

## MGM University

### Vision

- To ensure sustainable human development which encourages self-reliant and self-content society.
- To promote activities related to community services, social welfare and also Indian heritage and culture.
- To inculcate the culture of non-violence and truthfulness through vipassanna meditation and Gandhian Philosophy.
- To develop the culture of simple living and high thinking

### Mission

- To impart state of art education and technical expertise to students and give necessary training to teachers to create self-reliant society for future.
- To encourage students to participate in Indian and International activities in sports, literature, etc. so that future generation becomes base for free and liberal society
- To educate students in areas like Management, Finance, Human relations to inculcate philosophy of simple living and high thinking value of simple economic society.
- To inculcate culture of non-violence and truthfulness through Vipassana.

To sustain activities of Indian culture (viz. classical dance, music and fine arts) through establishing institutes like Mahagami, Naturopathy, etc.

## विद्यापीठ गीत

अत्त दिप भव भव प्रदिप भव,

स्वरूप रूप भव हो

ज्ञान सब्ब विज्ञान सब्ब भव ,

सब्ब दिप भव हो

अत्ताहि अत्त नो नाथो ,

अत्ताहि अत्त नो गति

अत्त मार्गपर अप्रमादसे है तुझे चलना

सब्ब का कल्याण हो ,

वो कार्यकुशल करना

सब्ब का उत्तम मंगल , पथप्रदर्शक हो

अत्त दिप भव भव प्रदिप भव ,

स्वरूप रूप भव हो

ज्ञान सब्ब विज्ञान सब्ब भव ,

सब्ब दिप भव हो

बुद्धमं शरनं गच्छामि :

धम्मं शरनं गच्छामि :

संघं शरनं गच्छामि :

## **Dr. G. Y. Pathrikar College of Computer Science & Information Technology**

MGM college of Computer Science and Information Technology was established in 2001 offering undergraduate and postgraduate degree program in Computer Science and Information Technology. College was renamed as Dr.G.Y.Pathrikar College of Computer Science and Information Technology in 2003 in memory of great educationalist, one of the founder member and Ex-Secretary MGM, Dr.G.Y.Pathrikar Sir.

It is first self-financed ISO certified institution offering program dedicated to Computer science and Information technology in Maharashtra and has achieved status of 2f/12b. Ours was the only and first college to be re-accredited as A+ grade with NAAC in the year 2017. Experienced and qualified faculty with Ph.D is strength of our college. Starting with 77 student's College has crossed total students strength of 10,000 passing out. Student are doing well in various MNCs like Infosys, Tech-Mahindra, Wipro, Capgemini, Cognizant etc. Many have their own Startups. Some of the students have completed their Masters and Ph.D. program from foreign countries like US, UK, Australia. Now we are constituent college of MGM University, Chhatrapati Sambhajnagar.

### **Vision**

To be an academic institution in dynamic equilibrium in social, ecological and economical environment striving continuously for excellence in total quality education, research and technological service to the nation.

### **Mission**

- To create and sustain a community of learning in which students acquire knowledge and learn to apply it professionally with due consideration for ethical, and economical issues.
- To upgrade our students in all respect with the help of latest infrastructure in the area of Computer Science and Information Technology in order to build the National Capabilities.
- To understand the culture of Non-violence, truth, peace through Gandhian Philosophy.

**Programs offered at Dr. G. Y. Pathrikar College of Computer Science & Information Technology**

| <b>Undergraduate Programmes</b>                                | <b>Postgraduate Programmes</b> | <b>PhD Programmes</b>                                |
|--|--------------------------------|--|
| B.Sc(Computer Science)<br>Honours / Honours with Research      | M.Sc(Computer Science)         | Ph.D. in Computer Science and Information Technology |
| B.Sc(Information Technology)<br>Honours/ Honours with Research | M.Sc(Information Technology)   |  |
| BCA(Science)<br>Honours / Honours with Research                | M.Sc(Data Science)             |  |
| B.Sc(Animation)<br>Honours / Honours with Research             | M.Sc(Animation)                |  |
| Integrated M.Sc. Data Science                                  |                                |  |
| BCA(Digital Marketing) Honours                                 |                                |  |
| B.Sc(Robotics) Honours   |                                |  |

MGMUNIVERSITY

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**Name of Program** – B.Sc. (Animation) Honours / Honours with Research

**Duration** – Four Years

**Eligibility -**

- He / She Must have passed the Higher Secondary (Multipurpose) Examination conducted by H.S.C. Board Government of Maharashtra with Science / Technical Subjects or an Examination of any statutory University and Board recognized as equivalent thereto.

**OR**

- Candidates having offered prescribed vocational courses, (MCVC) with Computer Techniques / Information Technology / Electronics.

**OR**

- Three Years Course in Diploma Engineering conducted by the Board of Technical Education, Maharashtra State. He / She must have passed at qualifying examination.

MGMUNIVERSITY

**Name of Faculty:** Basic and Applied Science

**Name of the College/Institute/Department/School:** Dr. G. Y. Pathrikar College of Computer Science and Information Technology

**Name of the Programme:** B.Sc. (Animation) Honours / Honours with Research

**Programme Type (UG/PG):** UG

**Duration:** Four Years

**List of Options to select from Bucket of Courses provided in various categories:**

|                   |                      |
|-------------------|----------------------|
| <b>Major</b>      |                      |
| <b>Animation</b>  |                      |
| <b>Core Major</b> | <b>Core Elective</b> |

| <b>Minor options for basic and applied science Faculty</b> | <b>GYP</b>               | <b>IBT</b>                     | <b>UDBAS</b>     |
|--|--------------------------|--------------------------------|------------------|
|  | Cyber Security           | Food Technology and Processing | Chemistry        |
|  | Robotics                 | Microbiology                   | Geo-Informatics  |
|  | Data Analytics           | Biotechnology                  | Mathematics      |
|  | Block-Chain Technologies | Bioinformatics                 | Statistics       |
|  | •                        | Food Nutrition and Dietetics   | Material Science |

| <b>Minor options from Other Faculty</b> | <b>Faculty of Engineering and Technology</b> | <b>Faculty of Social Sciences &amp; Humanities</b> | <b>Faculty of Design</b> | <b>Faculty of Management and Commerce</b> | <b>Interdisciplinary Faculty</b> | <b>Performing Arts</b> |
|---|--|--|--------------------------|---|----------------------------------|------------------------|
|   | Data Science                                 | Filmmaking   | Product Design           | Financial Management                      | Cosmetic Technology              | Theatre Arts           |
|   | IoT  | Photography  | Interior Design          | E-Commerce                                | Education                        | Dance                  |
|   | Geo-informatics and Applications             | Mass Communication and Journalism                  | Contemporary Arts        | International Business Management         | Yog Sciences                     | Music                  |
|   | EV Technology                                | Psychology   | Visual Communication     | Hospitality Mgmt                          | Physical Education               | Folk Art               |
|   | Drone Technology                             | Economics  | Fashion Technology       | Travel and Tourism                        | Home Science                     |                        |
|   | Robotics Technology                          | English  |                          | Art of Leadership                         |                                  |                        |
|   | Chemical Technology                          | Social Work  |                          | Art of Business                           |                                  |                        |
|   | AI&ML  |  |                          |   |                                  |                        |
|   | Universal Human Values                       |  |                          |   |                                  |                        |
| Energy management                       |  |  |                          |   |                                  |                        |

| First Year- Semester I |             |                                       |                  |                |                              |           |                           |            |            |                         |          |       |
|------------------------|-------------|---------------------------------------|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category        | Course Code | Course Title                          | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|                        |             |                                       |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM                     | SCA41MML101 | Fundamentals of Computer              | Lecture          | 2              | 2                            |           | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                     | SCA41MML102 | 3D Modeling Basics                    | Lecture          | 2              | 2                            |           | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                     | SCA41MMP101 | Practical Based on OpenOffice         | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                     | SCA41MMP102 | Practical Based on 3D Modeling Basics | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| IKS                    | SCA41IKT101 | Indian Psychology and yoga            | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| AEC                    |             | Basket of AEC From University         | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| OE                     |             | Basket of OE From University          | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| OE                     |             | Basket of OE From University          | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| VSC                    | SCA41VSP101 | Introduction to Image Manipulation    | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| SEC                    | SCA41SEL101 | Foundation of Art                     | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| VEC                    |             | Basket of VEC From University         | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| CC                     |             | Basket of CC From University          | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
|                        |             |                                       | <b>Total</b>     | <b>22</b>      | <b>16</b>                    | <b>12</b> | <b>360</b>                | <b>240</b> | <b>600</b> |                         |          |       |

**Note:**

**Nature of Course:** L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,

**Course Category:** MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

| First Year- Semester II |             |   |                  |                |                              |           |                           |            |            |                         |          |       |
|-------------------------|-------------|---|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category         | Course Code | Course Title                                      | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|                         |             |   |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM                      | SCA41MML103 | 3D Animation Basics                               | Lecture          | 2              | 2                            |           | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                      | SCA41MML104 | Character Design and Animation                    | Lecture          | 2              | 2                            |           | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                      | SCA41MMP103 | Practical Based on 3D Animation Basics            | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                      | SCA41MMP104 | Practical Based on Character Design and Animation | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MI                      |             | Basket of MI From University                      | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| AEC                     |             | Basket of AEC From University                     | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| OE                      |             | Basket of OE From University                      | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| OE                      |             | Basket of OE From University                      | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| VSC                     | SCA41VSP102 | Advance Image Manipulation                        | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| SEC                     | SCA41SEL102 | Script writing and Storyboard Design              | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| VEC                     |             | Basket of VEC From University                     | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| CC                      |             | Basket of CC From University                      | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
|                         |             |   | <b>Total</b>     | <b>22</b>      | <b>16</b>                    | <b>12</b> | <b>360</b>                | <b>240</b> | <b>600</b> |                         |          |       |

**Note:**

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**Level 4.5 Award of UG certificate with 40 credits and an additional 4-credits core NSQF course / internship OR continue with major and minor**



| Second Year - Semester III |             |  |                  |                |                              |           |                           |            |            |                         |          |       |
|----------------------------|-------------|--|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category            | Course Code | Course Title                                     | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|                            |             |  |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM                         | SCA41MML201 | Texture Painting                                 | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                         | SCA41MML202 | Basics of Character Animation                    | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                         | SCA41MML203 | Web Designing                                    | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                         | SCA41MMP201 | Practical Based on Texture Painting              | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                         | SCA41MMP202 | Practical Based on Basics of Character Animation | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| OE                         |             | Basket of OE From University                     | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MI                         |             | Basket of MI From University                     | Lecture          | 3              | 2                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MI                         |             | Basket of MI From University                     | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| AEC                        |             | Basket of AEC From University                    | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| VSC                        | SCA41VSP201 | Graphics Design                                  | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| FP                         | SCA41FPJ201 | Field Project                                    | Project          | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| CC                         |             | Basket of CC From University                     | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
|                            |             |  | <b>Total</b>     | <b>22</b>      | <b>12</b>                    | <b>18</b> | <b>390</b>                | <b>260</b> | <b>650</b> |                         |          |       |

**Note:**

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| Second Year - Semester IV |             |   |                  |                |                              |           |                           |            |            |                         |          |       |
|---------------------------|-------------|---|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category           | Course Code | Course Title  | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|                           |             |   |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM                        | SCA41MML204 | Advance Texture Painting                                | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                        | SCA41MML205 | Advanced Character Animation                            | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                        | SCA41MML206 | User Experience (UX) & User Interface Design(UI) Design | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                        | SCA41MMP203 | Practical Based on Advance Texture Painting             | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                        | SCA41MMP204 | Practical Based on Advanced Character Animation         | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| OE                        |             | Basket of OE From University                            | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MI                        |             | Basket of MI From University                            | Lecture          | 3              | 2                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MI                        |             | Basket of MI From University                            | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| AEC                       |             | Basket of AEC From University                           | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| SEC                       | SCA41SEP201 | Sound Editing   | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| CEP                       | SCA41CEP201 | Community Engagement Program                            | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| CC                        |             | Basket of CC From University                            | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| <b>Total</b>              |             |   |                  |                | <b>22</b>                    | <b>12</b> | <b>18</b>                 | <b>390</b> | <b>260</b> | <b>650</b>              |          |       |

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| Third Year - Semester V |             |   |                  |                |                              |           |                           |            |            |                         |          |       |
|-------------------------|-------------|---|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category         | Course Code | Course Title  | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|                         |             |   |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM                      | SCA41MML301 | 3D Design and Visualization                             | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                      | SCA41MML302 | Visual Effects  | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                      | SCA41MML303 | Rotoscope Animation                                     | Lecture          | 2              | 2                            |           | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                      | SCA41MMP301 | Practical Based on 3D Design and Visualization          | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                      | SCA41MMP302 | Practical Based on Visual Effects                       | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| ME                      | SCA41MEL301 | 1. Virtual Reality                                      | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
|                         | SCA41MEL302 | 2. Basics of Cinematography & Lights                    |                  |                |                              |           |                           |            |            |                         |          |       |
| ME                      | SCA41MEP301 | 1. Practical Based on Virtual Reality                   | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
|                         | SCA41MEP302 | 2. Practical Based on Basics of Cinematography & Lights |                  |                |                              |           |                           |            |            |                         |          |       |
| MI                      |             | Basket of MI From University                            | Lecture          | 3              | 2                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MI                      |             | Basket of MI From University                            | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| VSC                     | SCA41VSP301 | Rotoscope using tracking                                | Practical        | 2              | -                            | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| FP                      | SCA41FPJ301 | Field Project   | Project          | 2              |                              | 4         | 30                        | 20         | 50         |                         | 08       | 20    |
| Total                   |             | <b>Total</b>  |                  | <b>20</b>      | <b>11</b>                    | <b>16</b> | <b>390</b>                | <b>260</b> | <b>650</b> |                         |          |       |

**Note:**

**Nature of Course:** L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,

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| Third Year - Semester VI |             |  |                  |                |                              |           |                           |            |            |                         |          |       |
|--------------------------|-------------|--|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category          | Course Code | Course Title                             | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|                          |             |  |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM                       | SCA41MML304 | Video Editing                            | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                       | SCA41MML305 | Digital Sculpting                        | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                       | SCA41MML306 | Motion Graphic Design                    | Lecture          | 2              | 2                            | -         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                       | SCA41MMP303 | Practical Based on Video Editing         | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                       | SCA41MMP304 | Practical Based on Digital Sculpting     | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| ME                       | SCA41MEL303 | Augmented Reality                        | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
|                          | SCA41MEL304 | Basics of Photography                    |                  |                |                              |           |                           |            |            |                         |          |       |
| ME                       | SCA41MEP303 | Practical Based on Augmented Reality     | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
|                          | SCA41MEP304 | Practical Based on Basics of Photography |                  |                |                              |           |                           |            |            |                         |          |       |
| MI                       |             | Basket of MI From University             | Lecture          | 3              | 2                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MI                       |             | Basket of MI From University             | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| OJT                      | SCA41JTP301 | On Job Training                          | Practical        | 4              |                              | 8         | 30                        | 20         | 50         |                         | 08       | 20    |
|                          |             | <b>Total</b>                             |                  | <b>20</b>      | <b>11</b>                    | <b>16</b> | <b>300</b>                | <b>240</b> | <b>600</b> |                         |          |       |

**Note:**

**Nature of Course:** L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,

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| Fourth Year - Semester VII |             |  |                  |                |                              |           |                           |            |            |                         |          |       |
|----------------------------|-------------|--|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category            | Course Code | Course Title                                     | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|                            |             |  |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM                         | SCA41MML401 | Short Film Making                                | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM                         | SCA41MML402 | Advance Character Modeling                       | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM                         | SCA41MML403 | Compositing Essentials                           | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM                         | SCA41MMP401 | Practical Based on Short Film Making             | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                         | SCA41MMP402 | Practical Based on Advance Character Modeling    | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                         | SCA41MMP403 | Practical Based on Compositing Essentials        | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| ME                         | SCA41MEL401 | Cyber law & Copyrights                           | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
|                            | SCA41MEL402 | Advertisement & Legal Aspects                    |                  |                |                              |           |                           |            |            |                         |          |       |
| ME                         | SCA41MEP401 | Practical Based on Cyber law & Copyrights        | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
|                            | SCA41MEP402 | Practical Based on Advertisement & Legal Aspects |                  |                |                              |           |                           |            |            |                         |          |       |
| RM                         | SCA41RML401 | Research Methodology                             | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| RM                         | SCA41RMP401 | Practical based on Research Methodology          | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
|                            |             | <b>Total</b>                                     |                  | <b>20</b>      | <b>15</b>                    | <b>10</b> | <b>450</b>                | <b>300</b> | <b>750</b> |                         |          |       |

**Note:**

**Nature of Course:** L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,

**Course Category:** MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

| Fourth Year - Semester VIII |             |  |                  |                |                              |           |                           |            |            |                         |          |       |
|-----------------------------|-------------|--|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category             | Course Code | Course Title                                     | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|                             |             |  |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM                          | SCA41MML404 | Dynamic Simulation                               | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM                          | SCA41MML405 | Realistic Character Modelling                    | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM                          | SCA41MML406 | Advanced compositing                             | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM                          | SCA41MMP404 | Practical Based on Dynamic Simulation            | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                          | SCA41MMP405 | Practical Based on Realistic Character Modelling | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM                          | SCA41MMP406 | Practical Based on Advanced compositing          | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| ME                          | SCA41MEL403 | Motion tracking techniques                       | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
|                             | SCA41MEL404 | Print Design Layout                              |                  |                |                              |           |                           |            |            |                         |          |       |
| ME                          | SCA41MEP403 | Practical Based on Motion tracking techniques    | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
|                             | SCA41MEP404 | Practical Based on Print Design Layout           |                  |                |                              |           |                           |            |            |                         |          |       |
| OJT                         | SCA41JTP401 | On job Training                                  | Practical        | 4              | -                            | 8         | 60                        | 40         | 100        |                         | 16       | 40    |
|                             |             | <b>Total</b>                                     |                  | <b>20</b>      | <b>12</b>                    | <b>16</b> | <b>420</b>                | <b>280</b> | <b>700</b> |                         |          |       |

**Note: Nature of Course:** L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,

**Course Category:** MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

| Fourth Year - Semester VII (Honours with Research) |             |   |                  |                |                              |           |                           |            |            |                         |          |       |
|--|-------------|---|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category                                    | Course Code | Course Title                                  | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|  |             |   |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM   | SCA41MML407 | Compositing Techniques                        | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM   | SCA41MML408 | 3D Architectural Design                       | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM   | SCA41MMP406 | Practical Based on Compositing Techniques     | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM   | SCA41MMP407 | Practical Based on 3D Architectural Design    | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| ME   | SCA41MEL405 | 1. Virtual cinematography                     | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
|  | SCA41MEL406 | 2. Advanced Visual effects                    |                  |                |                              |           |                           |            |            |                         |          |       |
| ME   | SCA41MEP405 | 1. Practical Based on virtual cinematography  | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
|  | SCA41MEP406 | 2. Practical Based on Advanced Visual effects |                  |                |                              |           |                           |            |            |                         |          |       |
| RM   | SCA41RML401 | Research Methodology                          | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| RM   | SCA41RMP401 | Practical based on Research Methodology       | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| RP   | SCA41RPJ401 | Research Project                              | Practical        | 4              | -                            | 8         | 60                        | 40         | 100        |                         | 16       | 40    |
|  |             | <b>Total</b>                                  |                  | <b>20</b>      | <b>12</b>                    | <b>16</b> | <b>420</b>                | <b>280</b> | <b>700</b> |                         |          |       |

**Note:**

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| Fourth Year - Semester VIII (Honours with Research) |             |  |                  |                |                              |           |                           |            |            |                         |          |       |
|---|-------------|--|------------------|----------------|------------------------------|-----------|---------------------------|------------|------------|-------------------------|----------|-------|
| Course Category                                     | Course Code | Course Title   | Nature of Course | No. of Credits | Teaching (Contact hrs/ week) |           | Evaluation Scheme (Marks) |            |            | Minimum Passing (Marks) |          |       |
|   |             |  |                  |                | L                            | P         | Internal                  | External   | Total      | Internal                | External | Total |
| MM  | SCA41MML408 | Gaming Techniques                                    | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM  | SCA41MML409 | Advanced 3D Effects                                  | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
| MM  | SCA41MMP408 | Practical Based on Gaming Techniques                 | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| MM  | SCA41MMP409 | Practical Based on Advanced 3D Effects               | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
| ME  | SCA41MEL407 | 3D Element Creation                                  | Lecture          | 3              | 3                            | -         | 60                        | 40         | 100        |                         | 16       | 40    |
|   | SCA41MEL408 | Advanced Motion Capture technique                    |                  |                |                              |           |                           |            |            |                         |          |       |
| ME  | SCA41MEP407 | Practical Based on 3D Element Creation               | Practical        | 1              | -                            | 2         | 30                        | 20         | 50         |                         | 08       | 20    |
|   | SCA41MEP408 | Practical Based on Advanced Motion Capture technique |                  |                |                              |           |                           |            |            |                         |          |       |
| RP  | SCA41RPJ402 | Research Project                                     | Practical        | 8              | -                            | 16        | 120                       | 80         | 200        |                         | 32       | 80    |
|   |             | <b>Total</b>   |                  | <b>20</b>      | <b>09</b>                    | <b>22</b> | <b>390</b>                | <b>260</b> | <b>650</b> |                         |          |       |

**Note:**

**Nature of Course:** L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,

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## **Syllabus** **Semester-I**

**Course code:** SCA41MML101

**Course name:** Fundamentals of Computer

**Course category:** Major Mandatory

**Credits:** 2

**Pre-requisites:** Basics of mathematics and working of Computer System

**Course Objectives:**

To impart basic introduction to computer hardware, components, computer number system, how the CPU works, fundamental about algorithms and flowchart as well as different type of software.

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Bridge the fundamental concepts of computers with the present level of knowledge of the students.

**CO2:** Student will develop a vocabulary of key terms related to the computer and to software program menus.

**CO3:** Familiarize operating systems, programming languages, peripheral devices, networking, multimedia and internet.

**CO4:** Introduction to Database management system.

**Contents –**

| Unit | Content  | Teaching hours |
|------|--|----------------|
| 1    | <p><b>An Introduction to Era of Computers:</b> Introduction to Data &amp; Information, Need of Information &amp; Need for computerization, Components of Information Technology, Definition of Computer Characteristics of a Computer System, Generations of a computer System, Classification of Computers: Analog Computer, Digital Computer, General Purpose Computer, Special Purpose Computer, Super Computer, Mainframe Computer, Medium Computer, Mini Computer, Micro Computer, Hybrid Computer.</p> <p><b>Components &amp; I/O Devices:</b> Major Components of a Computer System: Hardware &amp; Software ,Organization of Computer, I/O Devices: Keyboard, Mouse, Joystick, Track Ball, Touch Screen, MICR (Magnetic Ink Character Recognition), Light Pen, Voice Input Recognition Devices, Optical Recognition, Printers &amp; Its Types, Monitor (VDU), Flat Panel Display, Connecting Various Peripheral Devices: Parallel Interface, Serial Interface.</p> | 10             |
| 2    | <p><b>Storage Devices (Computer Memory System):</b> Magnetic Disk Memory, Hard Disk Memory, Removable Disk Memory, CD-ROM, Data Storage and Retrieval Mechanism.</p> <p><b>Computer Data representation &amp; Processors:</b> Computer Data Representation and storage ,Decimal Number System, Binary Number System, Octal Number System, Hexadecimal Number System.</p> <p><b>Operating System Concepts:</b> Introduction to Operating System, Definition, Structure of Operating System, types of Operating System, CUI (Character User Interface) &amp; GUI (Graphical User Interface), Features of Operating System.</p>   | 10             |
| 3    | <p><b>Programming Languages:</b> Classification of Programming Languages: Machine language, Assembly Language, High level Language ,Advantages and Disadvantage.</p> <p><b>Types of Network:</b> LAN (Local Area Network), WAN (Wide Area Network), MAN (Metropolitan Area Network), TCP/IP, VPN (Virtual Private Network).</p>  | 10             |

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| <b>Text Books:</b> 1. Fundamentals of Information Technology Chetan Srivastava Kalyani Publishers. |
| 2. Fundamentals of Computers V. Rajaraman PHI Publication IVth Edition.                            |
| 3. Fundamentals of Programming Raj K. Jain S.Chand Publication                                     |
| 4. Computer Fundamental B. Ram BPB Publication   |
| <b>Online Resources:</b> 1. NPTEL / SWAYAM lectures.   |

## Syllabus Semester-I

**Course code:** SCA41MML102

**Course name:** 3D Modeling Basics

**Course category:** Major Mandatory

**Credits:** 2

**Pre-requisites:** Basic Graphic Design Knowledge

**Course Objectives:** The basic objective is to create 3D computer objects for using interactive 3D applications, and computer games, Virtual Simulations etc.

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Learn to User interface and Navigation

**CO2:** Learn how to create 3D Objects and Understanding the different materials.

**CO3:** Understanding the textures and world setting.

**CO4:** Understand how to render 3d object in different types of format.

**Contents –**

| Unit | Content  | Teaching hours |
|------|--|----------------|
| 1    | <p><b>Interface:</b><br/>Screen, User Preference Window ,Preset Interface Arrangement, 3D Window Window Modes ,Layers, Moving in 3D Space, Blender View Menu Properties Window, Blender Windows, Console Windows, Outliner Window, Text Editor Window.</p> <p><b>Navigation:</b><br/>Navigate &amp; Save, Windows Explorer, Append Pack and Import, Packing Data Importing Objects</p> <p><b>Create Edit Object:</b><br/>Basic Mesh, Placing Objects, Edit/Object Mode, Mesh Types, Cursor Placement Moving Objects, Scaling Objects, Rotating Objects, Precision Manipulation, Transformation Widget, Mesh Vertex Editing ,Selecting Vertices, Edit Mode Selection ,Creating Vertices, Center Points, Object Display, Shading Smooth/Flat, Extruding Shapes, Proportional Vertex Editing, Knife Tool ,Creating Ground ,Edge Loop Selection, Tool Shelf Joining/Separating Meshes ,Modifiers</p> | 10             |
| 2    | <p><b>Materials</b><br/>Blender Material Slot, Materials, Material Settings, Preview Tab, Materials Buttons,Material Colors, Adding a New Material, Diffuse Tab, Specular Tab, Hardness, Ramp Shaders ,Transparency Halos</p> <p><b>Textures</b><br/>Textures, Texture Mapping, Displacement Mapping, UV Texture Mappin Selective UV Mapping,Unwrapping with Seams</p>   | 10             |
| 3    | <p><b>World Settings</b><br/>World Settings, Mist, Stars, Texture as Background, Image as Background Image as Template, Lighting and Camera, Lighting : Lighting Types and Settings, Cameras, Settings Options,</p> <p><b>Rendering</b><br/>Render Settings,, Rendering a JPEG Image, Creating a Video Clip</p>  | 10             |

**Text Books:** 1. Introduction to BLENDER 3D (A Book for Beginners 2.54+) - John M Blain

**Reference Books:** Blender Basics Classroom Tutorials James Chronister 5th

**Online Resources:** Blender 2.83 Reference Manual Blender

## **Syllabus** **Semester-I**

**Course code:** SCA41MMP101      **Course name:** Practical Based on OpenOffice

**Course category:** Major Mandatory      **Credits:** 1

**Pre-requisites:** Basics Knowledge of Computer Software.

**Course Objectives:** To study text formatting, create presentation, formulas for Mathematical operations

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Design Resume and Greeting Cards.

**CO2:** Design professional documents.

### **Contents –**

|    |   |
|----|---|
| 1  | Prepare any official letter document  |
| 2  | Generate simple and effective tables and graphs to describe experimental data   |
| 3  | Design Professional Resume  |
| 4  | Generate equations, sample calculations, and basic diagrams.  |
| 5  | Perform calculations both manually inputting formulas and built-in functions.   |
| 6  | Create Graph and Tables and Integrate both graphs and tables created in Microsoft Excel into a report file in Microsoft Word. |
| 7  | To Create a PowerPoint Presentation include Audio, Video and animation effect using PowerPoint.                               |
| 8  | To create any document Using Word Processing Tool and different styles  |
| 9  | To create any document Using Presentation Tool  |
| 10 | To Create a graph of any numeric data in Microsoft office and give appropriate Label.   |

|                    |
|--------------------|
| <b>Text Books:</b> |
|                    |

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|-------------------------|
| <b>Reference Books:</b> |
|                         |

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| <b>Online Resources:</b> 1. NPTEL / SWAYAM lectures. |
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## **Syllabus** **Semester-I**

**Course code:** SCA41MMP102      **Course name:** Practical Based on 3D Modeling Basics

**Course category:** Major Mandatory      **Credits:** 1

**Pre-requisites:** Basics Knowledge of Graphics Software.

**Course Objectives:** Design 3D Models and 3D animations

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Design 3D Model

**CO2:** Create 3D Animation

### **Contents –**

|    |   |
|----|---|
|    |   |
| 1  | Overview of the Graphic User Interface                      |
| 2  | Learning how to add objects                                 |
| 3  | Procedure of manipulating objects                           |
| 4  | Overview of Edit Mode                                       |
| 5  | Learning about different Edit Mode Tools                    |
| 6  | Overview of Shading workspace                               |
| 7  | Learning different Modifiers                                |
| 8  | Advanced object Editing techniques                          |
| 9  | Procedure of applying a material on an object               |
| 10 | Procedure to apply material on individual face of an object |

|   |
|---|
| <b>Text Books:</b>  |
| 1. Introduction to BLENDER 3D (A Book for Beginners 2.54+) - John M Blain |
| <b>Reference Books:</b>   |
| <b>Online Resources:</b> 1. NPTEL / SWAYAM lectures.                      |

## **Syllabus** **Semester-I**

**Course code:** SCA41VSP101

**Course Name:** Introduction to Image Manipulation

**Course category:** Vocational skill course      **Credits:** 2

**Pre-requisites:** Basics Knowledge of Graphics Software.

**Course Objectives:** The basic objective is edit photos; apply Different types of Effects on Photos, Website Prototype Design.

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Design Special effects on image using filters.

**CO2:** Design Business cards, Logos, flyers.

### **Contents –**

| Sr.no. |  |
|--------|--|
| 1      | Create a passport sizes photographs using patterns                   |
| 2      | Design collage template using transformations                        |
| 3      | Create a clipping mask effects for different types of shapes         |
| 4      | Design 2D background using pen tool and selection tools              |
| 5      | Design perspective wallpaper using vanishing point filter            |
| 6      | Make color correction in image using image Adjustment layers         |
| 7      | Design creative background using gradient, texture and patterns      |
| 8      | Create blending effect of multiple images using gradient and masking |
| 9      | Design different types of shapes using transformations               |
| 10     | To study selection tools of different types object, image selections |

### **Text Books:**

1. Adobe Photoshop CC Classroom in a Book by Andrew Faulkner

### **Reference Books:**

**Online Resources:** 1. NPTEL / SWAYAM lectures.

## Syllabus Semester-I

**Course code:** SCA41SEL101

**Course name:** Foundation of Art

**Course category:** Skill Enhancement course

**Credits:** 2

**Pre-requisites:** Basics of Drawing.

**Course Objectives:** The basic objective of is Understand the drawing, Textures, Perspective and color theory.

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Learn Drawing techniques, and Geometrical shapes and forms

**CO2:** Learn Different types of Perspective, and 3d creating a 3DText

**CO3:** Color Theory

### Contents –

| Unit | Content  | Teaching hours |
|------|--|----------------|
| 1    | <p><b>Introduction to Drawing</b><br/>How to Draw, How to Choose a Pencil, How to improve you're Drawing Skills, Basics of Sketching &amp; Drawing (with practice): Lines in different grades of pencils HB +0.8b Shading in pencil medium, Shading in different angles of pencil strokes, Formatting in different textures with pencil shading.</p> <p><b>Drawing Geometrical Shapes and Forms</b><br/>Draw a Box, Draw a Circle, Draw a cylinder, Draw a Hexagon, Draw a Perfect Pentagram, Draw a Octagonal Based Pyramid</p> | 10             |
| 2    | <p><b>Perspective Drawing</b><br/>One-point Perspective, Two-point Perspective, Three point perspective, Perspective in lines in landscapes, Different head shapes, Characters</p> <p><b>Drawing 3D Text</b><br/>Draw 3D Block Letters , Draw Bubble Letters, Design a 3D Logo</p>   | 10             |
| 3    | <p><b>Colour Theory</b><br/>Colour and Colour Identification, Colour Theory, Colour Characteristics and value, Colour Mixtures, Importance and uses of Colours in our Life .</p>   | 10             |

|   |
|---|
| <b>Text Books:</b> 1. Figure drawing made easy Aditya Chari                                     |
| 2. Design Fundamentals Dr. UtpalBarua IIT Guwahati IVth Edition.                                |
| 3. Perspective MilindMulik JyotsnaPrakasha  |
| 4. Colour Theory ,Prof. JayprakashJagtap.   |
| <b>Online Resources:</b> 1. NPTEL / SWAYAM lectures.  |
| <b>Note:</b> 1. For a subject having 2 credits, the syllabus contents should have 3 to 4 units. |
| 2. For a subject having 3 credits, the syllabus contents should have 4 to 5 units.              |
| 3. For a subject having 4 credits, the syllabus contents should have 5 to 6 units.              |

## Syllabus Semester-II

**Course code:** SCA41MML103

**Course name:** 3D Animation Basics

**Course category:** Major Mandatory

**Credits:** 2

**Pre-requisites:** Basic knowledge of 3D Modeling.

**Course Objectives:** The basic objective of 3D Animation basics is to create Key frame Animation, understanding Timeline, Particles etc.

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Learn to Animation Basics

**CO2:** Understanding the Constraints

**CO3:** Adding Armatures

**CO4:** Understand Particle Systems and Video Sequence Editing

### Contents –

| Unit | Content  | Teaching hours |
|------|--|----------------|
| 1    | <p><b>Title of 1 - Animation Basics</b><br/>Moving, Rotating &amp; Scaling, Viewing Your Animation, Graph Editor Window Editing The Curve, Curve Types, Constant Extrapolation, Curve Modifying Automatic Key framing, Animating Other Features, Keying Sets, Wind Strength Animation</p> <p><b>Child Parent Relationships</b><br/>Child-Parent, Child of Constraint</p> <p><b>Constraints</b><br/>Introduction, Constraint Stack, Transform, Tracking, Relationships, Duplicating on Curves, Extruding on Curves.</p> | 10             |
| 2    | <p><b>Title of 2 - Armatures</b><br/>Armatures, Manually Assign Vertices, How to Assign Vertices, Vertex Groups Adding Armatures, Armature Display, Editing Bones, Automatic Key framing Inverse Kinematics</p>  | 10             |
| 3    | <p><b>Title of 3 - Particle Systems</b><br/>Overview, Nomenclature, Setup, Settings &amp; Material Influence, Particle Buttons Starting a System, Material on Particles, Interaction, Wind, Sample Settings Keyed Particles, Boids Particles, Hair Particles, Video Sequence Editing Making a Movie, The Video Editing Screen.</p>   | 10             |

**Text Books:** 1. Introduction to BLENDER 3D (A Book for Beginners 2.54+) John M Blain.

2. Blender Basics Classroom Tutorials, James Chronister

**Online Resources:** 1. Blender 2.83 Reference Manual Blender



## Syllabus Semester-II

**Course code:** SCA41MML104

**Course name:** Character Design and Animation

**Course category:** Major Mandatory

**Credits:** 2

**Pre-requisites:** Basic knowledge of Drawing.

**Course Objectives:** The basic objective of Character Design is to create a Character like Cartoon Character, Realistic Character.

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Learn the basic Shapes for Creating the Character With the shapes, Design the basic character with details, and understand the different Body Structure

**CO2:** Learn about the history of animation, Learn Types of animation.

**CO3:** Learn about Principles of animation.

### Contents –

| Unit | Content   | Teaching hours |
|------|---|----------------|
| 1    | <p><b>Title of 1 - Introduction</b><br/>Traditional ways of Drawings, Basic shapes, Combination of shape, Constructing Character, Putting different shapes together, Attributes (Head, Eyes Ear, Nose, etc) Proportions, Expression, Measuring, Poses and Gestures, Dress up, Props, Shadows</p> <p><b>Body Construction</b><br/>Men Body Structure, Women Body Structure, Kid Body Structure, Making the Character Alive</p> | 10             |
| 2    | <p><b>Title of 2 - Animation History</b><br/>Introduction of animation, Discovery of animation Animation techniques :<br/>Thaumatrope, Phenakistoscope, Zoetrope, Praxinoscope, Kinestoscope<br/>Flip book, Cinematograph, The Birth of Cartoon Characters, Cell animation</p> <p><b>Types of animation</b><br/>Traditional animation, 2D animation, 3D animation, Motion Graphics, Stop motion.</p>                          | 10             |
| 3    | <p><b>Title of 3 - Principles of animation :</b><br/>Squash and Stretch, Anticipation, Staging, Straight Ahead Action and Pose-to-pose Action, Follow Through and Overlapping Action, Slow In and Out, Arcs, Secondary Action, Timing Exaggeration, Solid Drawing, Appeal.</p>  | 10             |

### Text Books:

1. Character Design (Learn the art of Cartooning step by step) Sherm Cohen Water Foster 1<sup>st</sup> Edition.

2. The 5 Types of Animation – A Beginner's Guide.

3. Introduction to computer animation and Its possible educational applications Sajid Musa, Rushan Ziatdinov, Carol Griffiths.

4. Student Workbook Dr. Vinay Swarup Mehrotra.



## **Syllabus** **Semester-II**

**Course code:** SCA41MMP103      **Course name:** Practical Based on 3D Animation Basics

**Course category:** Major Mandatory      **Credits:** 1

**Pre-requisites:** Basics Knowledge of Graphics Software.

**Course Objectives:** Design 3D Models and 3D animations

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Design 3D Model

**CO2:** Create 3D Animation

### **Contents –**

|    |   |
|----|---|
|    |   |
| 1  | Learning about Parenting and Constraints                              |
| 2  | Procedure to Apply Textures to an object using image editing software |
| 3  | To study Working of Armatures   |
| 4  | Procedure to use HDRI   |
| 5  | Learning about particles  |
| 6  | Learning 3 Point Lighting Setup                                       |
| 7  | Learning Camera setup and properties                                  |
| 8  | Procedure to Render an image  |
| 9  | Procedure to render an animation                                      |
| 10 | Learning Basic Video Editing  |

|   |
|---|
| <b>Text Books:</b>  |
| 1. Introduction to BLENDER 3D (A Book for Beginners 2.54+) - John M Blain |
| <b>Reference Books:</b>   |
| <b>Online Resources:</b> 1. NPTEL / SWAYAM lectures.                      |
|   |

## **Syllabus** **Semester-II**

**Course code:** SCA41MMP104      **Course name:** Practical Based on Character Design and Animation

**Course category:** Major Mandatory      **Credits:** 1

**Pre-requisites:** Basics Knowledge Drawing.

**Course Objectives:** The basic objective of Character Design is to create a Character like Cartoon Character, Realistic Character.

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Learn about the history of animation, Learn Types of animation

**CO2:** Learn about Principles of animation

### **Contents –**

|    |                                       |
|----|---------------------------------------|
| 1  | Draw Combinations of shape            |
| 2  | Draw different types of Head shapes   |
| 3  | Draw Different types Eyes and nose    |
| 4  | Draw Different types of ears and lips |
| 5  | Draw Facial expressions               |
| 6  | Draw Combinations of 3D Forms         |
| 7  | Draw Human body Structure             |
| 8  | Draw Cartoon Characters               |
| 9  | Design 3D Letters                     |
| 10 | Design Bubble Letters                 |

#### **Text Books:**

1. Character Design (Learn the art of Cartooning step by step) Sherm Cohen Water Foster 1<sup>st</sup> Edition.

#### **Reference Books:**

**Online Resources:** 1. NPTEL / SWAYAM lectures.

## Syllabus Semester-II

**Course code:** SCA41VSP102

**Course name:** Advance Image Manipulation

**Course category:** Vocational skill course    **Credits:** 2

**Pre-requisites:** Basics Knowledge of Graphics Software.

**Course Objectives:**

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Design logos, Business cards and flyers.

**CO2:** Learn to design Website PSD.

**Contents –**

|    |   |
|----|---|
| 1  | Repair image using image retouching tools                     |
| 2  | Perform different types of shape operations using shape tools |
| 3  | Design polar effect using filters                             |
| 4  | Create rain effect using filter                               |
| 5  | Design wooden texture effect using fibre filter.              |
| 6  | Create effect using displace filter                           |
| 7  | Design text effects using layer styles.                       |
| 8  | Design educational flyer.                                     |
| 9  | Design brochures  |
| 10 | Create Prototype for E- Commerce website                      |

**Text Books:**

1. Adobe Photoshop CC Classroom in a Book by Andrew Faulkner

**Reference Books:**

**Online Resources:** 1. NPTEL / SWAYAM lectures.

## Syllabus Semester-II

**Course code:** SCA41SEL102

**Course name:** Script writing and Story Board Designing

**Course category:** Skill Enhancement course **Credits:** 2

**Pre-requisites:** Basic Knowledge of Character Designing and Communication Skills.

**Course Objectives:** To present the student about skill set and knowledge require to writing script/story

**Course Outcomes:** At the end of the course, the students will be able to -

**CO1:** Basics of Script

**CO2:** Art of writing

**CO3:** Final Drafting of the script

### Contents –

| Unit | Content   | Teaching hours |
|------|---|----------------|
| 1    | <b>Script Writing Basics</b><br>Script Writing Basics, Elements of script writing, Themes, Genre of script Dialogues, Expansions, Voice over, Writing for picture, Art of screenwriting Putting idea on paper, Thinking visually, Explore other medium, stage play, fiction, poetry & studio art, Developing the writer's mind, Approaching screenwriting as a craft(imagination), Construction final draft | 10             |
| 2    | <b>Breaking down the elements of story</b><br>Unpacking idea, Pinpointing interest of story idea, Connecting with audience Establishing final draft with time, Three Act Structure, Beginning, Middle End   | 10             |
| 3    | <b>Storyboard</b><br>Benefits of storyboard, Basics of storyboard, Types of storyboard, Camera movements, Storyboard with Sketching creating a storyboard.  | 10             |

**Text Books:** 1. Screenwriting for dummies, Laura Schellhardt

2. Filmmaking for Dummies, Byan Michael Stoller