**Course File**

***Subject Title/Subject Cod : Computer Graphics and Multimedia /5CS4-04***

Semester : V Year : III

| Name of the Faculty: Naresh Mali |  |
| --- | --- |
|  |  |
| E-mail id: naresh.mali@technonjr.org |  |

**Class Schedule**

**Total Number of Lectures:** 42

i**)Course Objective**

The objectives of computer graphics and multimedia can vary depending on the specific application or context, but generally, they encompass a range of goals related to creating, manipulating, and presenting visual and interactive content. Here are some overarching objectives for computer graphics and multimedia.

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**VISSION & MISSION OF INSTITUTE**

## Vision

Empowering student with recent and emerging technologies to create innovative technical leaders capable of contributing to industrial and societal needs for betterment of mankind across the globe.

## Mission

**M1**: To provide dynamic learning environment to students by providing constant exposure to latest technologies by linking closely with the industries.

**M2**: To establish effective interface with industry to obtain live problems to enhance critical thinking and problem solving skills among students and consultancy projects for faculty.

**M3**: To provide avenues and opportunities to faculty for domain specific training and qualification upgradation.

**M4**: To develop ethical leaders with strong communication skills.

**VISION & MISSION OF DEPARTMENT**

**Department Vision**

To be among top five well known department of Computer Science and Engineering in the state of Rajasthan in placing the students at premier industry.

**Department Mission**

**M1:** To equip students with ability to be innovative and excellence to face the challenges in the digital world.

**M2:** To prepare students with high quality employ ability skills catering to current trends in industries, problem solving skills, innovative pursuits and ready to face challenges in the domain and allied disciplines.

**M3:** To provide ambience for entrepreneurship and start-ups through incubation center among students.

**M4:** To encourage continuous faculty training on industry-based Development, and Innovation.

 **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

**Technical Proficiency** Graduates will have a strong foundation in core concepts, tools, and technologies relevant to their discipline.

**Career Development** Graduate will be capable of pursuing diverse career paths in field of Computer Science & Engineering with proficiency in software development/ pursue higher education an or become entrepreneurs.

**Problem-Solving** Graduates will have a strong math foundation so that they will be proficient problem solvers, capable of identifying, analyzing , and solving complex technical problems using critical thinking and creative approaches.

**Professional Attitude** Graduates will be sensitive to societal and professional environment, possess strong communication skills and will be skilled in working collaboratively within diverse teams adhering to ethical standards and professional practices.

**Learning Environment** To create a learning environment that ensures graduates continue learning throughout their careers, effortlessly adopting new technologies to stay innovative in their chosen fields and remain effective contributors in their chosen field.

**PROGRAM SPECIFIC OUTCOMES (PSO's)**

**PSO1**: Students will be able to design, develop, test, debug, deploy, analyze , troubleshoot, maintain, manage, and ensure security during the complete product lifecycle.

**PSO2**: Student will be able to apply software engineering/ information system development skills to solve problems across diverse domains.

**PSO3**: Students will be well-prepared to initiate and oversee innovative startups within their respective sectors.

**PROGRAMME OUTCOMES (POs)**

 **A student will develop:**

**PO01. ENGINEERING KNOWLEDGE:** An ability to apply knowledge of Mathematics, Science and Engineering Fundamentals in Electronics and Communication Engineering.

**PO02. PROBLEM ANALYSIS:** ability to analyze and interpret data by designing and conducting experiments. Develop the knowledge of developing algorithms, designing, implementation and testing applications in electronics and communication related areas.

**PO03. DESIGN/ DEVELOPMENT OF SOLUTION:** An ability to Design a system Component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

**PO04. CONDUCTION OF INVESTIGATION OF COMPLEX PROBLEMS:** Ability to Identify, formulate and solve engineering problems.

**PO05. MODERN TOOL USAGE:** An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

**PO06. THE ENGINEERING AND SOCIETY:** Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

**PO07. ENVIRONMENT & SUSTAINABILITY:** Understand the impact of professional engineering solution in societal and environmental contexts, and demonstrate the knowledge of, and need of sustainable development.

**PO08. ETHICS:** An ability to understand the professional, social and ethical responsibility.

**PO09. INDIVIDUAL AND TEAM WORK:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO10. COMMUNICATION:** An ability to Communicate effectively in order to succeed in their profession such as, being able to write effective reports and design documentation, make effective presentations.

**PO11. PROJECT MANAGEMENT & FINANCE:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in team, to manage projects and in multidisciplinary environment.

**PO12. LIFE-LONG LEARNING:** Recognize the need and an ability to engage in life-long learning.

**COURSE OUTCOMES (COs) OF THE SUBJECT**

| CO No.  | Mapping | Statement |
| --- | --- | --- |
| CO35402.1 | Analyzing | Students will be able to define the basic computer graphics system, application of computer graphics and rasterization of line, circle, ellipse |
| CO35402.2 | Design | Students will be able to apply geometry transformation graphics object, their application in composite form ,different color filling algorithms and clipping algorithms |
| CO35402.3 | Evaluating | Students will be able to identify visible surface detection techniques and curve. |
| CO35402.4 | Analyzing | Students will be able to render project objects to naturalize the scene in 2D view and Use of Illumination model & color models. |
| CO35402.5 | Applying | Students will be able to design and develop algorithms in software. |

**COS MAPPING WITH POs AND PSOs**

| **Course Outcome** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CO1** | 2 | 1 | - | - | - | - | - | - | - | - | - | 1 | - | - | - |
| **CO2** | 2 | 1 | - | 1 | - | - | - | - | - | - | - | 1 | - | - | - |
| **CO3** | 2 | 2 | - | - | - | - | - | - | - | - | - | 1 | - | - | - |
| **CO4** | - | 2 | - | - | - | - | - | - | - | - | - | 1 | - | - | - |
| **CO5** | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - |

**UNIVERSITY ACADEMIC CALENDAR**

Academic Calendar for Even Semester for Session

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**Evaluation Scheme**

FACULTY DETAILS:

Name of the Faculty : Naresh Mali

Designation : Assistant Professor

Department : Computer Science Engineering

1. TARGET

 a) Percentage Pass : 100%

 b) Percentage I class: 60 %

2. METHOD OF EVALUATION

2.1. Continuous Assessment Examinations (Mid-Term 1, Mid-Term 2)

2.2. Assignments / Seminars 

2.3. Mini Projects 

2.4. Quiz 

2.5. Semester Examination Others\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.

1. Take the help of creative tools to stimulate creativity. Include slide presentations, demonstration or forms of visual exercises that will excite the young minds and capture their interest.

**Signature of Faculty: Signature of HOD**

**UNIVERSITY SYLLABUS**

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**PRESCRIBED BOOKS**

**Author Name**:-

* Donald D. Hearn M. Pauline Baker Second Edition Pearson.
* Computer Graphics: Principles and Practice Andries van Dam.

**COURSE-PLAN**

| UNIT | Lect.No. | TOPICS | **Teaching Methods/ Teaching Aids** |
| --- | --- | --- | --- |
| **1** | 1 | Introduction of Computer graphics Objective and Scope. | White Board, PPT, Demonstration |
| 1 | 2 | What is use of Computer graphics Applications Environment and uses. | White Board, PPT, Demonstration |
| 1 | 3 | Definition and Characteristics of Computer graphics and what are working of CRT tubes and their functionality. | White Board, PPT, Demonstration |
| 1 | 4 | What are the difference between Random and Raster Scan devices with examples and also discuss beam penetration techniques. | White Board, PPT, Demonstration |
| 1 | 5 | Advantage of computer graphics and also discuss and define shadow mask techniques. | White Board, PPT, Demonstration |
| 1 | 6 | Discuss about the Graphics input device and also uses of graphics software and standard formats. | White Board |
| 1 | 7 | Define line drawing algorithms with numerical examples and also discuss and implement DDA line drawing algorithms, Bresenham’s Line drawing algorithms with numerical example. | White Board, PPT |
| 2 | 8 | Difference between primtives and non-primtives and also discuss fill area primitives example with boundary and flood filling algorithms. | White Board, PPT |
| 2 | 9 | Introduction Polygon how to uses polygon filling algorithms and inside and outside tested algorithms with examples. | White Board, PPT, |
| 2 | 10 | Introduction about line and character attributes in polygon tested algorithms and also discuss abut Aliasing and antialising. | White Board, PPT, Demonstration |
| 2 | 11 | Introduction 2D graphics and also types translation, rotation, scaling with matrix. | White Board, PPT |
| 2 | 12 | What is Homogeneous coordination and composite transformation with examples.  | White Board, PPT |
| 2 | 13 | Discuss about the reflection and shearing viewing pipeline with examples and also define window to viewport transformation with examples. | White Board, PPT |
| 2 | 14 | Demonstrate about the clipping and also discuss about the point and line clipping algorithms with examples. | White Board |
| 2 | 15 | What is uses of Cohen sutherland line clipping algorithms with numerical examples. | White Board, PPT |
| 2 | 16 | Introduction is polygon clipping algorithms with numerical examples and also discuss about 3D graphics. | White Board |
| 2 | 17 | Introduction and evolution of polygon surface table and equations, curve meshes. | White Board, PPT, |
| 2 | 18 | What are using quardic surface and also define about the Bezier curve and surface with examples. | White Board, Demonstration |
| 3 | 19 | Introduction of Spline representation cubic spline interpolation methods with examples. | White Board |
| 3 | 20 | Discuss about the 3D graphics reflection, rotation, scaling methods and also discuss composite transformation systems | White Board |
| 3 | 21 | Introduction about the parallel and perspective transformation with examples and also discuss about the projection transformation system. | White Board, PPT |
| 3 | 22 | Introduction of Illumination model and uses of light source on particular surface and difference between halftone and dithering techniques with examples. | White Board |
| 3 | 23 | Discuss about the properties of light and standard primaries and chromaticity diagram. | White Board, PPT |
| 3 | 24 | Introduction about the different types of colour models YIQ,CMY,HSV,HLS Colour models. | White Board |
| 3 | 25 | Discuss about the basic techniques of animation and also sequence design of animations with examples. Key frame, motion specification, morphing twinning. | White Board, PPT, |
| 3 | 26 | What are the difference between Random and Raster Scan devices with examples and also discuss beam penetration techniques. | White Board, PPT |
| 3 | 27 | Advantage of computer graphics and also discuss and define shadow mask techniques. | White Board, PPT |
| 4 | 28 | Discuss about the Graphics input device and also uses of graphics software and standard formats. | White Board, PPT |
| 4 | 29 | Define line drawing algorithms with numerical examples and also discuss and implement DDA line drawing algorithms, Bresenham’s Line drawing algorithms with numerical example. | White Board, PPT |
| 4 | 30 | Discuss about the reflection and shearing viewing pipeline with examples and also define window to viewport transformation with examples. | White Board, PPT |
| 4 | 31 | Demonstrate about the clipping and also discuss about the point and line clipping algorithms with examples. | White Board, PPT |
| 4 | 32 | What is uses of Cohen sutherland line clipping algorithms with numerical examples. | White Board, PPT |
| 4 | 33 | Introduction is polygon clipping algorithms with numerical examples and also discuss about 3D graphics. | White Board, PPT |
| 5 | 34 | What is Homogeneous coordination and composite transformation with examples.  | White Board, PPT |
| 5 | 35 | Discuss about the reflection and shearing viewing pipeline with examples and also define window to viewport transformation with examples. | White Board, PPT |
| 5 | 36 | Demonstrate about the clipping and also discuss about the point and line clipping algorithms with examples. | White Board, PPT |
| 5 | 37 | What is uses of Cohen sutherland line clipping algorithms with numerical examples. | White Board, PPT |
| 5 | 38 | Introduction is polygon clipping algorithms with numerical examples and also discuss about 3D graphics. | White Board, PPT |
| 5 | 39 | What is uses of Cohen sutherland line clipping algorithms with numerical examples. | White Board, PPT |
| 6 | 40 | Introduction is polygon clipping algorithms with numerical examples and also discuss about 3D graphics. | White Board, PPT |
| 6 | 41 | Introduction and evolution of polygon surface table and equations, curve meshes. | White Board, PPT |
| 6 | 42 | Revision | White Board, PPT |

**Signature of Faculty: Signature of HOD**

**Assignment – 1 ()**

**Q.1** Explain the function of display processor in raster scan display and compare the merits and demerits of raster scan display?**(CO1)**

**Q.2** Explain Bresenham’s line drawing algorithms and also write procedure? **(CO2)**

**Q.3** Explain Basic Principle to draw circle and also explain mid point circle algorithms ? **(CO3)**

**Q.4**  What are the difference between shadow mask technique and beam penetration techniques? **(CO4)**

**Q.5** What is homogenous coordination? Discuss the composite transformation matrices for two successive translation and scaling? **(CO5)**

**Q.6** What are difference Scaling and Rotation with examples? **(CO3)**

**Q.7** Write down Flood filling and Boundary filling algorithms? **(CO2)**

**Q.8** Write short notes: **(CO3)**

1. Anti Aliasing.

2. CRT Tube.

3. DVST.

4. DDA Line drawing algorithms.

**Assignment – 2 ()**

**Q.1** What are working of DVST? With diagram? **(CO1)**

**Q.2** Explain Window to view port transformation? With example**(CO2)**

**Q.3** Explain Shadow mask technique? With diagram**(CO3)**

**Q.4** Write short note on-**(CO4)**

1. Line Clipping.
2. Flat Panel Display.
3. Composite Transformation.
4. (d)Inside and Outside Tested.

**Q.5** What are Homogeneous Co-ordination? **(CO5)**

**SAMPLE QUIZ QUESTIONS**

| **1.** |  What is a Computer graphics algorithms? |
| --- | --- |
| **2.** | What is the working of random and raster scan system? |
| **3.** | Write an algorithms DDA Line drawing and Brasenham’s? line drawn |
| **4.** | Who is application and advantages of computer graphics? |
| **5.** | What is Aliasing? |
| **6.** | What is 2D graphics with translation, reflection, scaling, shearing and also write matrix? |
| **7.** | Write an algorithms Cohen Sutherland line clipping algorithms with examples? |
| **8.** | Difference between 2D and 3D graphics with examples? |
| **9.** | What is computer Graphics realism with examples? |
| **10.** | What is properties of Bezier curves with examples? |
| **11.** | Explain different types of colour models? |
| **12.** | What is Animation? And also explain sequence of animations |
| **13.** | What Illumination model and also discuss different types of Models |
| **14.** | Differentiate between parallel and perspective projection with examples? |
| **15.** | What is homogenous coordination? And also explain halftone and dithering techniques with examples? |

**Mid Term Paper-I**

**TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY, UDAIPUR**

**B. TECH 3rd – YEAR (V SEM.) – MT-I**

Computer Graphics and Multimedia (**5CS4-04**)

**Time:** 2 Hr **Max. Marks:** 70

**Note:**

1. The paper is divided into 2 parts: Part-A and, Part-B.
2. Part-A contains 10 questions and carries 2 mark each.
3. Part-B contains 5 questions. Each question is having two options and carries 10 marks each.

**Part- A (20 Marks)**

| 1. Write application of Computer Graphics?
 | CO1 |
| --- | --- |
| 1. What is Translation?
 | CO1 |
| 1. Write advantages of Computer Graphics?
 | CO1 |
| 1. What is role of scaling Techniques?
 | CO1 |
| 1. What is reflection?
 | CO2 |
| 1. What are working of the Beam Penetration Techniques? With diagram
 | CO2 |
| 1. What is Shearing?
 | CO2 |
| 1. Differentiate between Aliasing and Antialiasing?
 | CO2 |
| 1. What are Homogenous Co-ordination?
 | CO2 |
| 1. What are working of DVST? With diagram?
 | CO2 |

**Part- B (50 Marks)**

| 1. Differentiate Random and Raster scan system? With diagram
 | CO2 |
| --- | --- |
|  |
| 1. Scan Convert a straight line using DDA line drawing Algorithm, where end points of line are P1=(0,0) P2=(8,4)
 | CO3 |

| 1. Explain Boundary filling algorithms and Flood filling algorithm? With example
 | CO3 |
| --- | --- |
| OR |
|  2. Let ABCD the rectangular window with A(20,20) B(90,20) C(90,70) D(20,70) find region code for the end points and use Cohen Sutherland Algorithms to clip the line P1,P2 with P1 (10,30) and P2(80,90) | CO2 |

| 1. Explain Bresenham’s line algorithms? Given two pints A=(20,10) B=(30,18)
 | CO1 |
| --- | --- |
| OR |
|  3. What are working of CRT Tube? With diagram | CO1 |
| 1. Explain Window to view port transformation? With example
 | CO1 |
| OR |
|  4. What is Rotation and give P=(2,2) anticlockwise rotation angle θ - Wiktionary, the free dictionary=45̊ find P = (X,Y ) | CO3 |

| 1. Explain Shadow mask technique? With diagram
 | CO1 |
| --- | --- |
| OR |
| 5.Write short note on-1. Line Clipping.
2. Flat Panel Display.
3. Composite Transformation.
4. Inside and Outside Tested.
 | CO1 |

**Marks and Gap Analysis of Mid-Term 1**

| S. No. | University Roll No. | Name of Student | Mid-Term 1MM-32 | Remark( Remedial Class need or not – Y/N ) |
| --- | --- | --- | --- | --- |
|  | 21ETCCS001 | AARSH BHARTI | 64 | N |
|  | 21ETCCS002 | MS AASTHA DAKHERA | 72 | N |
|  | 21ETCCS003 | ABHISHEK PRAJAPAT | 61 | N |
|  | 21ETCCS005 | AKSHANSH SONI | 58 | N |
|  | 21ETCCS006 | AKSHAT SINGH CHOUHAN | 60 | N |
|  | 21ETCCS007 | ANIRUDH SINGH RAJPUROHIT | 51 | N |
|  | 21ETCCS008 | ANISH SINGHAL | 52 | N |
|  | 21ETCCS009 | ANJALI SONI | 65 | N |
|  | 21ETCCS010 | ANURAG MENARIA | 60 | N |
|  | 21ETCCS011 | ANUSHKA VIJAY | 53 | N |
|  | 21ETCCS012 | APURVA LODHA | 81 | N |
|  | 21ETCCS013 | ARUN LOHAR | 76 | N |
|  | 21ETCCS014 | ARVIND SINGH | 50 | N |
|  | 21ETCCS015 | ARVIND SUTHAR | 54 | N |
|  | 21ETCCS016 | AVANI JOSHI | 60 | N |
|  | 21ETCCS017 | AYAN KHAN | 53 | N |
|  | 21ETCCS018 | AYUSH JHOTA | 78 | N |
|  | 21ETCCS019 | AYUSH TALESARA | 74 | N |
|  | 21ETCCS020 | BHAVYA MEHTA | 66 | N |
|  | 21ETCCS021 | BHERU SINGH PANWAR | 80 | N |
|  | 21ETCCS022 | MS BHUMIKA VARDAR | 67 | N |
|  | 21ETCCS025 | CHINMAY MENARIA | 71 | N |
|  | 21ETCCS026 | DAKSH VYAS | 61 | N |
|  | 21ETCCS027 | DEEPAK DHAKAR | 69 | N |
|  | 21ETCCS029 | DHIREN SUHALKA | 52 | N |
|  | 21ETCCS030 | DHRUV BAGORA | 71 | N |
|  | 21ETCCS031 | DIKSHA AGARWAL | 75 | N |
|  | 21ETCCS032 | DINESH AUDICHYA | 69 | N |
|  | 21ETCCS034 | DIVYANSHU MENARIA | 56 | N |
|  | 21ETCCS035 | DIVYANSHU SAHU | 67 | N |
|  | 21ETCCS036 | DURGA SANKAR DANGI | 75 | N |
|  | 21ETCCS037 | GAGAN MANGAL | 67 | N |
|  | 21ETCCS038 | GARVITA BAYA | 80 | N |
|  | 21ETCCS039 | GARVITA JAIN | 81 | N |
|  | 21ETCCS040 | GAZI AMAN KHAN | 55 | N |
|  | 21ETCCS041 | HARSH | 64 | N |
|  | 21ETCCS042 | HARSH SONI | 75 | N |
|  | 21ETCCS043 | HARSHAL PALIWAL | 72 | N |
|  | 21ETCCS044 | HARSHIT PUROHIT | 83 | N |
|  | 21ETCCS045 | HARSHIT SHARMA | 78 | N |
|  | 21ETCCS046 | HARSHITA RATHORE | 68 | N |
|  | 21ETCCS047 | HEET DOSI | 65 | N |
|  | 21ETCCS048 | MS HETAL SHARMA | 67 | N |
|  | 21ETCCS049 | JAHNAVI JOSHI | 82 | N |
|  | 21ETCCS050 | JAINIL JAIN | 77 | N |
|  | 21ETCCS051 | JASWANT SINGH RAO | 61 | N |
|  | 21ETCCS052 | JATIN VASHISHTHA | 72 | N |
|  | 21ETCCS053 | JAY JOSHI | 79 | N |
|  | 21ETCCS054 | JAYDEEP DANGI | 78 | N |
|  | 21ETCCS055 | JIGYASA CHATURVEDI | 68 | N |
|  | 21ETCCS056 | KAILASH JOSHI | 71 | N |
|  | 21ETCCS057 | KAMLESH KUMAR GHANCHI | 67 | N |
|  | 21ETCCS058 | KANISHKA PARMAR | 79 | N |
|  | 21ETCCS059 | KASHVI PANDEY | 73 | N |
|  | 21ETCCS060 | KHUSHAL PALIWAL | 58 | N |
|  | 21ETCCS061 | KHUSHI GAHLOT | 75 | N |
|  | 21ETCCS062 | KHUSHI VANAWAT | 71 | N |
|  | 21ETCCS064 | KUNAL CHOUBISA | 53 | N |
|  | 21ETCCS065 | KUNAL MENARIA | 57 | N |
|  | 21ETCCS066 | KUNAL PALIWAL | 59 | N |
|  | 21ETCCS067 | KUNAL SHARMA | 65 | N |
|  | 21ETCCS068 | KUNIKA KADECHA(RL) | 70 | N |
|  | 21ETCCS069 | LALITA DANGI | 77 | N |
|  | 21ETCCS070 | LAVISHA JAIN | 76 | N |
|  | 21ETCCS071 | LOKANTIK JAIN | 69 | N |
|  | 21ETCCS073 | MAHAK BANSAL | 71 | N |
|  | 21ETCCS074 | MANSI GEHLOT | 78 | N |
|  | 21ETCCS075 | MAYANK KANERIYA | 74 | N |
|  | 21ETCCS076 | MAYANK MALIWAL | 74 | N |
|  | 21ETCCS078 | MITANSH JAIN | 65 | N |
|  | 21ETCCS079 | MOHAMMED OWAIS KHAN | 83 | N |
|  | 21ETCCS081 | NAVNEET ANAND | 74 | N |
|  | 21ETCCS082 | NEHAL DHING | 86 | N |
|  | 21ETCCS084 | NIPUN MALI | 57 | N |
|  | 21ETCCS085 | NISHA LOHAR | 79 | N |
|  | 21ETCCS086 | PRADHUMAN SINGH CHAUDHARY | 75 | N |
|  | 21ETCCS087 | PRANJAL SINGHVI | 61 | N |
|  | 21ETCCS088 | RAJAT PATIDAR | 65 | N |
|  | 21ETCCS089 | RIYA JAIN | 93 | N |
|  | 21ETCCS090 | ROHIN GANG | 66 | N |
|  | 21ETCCS091 | RUPAL SONI | 81 | N |
|  | 21ETCCS092 | SAHIL SOLANKI | 68 | N |
|  | 21ETCCS093 | SARGAM JAIN | 82 | N |
|  | 21ETCCS094 | SATYEN KHARADI | 80 | N |
|  | 21ETCCS095 | SHASHANK MENARIA | 66 | N |
|  | 21ETCCS096 | SHUBHAM DAS | 80 | N |
|  | 21ETCCS097 | SUDEEP ROY | 72 | N |
|  | 21ETCCS098 | SUMIT VASITA | 66 | N |
|  | 21ETCCS099 | SUYASH SONI | 72 | N |
|  | 21ETCCS100 | MS TANISHA KUMAWAT | 66 | N |
|  | 21ETCCS101 | TUSHAR YADAV | 42 | N |
|  | 21ETCCS102 | VAIBHAV GARG | 70 | N |
|  | 21ETCCS103 | VAIBHAV SONI | 76 | N |
|  | 21ETCCS104 | VARUN SHARMA | 71 | N |
|  | 21ETCCS105 | VEDANSHI PAREEK | 74 | N |
|  | 21ETCCS106 | VEDAS DIXIT | 72 | N |
|  | 21ETCCS107 | VIKRAM SINGH SISODIYA | 72 | N |
|  | 21ETCCS108 | VIMANYU P SHARMA | 69 | N |
|  | 21ETCCS109 | VISHAL KUMAWAT | 74 | N |
|  | 21ETCCS110 | VISHAL PUSHKARNA | 74 | N |
|  | 21ETCCS111 | VYOM BHATT | 84 | N |
|  | 21ETCCS112 | YASH JAIN | 76 | N |
|  | 21ETCCS113 | YASH JOSHI | 73 | N |
|  | 21ETCCS114 | YASH PURI GOSWAMI | 71 | N |
|  | 21ETCCS115 | YOGESH JAIPAL | 73 | N |
|  | 21ETCCS116 | MS YUVIKA CHOUDHARY | 79 | N |
|  | 21ETCCS117 | YUVRAJ SINGH KANAWAT | 65 | N |
|  | 21ETCCS300 | NEELAM KATARIYA | 76 | N |
|  | 21ETCCS400 | SHABBIR HUSSAIN | 63 | N |
|  | 21ETCCS401 | ALI HUSSAIN | 61 | N |
|  | 22ETCCS200 | SAURABH SONI | 69 | N |

**\***(Y, if obtained marks are <50%)

**Signature of Faculty: Signature of HOD**

**Mid Term Exam – II**

**Marks and Gap Analysis of Mid-Term II**

| Sr. No. | University Roll No. | Name of Student | Mid-Term 2MM-32 | Remark( Remedial Class need or not – Y/N ) |
| --- | --- | --- | --- | --- |
|  | 21ETCCS001 | AARSH BHARTI | 54 | N |
|  | 21ETCCS002 | MS AASTHA DAKHERA | 70 | N |
|  | 21ETCCS003 | ABHISHEK PRAJAPAT | 51 | N |
|  | 21ETCCS005 | AKSHANSH SONI | 43 | N |
|  | 21ETCCS006 | AKSHAT SINGH CHOUHAN | 51 | N |
|  | 21ETCCS007 | ANIRUDH SINGH RAJPUROHIT | 65 | N |
|  | 21ETCCS008 | ANISH SINGHAL | 70 | N |
|  | 21ETCCS009 | ANJALI SONI | 61 | N |
|  | 21ETCCS010 | ANURAG MENARIA | 70 | N |
|  | 21ETCCS011 | ANUSHKA VIJAY | 43 | N |
|  | 21ETCCS012 | APURVA LODHA | 56 | N |
|  | 21ETCCS013 | ARUN LOHAR | 53 | N |
|  | 21ETCCS014 | ARVIND SINGH | 67 | N |
|  | 21ETCCS015 | ARVIND SUTHAR | 70 | N |
|  | 21ETCCS016 | AVANI JOSHI | 46 | N |
|  | 21ETCCS017 | AYAN KHAN | 67 | N |
|  | 21ETCCS018 | AYUSH JHOTA | 54 | N |
|  | 21ETCCS019 | AYUSH TALESARA | 47 | N |
|  | 21ETCCS020 | BHAVYA MEHTA | 70 | N |
|  | 21ETCCS021 | BHERU SINGH PANWAR | 67 | N |
|  | 21ETCCS022 | MS BHUMIKA VARDAR | 69 | N |
|  | 21ETCCS025 | CHINMAY MENARIA | 66 | N |
|  | 21ETCCS026 | DAKSH VYAS | 58 | N |
|  | 21ETCCS027 | DEEPAK DHAKAR | 55 | N |
|  | 21ETCCS029 | DHIREN SUHALKA | 57 | N |
|  | 21ETCCS030 | DHRUV BAGORA | 61 | N |
|  | 21ETCCS031 | DIKSHA AGARWAL | 68 | N |
|  | 21ETCCS032 | DINESH AUDICHYA | 58 | N |
|  | 21ETCCS034 | DIVYANSHU MENARIA | 58 | N |
|  | 21ETCCS035 | DIVYANSHU SAHU | 52 | N |
|  | 21ETCCS036 | DURGA SANKAR DANGI | 45 | N |
|  | 21ETCCS037 | GAGAN MANGAL | 70 | N |
|  | 21ETCCS038 | GARVITA BAYA | 70 | N |
|  | 21ETCCS039 | GARVITA JAIN | 70 | N |
|  | 21ETCCS040 | GAZI AMAN KHAN | 43 | N |
|  | 21ETCCS041 | HARSH | 41 | N |
|  | 21ETCCS042 | HARSH SONI | 45 | N |
|  | 21ETCCS043 | HARSHAL PALIWAL | 70 | N |
|  | 21ETCCS044 | HARSHIT PUROHIT | 70 | N |
|  | 21ETCCS045 | HARSHIT SHARMA | 47 | N |
|  | 21ETCCS046 | HARSHITA RATHORE | 45 | N |
|  | 21ETCCS047 | HEET DOSI | 53 | N |
|  | 21ETCCS048 | MS HETAL SHARMA | 55 | N |
|  | 21ETCCS049 | JAHNAVI JOSHI | 70 | N |
|  | 21ETCCS050 | JAINIL JAIN | 46 | N |
|  | 21ETCCS051 | JASWANT SINGH RAO | 70 | N |
|  | 21ETCCS052 | JATIN VASHISHTHA | 69 | N |
|  | 21ETCCS053 | JAY JOSHI | 54 | N |
|  | 21ETCCS054 | JAYDEEP DANGI | 69 | N |
|  | 21ETCCS055 | JIGYASA CHATURVEDI | 70 | N |
|  | 21ETCCS056 | KAILASH JOSHI | 55 | N |
|  | 21ETCCS057 | KAMLESH KUMAR GHANCHI | 61 | N |
|  | 21ETCCS058 | KANISHKA PARMAR | 70 | N |
|  | 21ETCCS059 | KASHVI PANDEY | 59 | N |
|  | 21ETCCS060 | KHUSHAL PALIWAL | 70 | N |
|  | 21ETCCS061 | KHUSHI GAHLOT | 63 | N |
|  | 21ETCCS062 | KHUSHI VANAWAT | 50 | N |
|  | 21ETCCS064 | KUNAL CHOUBISA | 51 | N |
|  | 21ETCCS065 | KUNAL MENARIA | 67 | N |
|  | 21ETCCS066 | KUNAL PALIWAL | 56 | N |
|  | 21ETCCS067 | KUNAL SHARMA | 53 | N |
|  | 21ETCCS068 | KUNIKA KADECHA(RL) | 66 | N |
|  | 21ETCCS069 | LALITA DANGI | 47 | N |
|  | 21ETCCS070 | LAVISHA JAIN | 63 | N |
|  | 21ETCCS071 | LOKANTIK JAIN | 46 | N |
|  | 21ETCCS073 | MAHAK BANSAL | 52 | N |
|  | 21ETCCS074 | MANSI GEHLOT | 70 | N |
|  | 21ETCCS075 | MAYANK KANERIYA | 50 | N |
|  | 21ETCCS076 | MAYANK MALIWAL | 39 | N |
|  | 21ETCCS078 | MITANSH JAIN | 70 | N |
|  | 21ETCCS079 | MOHAMMED OWAIS KHAN | 51 | N |
|  | 21ETCCS081 | NAVNEET ANAND | 66 | N |
|  | 21ETCCS082 | NEHAL DHING | 69 | N |
|  | 21ETCCS084 | NIPUN MALI | 69 | N |
|  | 21ETCCS085 | NISHA LOHAR | 61 | N |
|  | 21ETCCS086 | PRADHUMAN SINGH CHAUDHARY | 70 | N |
|  | 21ETCCS087 | PRANJAL SINGHVI | 55 | N |
|  | 21ETCCS088 | RAJAT PATIDAR | 46 | N |
|  | 21ETCCS089 | RIYA JAIN | 45 | N |
|  | 21ETCCS090 | ROHIN GANG | 54 | N |
|  | 21ETCCS091 | RUPAL SONI | 54 | N |
|  | 21ETCCS092 | SAHIL SOLANKI | 58 | N |
|  | 21ETCCS093 | SARGAM JAIN | 57 | N |
|  | 21ETCCS094 | SATYEN KHARADI | 47 | N |
|  | 21ETCCS095 | SHASHANK MENARIA | 70 | N |
|  | 21ETCCS096 | SHUBHAM DAS | 55 | N |
|  | 21ETCCS097 | SUDEEP ROY | 70 | N |
|  | 21ETCCS098 | SUMIT VASITA | 68 | N |
|  | 21ETCCS099 | SUYASH SONI | 40 | N |
|  | 21ETCCS100 | MS TANISHA KUMAWAT | 58 | N |
|  | 21ETCCS101 | TUSHAR YADAV | 70 | N |
|  | 21ETCCS102 | VAIBHAV GARG | 55 | N |
|  | 21ETCCS103 | VAIBHAV SONI | 56 | N |
|  | 21ETCCS104 | VARUN SHARMA | 46 | N |
|  | 21ETCCS105 | VEDANSHI PAREEK | 59 | N |
|  | 21ETCCS106 | VEDAS DIXIT | 70 | N |
|  | 21ETCCS107 | VIKRAM SINGH SISODIYA | 58 | N |
|  | 21ETCCS108 | VIMANYU P SHARMA | 70 | N |
|  | 21ETCCS109 | VISHAL KUMAWAT | 55 | N |
|  | 21ETCCS110 | VISHAL PUSHKARNA | 46 | N |
|  | 21ETCCS111 | VYOM BHATT | 70 | N |
|  | 21ETCCS112 | YASH JAIN | 62 | N |
|  | 21ETCCS113 | YASH JOSHI | 42 | N |
|  | 21ETCCS114 | YASH PURI GOSWAMI | 63 | N |
|  | 21ETCCS115 | YOGESH JAIPAL | 70 | N |
|  | 21ETCCS116 | MS YUVIKA CHOUDHARY | 67 | N |
|  | 21ETCCS117 | YUVRAJ SINGH KANAWAT | 44 | N |
|  | 21ETCCS300 | NEELAM KATARIYA | 40 | N |
|  | 21ETCCS400 | SHABBIR HUSSAIN | 50 | N |
|  | 21ETCCS401 | ALI HUSSAIN | 70 | N |
|  | 22ETCCS200 | SAURABH SONI | 70 | N |

**\***(Y, if obtained marks are <50%)

**Signature of Faculty: Signature of HOD**

**Model Question Paper**

1.    Definition of computer graphics and also describe [application of computer graphics](http://103.159.68.37/moodle/mod/page/view.php?id=209)?

2.    What is display processor and also define raster scan system with diagram?

3.    What is working of CRT tubes with diagram?

4.    What is 2D and also discuss scaling and rotation with matrix?

5.    Differentiate between Random scan system and raster scan system with examples?

6.    Explain DDA [line drawing algorithms](http://103.159.68.37/moodle/mod/page/view.php?id=267) with examples?

7.    Explain mid point circle drawing algorithms with examples?

8.    Differentiate between beam penetration technique and shadow mask techniques?

9.    [Advantages of computer graphics](http://103.159.68.37/moodle/mod/page/view.php?id=210)?

10. Short note on:-

1.    Inside and outside tested.

2.    DVST

3.    Shearing

4.    [Text Clipping](http://103.159.68.37/moodle/mod/page/view.php?id=528)

**STUDENT PERFORMANCE REPORT**

| **ROLL NO.** | **NAME** | **I-MID** | **II-MID** | **Avg.** | **Assignment** |
| --- | --- | --- | --- | --- | --- |
| 21ETCCS001 | AARSH BHARTI | 64 | 54 | 59 | B+ |
| 21ETCCS002 | MS AASTHA DAKHERA | 72 | 70 | 71 | A+ |
| 21ETCCS003 | ABHISHEK PRAJAPAT | 61 | 51 | 56 | B |
| 21ETCCS005 | AKSHANSH SONI | 58 | 43 | 50.5 | B |
| 21ETCCS006 | AKSHAT SINGH CHOUHAN | 60 | 51 | 55.5 | B |
| 21ETCCS007 | ANIRUDH SINGH RAJPUROHIT | 51 | 65 | 58 | B |
| 21ETCCS008 | ANISH SINGHAL | 52 | 70 | 61 | A+ |
| 21ETCCS009 | ANJALI SONI | 65 | 61 | 63 | A+ |
| 21ETCCS010 | ANURAG MENARIA | 60 | 70 | 65 | A+ |
| 21ETCCS011 | ANUSHKA VIJAY | 53 | 43 | 48 | B |
| 21ETCCS012 | APURVA LODHA | 81 | 56 | 68.5 | B+ |
| 21ETCCS013 | ARUN LOHAR | 76 | 53 | 64.5 | B |
| 21ETCCS014 | ARVIND SINGH | 50 | 67 | 58.5 | B |
| 21ETCCS015 | ARVIND SUTHAR | 54 | 70 | 62 | B+ |
| 21ETCCS016 | AVANI JOSHI | 60 | 46 | 53 | C |
| 21ETCCS017 | AYAN KHAN | 53 | 67 | 60 | B |
| 21ETCCS018 | AYUSH JHOTA | 78 | 54 | 66 | B |
| 21ETCCS019 | AYUSH TALESARA | 74 | 47 | 60.5 | B |
| 21ETCCS020 | BHAVYA MEHTA | 66 | 70 | 68 | B+ |
| 21ETCCS021 | BHERU SINGH PANWAR | 80 | 67 | 73.5 | B+ |
| 21ETCCS022 | MS BHUMIKA VARDAR | 67 | 69 | 68 | A++ |
| 21ETCCS025 | CHINMAY MENARIA | 71 | 66 | 68.5 | A+ |
| 21ETCCS026 | DAKSH VYAS | 61 | 58 | 59.5 | B+ |
| 21ETCCS027 | DEEPAK DHAKAR | 69 | 55 | 62 | B |
| 21ETCCS029 | DHIREN SUHALKA | 52 | 57 | 54.5 | C |
| 21ETCCS030 | DHRUV BAGORA | 71 | 61 | 66 | B |
| 21ETCCS031 | DIKSHA AGARWAL | 75 | 68 | 71.5 | B+ |
| 21ETCCS032 | DINESH AUDICHYA | 69 | 58 | 63.5 | B |
| 21ETCCS034 | DIVYANSHU MENARIA | 56 | 58 | 57 | B |
| 21ETCCS035 | DIVYANSHU SAHU | 67 | 52 | 59.5 | B+ |
| 21ETCCS036 | DURGA SANKAR DANGI | 75 | 45 | 60 | B |
| 21ETCCS037 | GAGAN MANGAL | 67 | 70 | 68.5 | B |
| 21ETCCS038 | GARVITA BAYA | 80 | 70 | 75 | B+ |
| 21ETCCS039 | GARVITA JAIN | 81 | 70 | 75.5 | B+ |
| 21ETCCS040 | GAZI AMAN KHAN | 55 | 43 | 49 | B+ |
| 21ETCCS041 | HARSH | 64 | 41 | 52.5 | B |
| 21ETCCS042 | HARSH SONI | 75 | 45 | 60 | B |
| 21ETCCS043 | HARSHAL PALIWAL | 72 | 70 | 71 | B+ |
| 21ETCCS044 | HARSHIT PUROHIT | 83 | 70 | 76.5 | B+ |
| 21ETCCS045 | HARSHIT SHARMA | 78 | 47 | 62.5 | B+ |
| 21ETCCS046 | HARSHITA RATHORE | 68 | 45 | 56.5 | B |
| 21ETCCS047 | HEET DOSI | 65 | 53 | 59 | B |
| 21ETCCS048 | MS HETAL SHARMA | 67 | 55 | 61 | B+ |
| 21ETCCS049 | JAHNAVI JOSHI | 82 | 70 | 76 | B+ |
| 21ETCCS050 | JAINIL JAIN | 77 | 46 | 61.5 | B+ |
| 21ETCCS051 | JASWANT SINGH RAO | 61 | 70 | 65.5 | B |
| 21ETCCS052 | JATIN VASHISHTHA | 72 | 69 | 70.5 | B+ |
| 21ETCCS053 | JAY JOSHI | 79 | 54 | 66.5 | A+ |
| 21ETCCS054 | JAYDEEP DANGI | 78 | 69 | 73.5 | A+ |
| 21ETCCS055 | JIGYASA CHATURVEDI | 68 | 70 | 69 | B+ |
| 21ETCCS056 | KAILASH JOSHI | 71 | 55 | 63 | B+ |
| 21ETCCS057 | KAMLESH KUMAR GHANCHI | 67 | 61 | 64 | B+ |
| 21ETCCS058 | KANISHKA PARMAR | 79 | 70 | 74.5 | B+ |
| 21ETCCS059 | KASHVI PANDEY | 73 | 59 | 66 | B |
| 21ETCCS060 | KHUSHAL PALIWAL | 58 | 70 | 64 | B+ |
| 21ETCCS061 | KHUSHI GAHLOT | 75 | 63 | 69 | B+ |
| 21ETCCS062 | KHUSHI VANAWAT | 71 | 50 | 60.5 | B |
| 21ETCCS064 | KUNAL CHOUBISA | 53 | 51 | 52 | B |
| 21ETCCS065 | KUNAL MENARIA | 57 | 67 | 62 | B |
| 21ETCCS066 | KUNAL PALIWAL | 59 | 56 | 57.5 | B+ |
| 21ETCCS067 | KUNAL SHARMA | 65 | 53 | 59 | B |
| 21ETCCS068 | KUNIKA KADECHA(RL) | 70 | 66 | 68 | A+ |
| 21ETCCS069 | LALITA DANGI | 77 | 47 | 62 | B+ |
| 21ETCCS070 | LAVISHA JAIN | 76 | 63 | 69.5 | B+ |
| 21ETCCS071 | LOKANTIK JAIN | 69 | 46 | 57.5 | B |
| 21ETCCS073 | MAHAK BANSAL | 71 | 52 | 61.5 | B+ |
| 21ETCCS074 | MANSI GEHLOT | 78 | 70 | 74 | B+ |
| 21ETCCS075 | MAYANK KANERIYA | 74 | 50 | 62 | B+ |
| 21ETCCS076 | MAYANK MALIWAL | 74 | 39 | 56.5 | B |
| 21ETCCS078 | MITANSH JAIN | 65 | 70 | 67.5 | B+ |
| 21ETCCS079 | MOHAMMED OWAIS KHAN | 83 | 51 | 67 | B+ |
| 21ETCCS081 | NAVNEET ANAND | 74 | 66 | 70 | B+ |
| 21ETCCS082 | NEHAL DHING | 86 | 69 | 77.5 | B |
| 21ETCCS084 | NIPUN MALI | 57 | 69 | 63 | B+ |
| 21ETCCS085 | NISHA LOHAR | 79 | 61 | 70 | A+ |
| 21ETCCS086 | PRADHUMAN SINGH CHAUDHARY | 75 | 70 | 72.5 | A+ |
| 21ETCCS087 | PRANJAL SINGHVI | 61 | 55 | 58 | B+ |
| 21ETCCS088 | RAJAT PATIDAR | 65 | 46 | 55.5 | B+ |
| 21ETCCS089 | RIYA JAIN | 93 | 45 | 69 | B |
| 21ETCCS090 | ROHIN GANG | 66 | 54 | 60 | B+ |
| 21ETCCS091 | RUPAL SONI | 81 | 54 | 67.5 | B+ |
| 21ETCCS092 | SAHIL SOLANKI | 68 | 58 | 63 | B+ |
| 21ETCCS093 | SARGAM JAIN | 82 | 57 | 69.5 | B |
| 21ETCCS094 | SATYEN KHARADI | 80 | 47 | 63.5 | B |
| 21ETCCS095 | SHASHANK MENARIA | 66 | 70 | 68 | B |
| 21ETCCS096 | SHUBHAM DAS | 80 | 55 | 67.5 | B+ |
| 21ETCCS097 | SUDEEP ROY | 72 | 70 | 71 | B+ |
| 21ETCCS098 | SUMIT VASITA | 66 | 68 | 67 | B |
| 21ETCCS099 | SUYASH SONI | 72 | 40 | 56 | B+ |
| 21ETCCS100 | MS TANISHA KUMAWAT | 66 | 58 | 62 | B+ |
| 21ETCCS101 | TUSHAR YADAV | 42 | 70 | 56 | B+ |
| 21ETCCS102 | VAIBHAV GARG | 70 | 55 | 62.5 | B |
| 21ETCCS103 | VAIBHAV SONI | 76 | 56 | 66 | B |
| 21ETCCS104 | VARUN SHARMA | 71 | 46 | 58.5 | C |
| 21ETCCS105 | VEDANSHI PAREEK | 74 | 59 | 66.5 | B+ |
| 21ETCCS106 | VEDAS DIXIT | 72 | 70 | 71 | B |
| 21ETCCS107 | VIKRAM SINGH SISODIYA | 72 | 58 | 65 | B+ |
| 21ETCCS108 | VIMANYU P SHARMA | 69 | 70 | 69.5 | B+ |
| 21ETCCS109 | VISHAL KUMAWAT | 74 | 55 | 64.5 | B |
| 21ETCCS110 | VISHAL PUSHKARNA | 74 | 46 | 60 | B |
| 21ETCCS111 | VYOM BHATT | 84 | 70 | 77 | C |
| 21ETCCS112 | YASH JAIN | 76 | 62 | 69 | B+ |
| 21ETCCS113 | YASH JOSHI | 73 | 42 | 57.5 | B |
| 21ETCCS114 | YASH PURI GOSWAMI | 71 | 63 | 67 | B+ |
| 21ETCCS115 | YOGESH JAIPAL | 73 | 70 | 71.5 | B+ |
| 21ETCCS116 | MS YUVIKA CHOUDHARY | 79 | 67 | 73 | B |
| 21ETCCS117 | YUVRAJ SINGH KANAWAT | 65 | 44 | 54.5 | B |
| 21ETCCS300 | NEELAM KATARIYA | 76 | 40 | 58 | C |
| 21ETCCS400 | SHABBIR HUSSAIN | 63 | 50 | 56.5 | B+ |
| 21ETCCS401 | ALI HUSSAIN | 61 | 70 | 65.5 | B |
| 22ETCCS200 | SAURABH SONI | 69 | 70 | 69.5 | B |

**Signature of Faculty: Signature of HOD**

**RESULT ANALYSIS**

| **S.NO.** | **RTU ROLL NUMBER** | **NAME OF STUDENT** | **External** | **Internal** | **TOTAL** | **GRADE** |
| --- | --- | --- | --- | --- | --- | --- |
| **MAX MARKS** | **70** | **30** |  |  |
| **Set Target Level** | **60%** | **75%** |  |  |
|  | 21ETCCS001 | AARSH BHARTI | 39 | 25 | 64 | B |
|  | 21ETCCS002 | MS AASTHA DAKHERA | 42 | 30 | 72 | A |
|  | 21ETCCS003 | ABHISHEK PRAJAPAT | 33 | 28 | 61 | C+ |
|  | 21ETCCS005 | AKSHANSH SONI | 28 | 30 | 58 | C+ |
|  | 21ETCCS006 | AKSHAT SINGH CHOUHAN | 34 | 26 | 60 | C+ |
|  | 21ETCCS007 | ANIRUDH SINGH RAJPUROHIT | 23 | 28 | 51 | D+ |
|  | 21ETCCS008 | ANISH SINGHAL | 22 | 30 | 52 | D+ |
|  | 21ETCCS009 | ANJALI SONI | 40 | 25 | 65 | B |
|  | 21ETCCS010 | ANURAG MENARIA | 35 | 25 | 60 | C+ |
|  | 21ETCCS011 | ANUSHKA VIJAY | 26 | 27 | 53 | D+ |
|  | 21ETCCS012 | APURVA LODHA | 51 | 30 | 81 | A++ |
|  | 21ETCCS013 | ARUN LOHAR | 46 | 30 | 76 | A+ |
|  | 21ETCCS014 | ARVIND SINGH | 25 | 25 | 50 | D+ |
|  | 21ETCCS015 | ARVIND SUTHAR | 27 | 27 | 54 | C |
|  | 21ETCCS016 | AVANI JOSHI | 36 | 24 | 60 | C+ |
|  | 21ETCCS017 | AYAN KHAN | 28 | 25 | 53 | D+ |
|  | 21ETCCS018 | AYUSH JHOTA | 50 | 28 | 78 | A+ |
|  | 21ETCCS019 | AYUSH TALESARA | 48 | 26 | 74 | A |
|  | 21ETCCS020 | BHAVYA MEHTA | 40 | 26 | 66 | B |
|  | 21ETCCS021 | BHERU SINGH PANWAR | 52 | 28 | 80 | A+ |
|  | 21ETCCS022 | MS BHUMIKA VARDAR | 39 | 28 | 67 | B+ |
|  | 21ETCCS025 | CHINMAY MENARIA | 45 | 26 | 71 | B+ |
|  | 21ETCCS026 | DAKSH VYAS | 34 | 27 | 61 | C+ |
|  | 21ETCCS027 | DEEPAK DHAKAR | 43 | 26 | 69 | B+ |
|  | 21ETCCS029 | DHIREN SUHALKA | 30 | 22 | 52 | D+ |
|  | 21ETCCS030 | DHRUV BAGORA | 46 | 25 | 71 | B+ |
|  | 21ETCCS031 | DIKSHA AGARWAL | 45 | 30 | 75 | A |
|  | 21ETCCS032 | DINESH AUDICHYA | 43 | 26 | 69 | B+ |
|  | 21ETCCS034 | DIVYANSHU MENARIA | 31 | 25 | 56 | C |
|  | 21ETCCS035 | DIVYANSHU SAHU | 40 | 27 | 67 | B+ |
|  | 21ETCCS036 | DURGA SANKAR DANGI | 45 | 30 | 75 | A |
|  | 21ETCCS037 | GAGAN MANGAL | 39 | 28 | 67 | B+ |
|  | 21ETCCS038 | GARVITA BAYA | 52 | 28 | 80 | A+ |
|  | 21ETCCS039 | GARVITA JAIN | 51 | 30 | 81 | A++ |
|  | 21ETCCS040 | GAZI AMAN KHAN | 30 | 25 | 55 | C |
|  | 21ETCCS041 | HARSH | 39 | 25 | 64 | B |
|  | 21ETCCS042 | HARSH SONI | 49 | 26 | 75 | A |
|  | 21ETCCS043 | HARSHAL PALIWAL | 47 | 25 | 72 | A |
|  | 21ETCCS044 | HARSHIT PUROHIT | 55 | 28 | 83 | A++ |
|  | 21ETCCS045 | HARSHIT SHARMA | 51 | 27 | 78 | A+ |
|  | 21ETCCS046 | HARSHITA RATHORE | 41 | 27 | 68 | B+ |
|  | 21ETCCS047 | HEET DOSI | 40 | 25 | 65 | B |
|  | 21ETCCS048 | MS HETAL SHARMA | 40 | 27 | 67 | B+ |
|  | 21ETCCS049 | JAHNAVI JOSHI | 52 | 30 | 82 | A++ |
|  | 21ETCCS050 | JAINIL JAIN | 49 | 28 | 77 | A+ |
|  | 21ETCCS051 | JASWANT SINGH RAO | 36 | 25 | 61 | C+ |
|  | 21ETCCS052 | JATIN VASHISHTHA | 45 | 27 | 72 | A |
|  | 21ETCCS053 | JAY JOSHI | 49 | 30 | 79 | A+ |
|  | 21ETCCS054 | JAYDEEP DANGI | 51 | 27 | 78 | A+ |
|  | 21ETCCS055 | JIGYASA CHATURVEDI | 41 | 27 | 68 | B+ |
|  | 21ETCCS056 | KAILASH JOSHI | 44 | 27 | 71 | B+ |
|  | 21ETCCS057 | KAMLESH KUMAR GHANCHI | 39 | 28 | 67 | B+ |
|  | 21ETCCS058 | KANISHKA PARMAR | 49 | 30 | 79 | A+ |
|  | 21ETCCS059 | KASHVI PANDEY | 46 | 27 | 73 | A |
|  | 21ETCCS060 | KHUSHAL PALIWAL | 31 | 27 | 58 | C+ |
|  | 21ETCCS061 | KHUSHI GAHLOT | 45 | 30 | 75 | A |
|  | 21ETCCS062 | KHUSHI VANAWAT | 44 | 27 | 71 | B+ |
|  | 21ETCCS064 | KUNAL CHOUBISA | 28 | 25 | 53 | D+ |
|  | 21ETCCS065 | KUNAL MENARIA | 33 | 24 | 57 | C |
|  | 21ETCCS066 | KUNAL PALIWAL | 32 | 27 | 59 | C+ |
|  | 21ETCCS067 | KUNAL SHARMA | 40 | 25 | 65 | B |
|  | 21ETCCS068 | KUNIKA KADECHA(RL) | 45 | 25 | 70 | B+ |
|  | 21ETCCS069 | LALITA DANGI | 49 | 28 | 77 | A+ |
|  | 21ETCCS070 | LAVISHA JAIN | 48 | 28 | 76 | A+ |
|  | 21ETCCS071 | LOKANTIK JAIN | 43 | 26 | 69 | B+ |
|  | 21ETCCS073 | MAHAK BANSAL | 45 | 26 | 71 | B+ |
|  | 21ETCCS074 | MANSI GEHLOT | 48 | 30 | 78 | A+ |
|  | 21ETCCS075 | MAYANK KANERIYA | 47 | 27 | 74 | A |
|  | 21ETCCS076 | MAYANK MALIWAL | 48 | 26 | 74 | A |
|  | 21ETCCS078 | MITANSH JAIN | 40 | 25 | 65 | B |
|  | 21ETCCS079 | MOHAMMED OWAIS KHAN | 58 | 25 | 83 | A++ |
|  | 21ETCCS081 | NAVNEET ANAND | 49 | 25 | 74 | A |
|  | 21ETCCS082 | NEHAL DHING | 56 | 30 | 86 | A++ |
|  | 21ETCCS084 | NIPUN MALI | 32 | 25 | 57 | C |
|  | 21ETCCS085 | NISHA LOHAR | 49 | 30 | 79 | A+ |
|  | 21ETCCS086 | PRADHUMAN SINGH CHAUDHARY | 48 | 27 | 75 | A |
|  | 21ETCCS087 | PRANJAL SINGHVI | 34 | 27 | 61 | C+ |
|  | 21ETCCS088 | RAJAT PATIDAR | 39 | 26 | 65 | B |
|  | 21ETCCS089 | RIYA JAIN | 63 | 30 | 93 | A++ |
|  | 21ETCCS090 | ROHIN GANG | 41 | 25 | 66 | B |
|  | 21ETCCS091 | RUPAL SONI | 51 | 30 | 81 | A++ |
|  | 21ETCCS092 | SAHIL SOLANKI | 41 | 27 | 68 | B+ |
|  | 21ETCCS093 | SARGAM JAIN | 52 | 30 | 82 | A++ |
|  | 21ETCCS094 | SATYEN KHARADI | 52 | 28 | 80 | A+ |
|  | 21ETCCS095 | SHASHANK MENARIA | 41 | 25 | 66 | B |
|  | 21ETCCS096 | SHUBHAM DAS | 54 | 26 | 80 | A+ |
|  | 21ETCCS097 | SUDEEP ROY | 47 | 25 | 72 | A |
|  | 21ETCCS098 | SUMIT VASITA | 42 | 24 | 66 | B |
|  | 21ETCCS099 | SUYASH SONI | 42 | 30 | 72 | A |
|  | 21ETCCS100 | MS TANISHA KUMAWAT | 39 | 27 | 66 | B |
|  | 21ETCCS101 | TUSHAR YADAV | 17 | 25 | 42 | E+ |
|  | 21ETCCS102 | VAIBHAV GARG | 43 | 27 | 70 | B+ |
|  | 21ETCCS103 | VAIBHAV SONI | 46 | 30 | 76 | A+ |
|  | 21ETCCS104 | VARUN SHARMA | 45 | 26 | 71 | B+ |
|  | 21ETCCS105 | VEDANSHI PAREEK | 44 | 30 | 74 | A |
|  | 21ETCCS106 | VEDAS DIXIT | 45 | 27 | 72 | A |
|  | 21ETCCS107 | VIKRAM SINGH SISODIYA | 44 | 28 | 72 | A |
|  | 21ETCCS108 | VIMANYU P SHARMA | 42 | 27 | 69 | B+ |
|  | 21ETCCS109 | VISHAL KUMAWAT | 49 | 25 | 74 | A |
|  | 21ETCCS110 | VISHAL PUSHKARNA | 50 | 24 | 74 | A |
|  | 21ETCCS111 | VYOM BHATT | 54 | 30 | 84 | A++ |
|  | 21ETCCS112 | YASH JAIN | 49 | 27 | 76 | A+ |
|  | 21ETCCS113 | YASH JOSHI | 45 | 28 | 73 | A |
|  | 21ETCCS114 | YASH PURI GOSWAMI | 45 | 26 | 71 | B+ |
|  | 21ETCCS115 | YOGESH JAIPAL | 47 | 26 | 73 | A |
|  | 21ETCCS116 | MS YUVIKA CHOUDHARY | 52 | 27 | 79 | A+ |
|  | 21ETCCS117 | YUVRAJ SINGH KANAWAT | 39 | 26 | 65 | B |
|  | 21ETCCS300 | NEELAM KATARIYA | 48 | 28 | 76 | A+ |
|  | 21ETCCS400 | SHABBIR HUSSAIN | 39 | 24 | 63 | B |
|  | 21ETCCS401 | ALI HUSSAIN | 39 | 22 | 61 | C+ |
|  | 22ETCCS200 | SAURABH SONI | 41 | 28 | 69 | B+ |

| TOTAL | PASS | FAIL | ABSENT | PASS % |
| --- | --- | --- | --- | --- |
| 111 | 111 | 00 | 00 | 100% |

**Indirect Assessment:**

**Overall Teacher Self Assessment (at the completion of course) in terms of course objective and outcomes**

**Course Objectives:**

1.To understand the fundamental concepts of Computer Graphics.

2. Learn about the basic components of a graphics system.

3. Explore techniques for rendering 2D and 3D graphics.

4. Understand the mathematical concepts involved in 2D and 3D transformations.

5. Study and implement common computer graphics algorithms, such as line drawing, circle drawing, and polygon filling.

6. Learn about shading and rendering algorithms for realistic image synthesis.

7. Explore image processing techniques, including filtering and enhancement.

**Course Outcomes**:

1. Student will be able to define the basic computer graphics system, application of computer graphics and rasterization of line, circle, ellipse.
2. Students will be able to apply geometry transformation graphics object, their application in composite form, different color filling algorithms and clipping algorithms.
3. Students will be able to identify visible surface detection technique and curve.
4. Students will be able to design and develop algorithms in software.

**Methodology to identify bright student**

Considered a range of criteria, including academic performance, creativity, critical thinking, problem-solving skills, and enthusiasm for learning. Bright students often excel in multiple areas. Observed how students perform in the classroom. In terms of active participation, engagement in discussions, leadership, and the ability to grasp complex concepts.

**Efforts to keep students engaged**

1. Active Learning:
	* Incorporate active learning strategies, such as group discussions, problem-solving activities, and hands-on projects. Active participation keeps students engaged and encourages critical thinking.
2. Varied Teaching Methods:
	* Use a variety of teaching methods, including lectures, group work, multimedia presentations, and interactive activities to cater to different learning preferences.
3. Technology Integration:
	* Leverage technology, such as online platforms, educational apps, and interactive software, to make lessons more engaging and interactive.

 Some extra learning for bright students

 1. <https://www.geeksforgeeks.org/static-and-dynamic-scoping/?ref=lbp>.

 2. [https://www.w3schools.com/lex](https://www.javatpoint.com/lex).

**Methodology to identify weak student**

Considered a range of criteria, including classroom observation, formative assessment, summative assessment, assignment review e.t.c. Weak students are struggling students with sensitivity and a desire to support their learning. Some measures, such as additional tutoring, personalized assignments, or alternative assessment methods, to help students succeed.

**Targeted inventions for weak student**

**1. Additional Resources**

Offer supplementary learning materials, such as textbooks, online resources, or multimedia content, to provide alternative explanations and reinforce key concepts.

**2. Remedial classes**

Establish a tutoring program where students can receive extra help from teachers.

**3. Flipped classroom**

Students are assigned pre-class learning materials, often in the form of videos, readings, or online modules, to cover the foundational concepts before coming to class.

Some additional resources or links for student to improve their understanding for topic

1. <https://archive.nptel.ac.in/courses/106/104/106104123/>

2.Donald D. Hearn M. Pauline Baker Second Edition Pearson.

3. Martin J. Davis.

4. Dr. Rajiv Chopra S. Chand.