Activity Video Link :
https://classroom.google.com/c/MTI4NzMxMTkzNzM4/m/MTgzODE4MzQ1ODMw/details

10. **For review and critique contact: e-mail address of faculty and HOD**
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Subject In charge Module Coordinator HoD