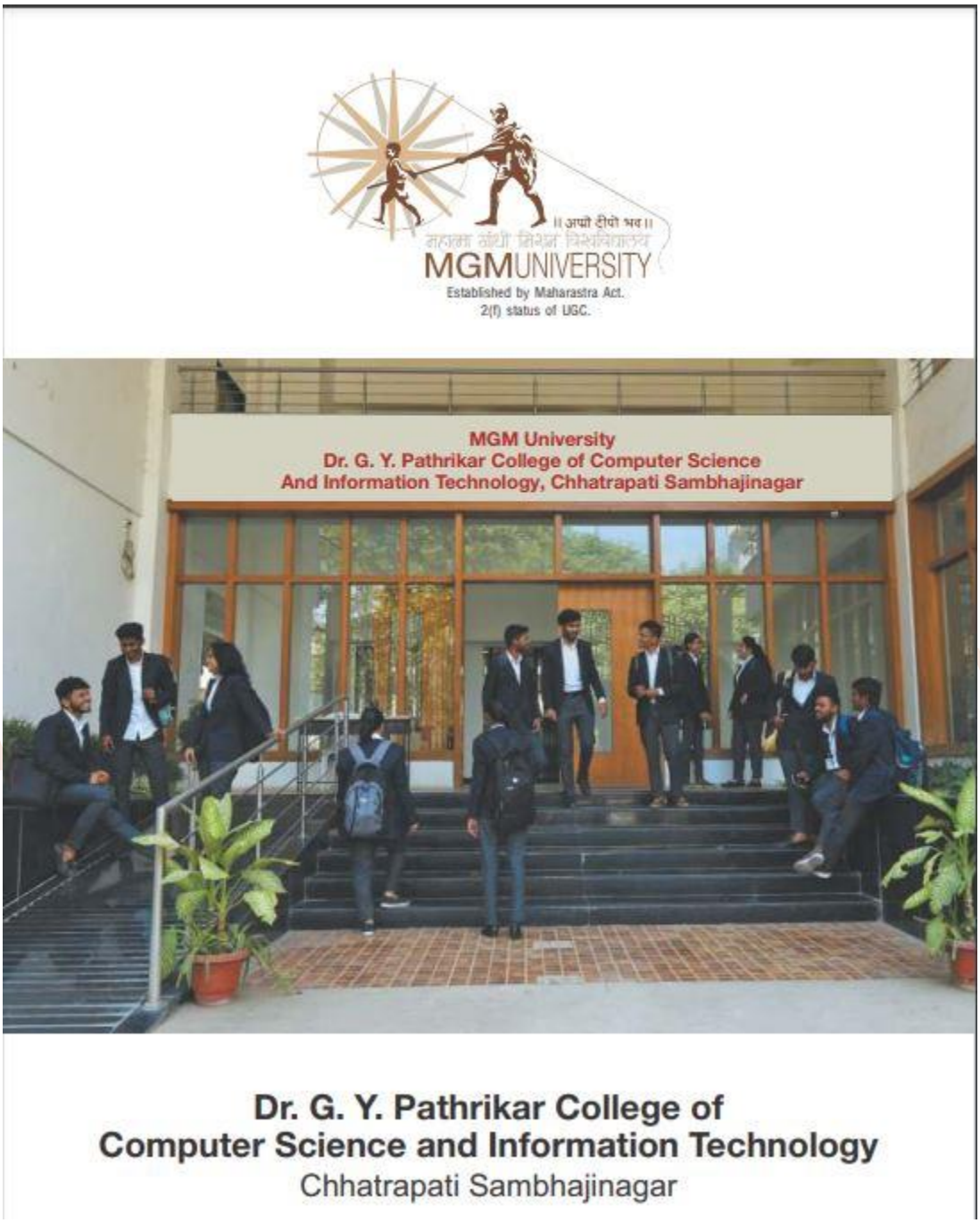

B.Sc. (Hons. /Hons. with Research) Animation: First, Second and Third Year (Syllabus)

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 Sambhajinagar.

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-violance, truth, peace through Gandhian Philosophy.

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

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

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.

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:

Major	
Animation	
Core Major	**Core Elective**

Minor options for basic and applied science Faculty	**GYP**	**IBT**	**UDBAS**
	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

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	50	-	50	08	-	20
			Total	**22**	**16**	**12**	**380**	**220**	**600**			

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	50	-	50	08	-	20
			Total	**22**	**16**	**12**	**380**	**220**	**600**			

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

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	3	-	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	50	-	50	08	-	20
CC		Basket of CC From University	Practical	2	-	4	50	-	50	08	-	20
			Total	**22**	**13**	**18**	**430**	**220**	**650**			

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

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	3	-	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	50	-	50	08	-	20
CC		Basket of CC From University	Practical	2	-	4	50	-	50	08	-	20
		Total		**22**	**13**	**18**	**430**	**220**	**650**			

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

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		**Total**		**20**	**12**	**16**	**410**	**240**	**650**			

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

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	3	-	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	60	40	100		16	40
		Total		**20**	**12**	**16**	**390**	**260**	**650**			

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												
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
		Total		**20**	**15**	**10**	**450**	**300**	**750**			

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
		Total		**20**	**12**	**16**	**420**	**280**	**700**			

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
		Total		**20**	**12**	**16**	**420**	**280**	**700**			

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 (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
		Total		**20**	**09**	**22**	**390**	**260**	**650**			

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

Semester: FIRST

Syllabus
Semester-I

Course Code: SCA41MML101 **Course name:** Fundamentals of Computer **Course category:** Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
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	**An Introduction to Era of Computers:** Introduction to Data & Information, Need of Information & 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. Components & I/O Devices: Major Components of a Computer System: Hardware & 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 & Its Types, Monitor (VDU), Flat Panel Display, Connecting Various Peripheral Devices: Parallel Interface, Serial Interface.	10
2	**Storage Devices (Computer Memory System):** Magnetic Disk Memory, Hard Disk Memory, Removable Disk Memory, CD-ROM, Data Storage and Retrieval Mechanism. **Computer Data representation & Processors:** Computer Data Representation and storage ,Decimal Number System, Binary Number System, Octal Number System, Hexadecimal Number System. **Operating System Concepts:** Introduction to Operating System, Definition, Structure of Operating System, types of Operating System, CUI (Character User Interface) & GUI (Graphical User Interface), Features of Operating System.	10
3	**Programming Languages:** Classification of Programming Languages: Machine language, Assembly Language, High level Language ,Advantages and Disadvantage. **Types of Network:** LAN (Local Area Network), WAN (Wide Area Network), MAN (Metropolitan Area Network), TCP/IP, VPN (Virtual Private Network).	10

Text Books:
1. Fundamentals of Computers V. Rajaraman PHI Publication IVth Edition.
2. Fundamentals of Programming Raj K. Jain S.Chand Publication.
3. Computer Fundamental B. Ram BPB Publication.
4. Fundamentals of Information Technology Chetan Srivastava Kalyani Publishers.

Syllabus
Semester-I

Course Code: SCA41MML102 **Course name:** 3D Modeling Basics **Course category:** Major Mandatory
Credits: 2 **Teaching Scheme:** L-2 P-0 **Evaluation Scheme:** CA-30 ESE-20
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: 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 formats.

Contents –

Unit	Content	Teaching hours
1	**Interface:** 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. **Navigation:** Navigate & Save, Windows Explorer, Append Pack and Import, Packing Data Importing Objects **Create Edit Object:** 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	10
2	**Materials** 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 **Textures** Textures, Texture Mapping, Displacement Mapping, UV Texture Mappin Selective UV Mapping,Unwrapping with Seams	10
3	**World Settings** World Settings, Mist, Stars, Texture as Background, Image as Background Image as Template, Lighting and Camera, Lighting : Lighting Types and Settings, Cameras, Settings Options, **Rendering** Render Settings,, Rendering a JPEG Image, Creating a Video Clip	10

Text Books:
1. Introduction to BLENDER 3D (A Book for Beginners 2.54+) - John M Blain
Reference Books:
1. Blender Basics Classroom Tutorials James Chronister 5th Edition
Online Resources: Blender 2.83 Reference Manual Blender

Syllabus
Semester-I

Course Code: SCA41MMP101 **Course name:** Practical Based on Open Office **Course category:** Major Mandatory		
Credits: 1	**Teaching Scheme:** L-0 P-2	**Evaluation Scheme:** CA-30 ESE-20
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.		

Content -

Sr.no.	Description of Practical	Practical Hours
1	Prepare any official letter document.	1
2	Generate simple and effective tables and graphs to describe. experimental data	1
3	Design Professional Resume.	1
4	Generate equations, sample calculations, and basic diagrams.	1
5	Perform calculations both manually inputting formulas and built-in functions.	1
6	Create Graph and Tables and Integrate both graphs and tables created in Microsoft Excel into a report file in Microsoft Word.	1
7	To Create a PowerPoint Presentation include Audio, Video and animation effect using PowerPoint.	1
8	To create any document Using Word Processing Tool and different styles	1
9	To create any document Using Presentation Tool	1
10	To Create a graph of any numeric data in Microsoft office and give appropriate Label.	1

Text Books:

1. Master Book Of Computer: Learn MS Office, Basic Computer, MS Excel, Excel Formulas, Tally, and HTML by Mangesh Bhuvad.

Syllabus
Semester-I

Course Code: SCA41MMP102 **Course name:** Practical Based on 3D Modeling Basics **Course category:** Major Mandatory		
Credits: 1	**Teaching Scheme:** L-0 P-2	**Evaluation Scheme:** CA-30 ESE-20
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 –

Sr.no.	Description of Practical	Practical Hours
1	Overview of the Graphic User Interface	1
2	Learning how to add objects	1
3	Procedure of manipulating objects	1
4	Overview of Edit Mode	1
5	Learning about different Edit Mode Tools	1
6	Overview of Shading workspace	1
7	Learning different Modifiers	1
8	Advanced object Editing techniques	1
9	Procedure of applying a material on an object	1
10	Procedure to apply material on individual face of an object	1

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

Syllabus
Semester-I

Course Code: SCA41VSP101 **Course name:** Introduction to Image Manipulation **Course category:** Vocational skill course		
Credits: 2	**Teaching Scheme:** L-0 P-4	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basics Knowledge of Graphics Software.		
Course Objectives:		
The basic objective is editing 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.	Description of Practical	Practical Hours
1	Create a passport sizes photographs using patterns	2
2	Design collage template using transformations	2
3	Create a clipping mask effects for different types of shapes	2
4	Design 2D background using pen tool and selection tools	2
5	Design perspective wallpaper using vanishing point filter	2
6	Make color correction in image using image Adjustment layers	2
7	Design creative background using gradient, texture and patterns	2
8	Create blending effect of multiple images using gradient and masking	2
9	Design different types of shapes using transformations	2
10	To study selection tools of different types object, image selections	2

Text Books:

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

Syllabus
Semester-I

Course Code: SCA41SEL101	**Course name:** Foundation of Art	
Course category: Skill Enhancement course		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
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: Understand Different types of Perspective, and 3d creating a 3DText		
CO3: Basics of Color Theory.		

Contents –

Unit	Content	Teaching hours
1	**Introduction to Drawing** How to Draw, How to Choose a Pencil, How to improve you're Drawing Skills, Basics of Sketching & 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. **Drawing Geometrical Shapes and Forms** Draw a Box, Draw a Circle, Draw a cylinder, Draw a Hexagon, Draw a Perfect Pentagram, Draw an Octagonal Based Pyramid	10
2	**Perspective Drawing** One-point Perspective, Two-point Perspective, Three point perspective, Perspective in lines in landscapes, Different head shapes,Characters **Drawing 3D Text** Draw 3D Block Letters , Draw Bubble Letters,Design a 3D Logo	10
3	**Colour Theory** Colour and Colour Identification, Colour Theory, Colour Characteristics and value, Colour Mixtures, Importance and uses of Colours in our Life .	10

Text Books:

1. Figure drawing made easy Aditya Chari
2. Design Fundamentals Dr. Utpal Barua IIT Guwahati IVth Edition.
3. Perspective Milind MulikJyotsna Prakasha
4. Colour Theory, Prof. Jayprakash Jagtap.

Semester: SECOND

Syllabus
Semester-II

Course Code: SCA41MML103 **Course name:** 3D Animation Basics **Course category:** Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
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	**Animation Basics** Moving, Rotating & 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 **Child Parent Relationships** Child-Parent, Child of Constraint **Constraints** Introduction, Constraint Stack, Transform, Tracking, Relationships, Duplicating on Curves, Extruding on Curves.	10
2	**Armatures** Armatures, Manually Assign Vertices, How to Assign Vertices, Vertex Groups Adding Armatures, Armature Display, Editing Bones, Automatic Key framing Inverse Kinematics	10
3	**Particle Systems** Overview, Nomenclature, Setup, Settings & 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.	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	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
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: Understanding the Constraints.		
CO3: Learn about the history of animation, Learn Types of animation.		
CO4: Learn Principles of animation.		

Contents –

Unit	Content	Teaching hours
1	**Introduction:** 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 **Body Construction** Men Body Structure, Women Body Structure, Kid Body Structure,Making the Character Alive	10
2	**Animation History:** Introduction of animation, Discovery of animation Animation techniques : Thaumatrope, Phenakistoscope, Zoetrope, Praxinoscope, Kinestoscope Flip book, Cinematograph, The Birth of Cartoon Characters, Cell animation **Types of animation** Traditional animation, 2D animation, 3D animation, Motion Graphics,Stop motion.	10
3	**Principles of animation:** 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.	10

Text Books:

1. Character Design (Learn the art of Cartooning step by step) Sherm Cohen Water Foster 1st Edition.
2. The 5 Types of Animation – A Beginner's Guide.
3. Introduction to computer animation and Its possible educational applications Sajid Musa, RushanZiatdinov, 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	**Teaching Scheme:** L-0 P-2	**Evaluation Scheme:** CA-30 ESE-20
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 a 3D Model that is rig		
CO2: Understanding the 3 point lighting and camera setup		

Contents –

Sr.no.	Description of Practical	Practical Hours
1	Learning about Parenting and Constraints	1
2	Procedure to Apply Textures to an object using image editing software	1
3	To study Working of Armatures	1
4	Procedure to use HDRI	1
5	Learning about particles	1
6	Learning 3 Point Lighting Setup	1
7	Learning Camera setup and properties	1
8	Procedure to Render an image	1
9	Procedure to render an animation	1
10	Learning Basic Video Editing	1

Text Books:

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

Syllabus
Semester-II

Course Code: SCA41MMP104 **Course name:** Practical Based on Character Design and Animation **Course category:** Major Mandatory
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basics 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 about the history of animation, Learn Types of animation
CO2: Understand Principles of animation

Contents –

Sr.no	Description of Practical	Practical Hours
1	Draw Combinations of shape	1
2	Draw different types of Head shapes	1
3	Draw Different types Eyes and nose	1
4	Draw Different types of ears and lips	1
5	Draw Facial expressions	1
6	Draw Combinations of 3D Forms	1
7	Draw Human body Structure	1
8	Draw Cartoon Characters	1
9	Design 3D Letters	1
10	Design Bubble Letters	1

Text Books:
1. Character Design (Learn the art of Cartooning step by step) Sherm Cohen Water Foster 1st Edition.

Syllabus
Semester-II

Course Code: SCA41VSP102 **Course name:** Advance Image Manipulation **Course category:** Vocational skill course
Credits: 2 **Teaching Scheme:** L-0 P-4 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basics Knowledge of Graphics Software.
Course Objectives:
The basic objective of Advance Image Manipulation is to use filters, use layer styles, understanding retouching tools.
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 –

Sr.no	Description of Practical	Practical Hours
1	Repair image using image retouching tools	2
2	Perform different types of shape operations using shape tools	2
3	Design polar effect using filters	2
4	Create rain effect using filter	2
5	Design wooden texture effect using fibre filter.	2
6	Create effect using displace filter	2
7	Design text effects using layer styles.	2
8	Design educational flyer.	2
9	Design brochures	2
10	Create Prototype for E- Commerce website	2

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

Syllabus
Semester-II

Course Code: SCA41SEL102	**Course name:** Script Writing and Storyboard Design	
Course category: Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of Character Designing and Communication Skills.		
Course Objectives:		
Design 3D Models and 3D animations.		
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	**Script Writing Basics** 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	**Breaking down the elements of story** Unpacking idea, Pinpointing interest of story idea, Connecting with audience Establishing final draft with time, Three Act Structure, Beginning, Middle End	10
3	**Storyboard** 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.

Semester: THIRD

Syllabus
Semester-III

Course Code: SCA41MML201	**Course name:** Texture Painting	
Course category: Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20

Pre-requisites: Basic Knowledge of 3D Modeling

Course Objectives:

1. To impart basic introduction to texture painting, user interface, texture painting tools,
2. How the Texture Painting Software works, fundamental about UV Maps as well as integration of Texture Painting Software with Blender.

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

CO1: Bridge the fundamental concepts of Texture Painting with the present level of Knowledge of the students.

CO2: Student will develop a vocabulary of key terms related to the layers and Mask.

CO3: Familiarize User Interface, Software Tools, Exporting UV Maps and 3d Models.

CO4: Integration between Texture Painting Software and Blender.

Contents -

Unit	Content	Teaching hours
1	**Texture Painting Basics** Visualization Basics, PBR workflow, Texture Painting for Game engines, Texture Pipeline for Movies, What Is UV Mapping?, Texturing Using 3D Painting Applications, Texturing Using 2D Painting Applications. Texture Painting Software Basics of Substance, UI and Tools, Getting Started with Texture Painting Software.	06
2	**Materials and Smart Materials** Layers and Masks, Masks, Smart Masks, Uses of Grunges and Other Procedural Maps.	08
3	**Use of Patterns for Texture Painting** Using Patterns as Height, Patterns as Masks, and Procedural Images as Maps.	08
4	**Integration with Blender** Blender to Texture Painting Software Workflow, Integration with Blender, Exporting from Texture Painting Software for Use in Blender.	08

Text Books:

1. Beginning PBR Texturing : Learn Physically Based Rendering with Adobe's Substance Painter by Abhishek Kumar , First Edition, Apress Publishers
2. Realistic Asset Creation with Adobe Substance 3D, by Zeeshan Jawed Shah, Packt Publishing Limited

Reference Books:

1. Creating Games with Unity, Substance Painter, & Maya by Jingtian Li, Adam Watkins, Kassandra Arevalo, Matthew Tovar , CRC Publications.
2. Digital Texturing & Painting, Owen Demers, Christine Urszenyi, New rider publisher.

Syllabus
Semester-III

Course code: SCA41MML202	**Course name:** Basics of Character Animation	
Course category: Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basics of Graphics Software and Image Editing.		
Course Objectives:		
To Study Fundamentals of 2D animation techniques.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Basic concepts of 2D Animation.		
CO2: Storyboarding & create animated digital multimedia content for media using twining and		
Frame by frame animation.		
CO3: Understand how to create and develop a narrative with storyboarding.		
CO4: Learn different types of File formats.		

Contents –

Unit	Content	Teaching hours
1	**Introduction to** 2D Animation Software **Overview of** 2D Animation Software**:** Understanding the interface, Tools and panels overview **Creating a New Project:** Setting up a new document Document properties and settings, **Drawing Basics** :Brush, Pencil, and Line tools, Shapes and color options, Understanding layers and their importance, **Working with Symbols:** Introduction to symbols, Creating graphic symbols, Using instances in the timeline	06
2	**Animation Fundamentals** **Timeline Basics:** Understanding frames and keyframes, Adding, deleting, and moving frames, Frame labels and markers, **Animating with Twining**: Classic Tween vs. Motion Tween, Tweening properties (position, rotation, and scale), Easing and smoothing animations. **Frame-by-Frame Animation** Creating animations frame by frame, Onion skinning for reference Integrating frame-by-frame with tweening **Working with Sound :** Importing and syncing audio, Basic audio editing within 2D Animation Software	08
3	**Advanced Techniques and Exporting Character Animation** Rigging characters with the Bone tool, Character animation workflow Lip syncing basics **Interactive Elements** Introduction to buttons, Adding interactivity with Action Script (basic scripting)	08

4	**Exporting and Publishing** Exporting animations in different formats (SWF, GIF, video), Publishing for the web, Mobile and desktop application export options **Project Work and Portfolio Development:** Create a short animated project, Assemble a portfolio showcasing your skills, Peer review and feedback session	08

Text Books:
1. Adobe Animate Classroom in a Book by Russell Chun, 2018, Adobe Press 2. Mastering Adobe Animate 2021, by Joseph Labrecque, 2021, Packt Publishing Limited
Reference Books:
1. Beginning Adobe Animate CC, TOM GREEN, Joseph Labrecque, 2017, Apress publisher. 2. Tradigital Animate CC, Stephen Brooks, CRC Press.

Syllabus
Semester-III

Course code: SCA41MML203	**Course name:** Web Designing	**Course category:** Major Mandatory
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of notepad software and web browser.		
Course Objectives:		
Student should able to Design the web page.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Understand how to effectively implement HTML tag in the web environment.		
CO2: Use CSS effectively to create well organized, styled web pages.		
CO3: Add Functionality to website using jquery and javascript.		
CO4: Design Different types of sliders Website layouts.		

Contents -

Unit	Content	Teaching hours
1	**Basics of Web Design and Interface** Overview of Web Design Concepts, Web Project Management Fundamentals, Website Development Process, Web site usability & Accessibility **Web Design Software Workspace Overview** Features of Web Design Software Interface, Workspace Elements Overview, Document window overview, Document toolbar overview, Toolbar overview, Status bar overview, Property inspector overview, Rearranging panels in Web Design Software, Common Web Design Software panels, Files panel overview.	06
2	**HTML** HTML overview, features, structure, basic tags, elements , comments in HTML, images, list , types of list, text links, image links, email links, frames, iframes , table, backgrounds, colors, fonts, marquees , layout. **CSS** Concept of CSS, Creating Cascading Style Sheets for Web page design, Creating CSS rules in Web Design Software, syntax, measurement units, Format Text with CSS, Use of CSS Selectors, Embed Style Sheets, and Attach External Style Sheets, CSS Advanced (Grouping, Dimension, Display, Positioning, Floating, Align, Pseudo class, Navigation Bar, Image Sprites, Attribute sector), CSS Color, Creating page Layout and Site Designs, background properties, margin & padding properties, text effects.	08
3	**Javascript** Javascript Types, Variables in JS, Operators in JS, Conditions Statements Java Script Loops JS Events, JS Arrays, Working with Arrays, JS Objects, JS Functions.	08
4	**jQuery and jQuery UI** Introduction to jQuery , jQuery Features , Installing jQuery , jQuery Syntax jQuery Ready Function , jQuery Selectors , jQuery Actions , jQuery plugins , jQuery Validation plugin , jQuery Slideshow , jQuery Dropdown , jQuery UI , Working with jQueryUI , jQuery Accordions , jQuery Tabs , jQuery Tooltips , jQuery Autocomplete.	08

Text Books:
1. ADOBE DREAMWEAVER CC CLASSROOM IN A BOOK by Jim Maivald, 2018,Pearson Education.
2. MASTERING HTML, CSS & Java Script Web Publishing by Laura Lemay (Author), Rafe Colburn (Author), Jennifer Kyrnin (Author), First Edition, BPB Publications.
3. Responsive Web Design with HTML5 and CSS, by Ben Frain, Fourth Edition 2022, Packt Publishing Limited.
Reference Books:
1. Learning Web Design, Jennifer Niederst Robbins, Third Edition, 2007, O'Reilly Media, Incorporated
2. Practical Web Design, Philippe Hong, Packt Publishing, 2018.

Syllabus
Semester-III

Course code: SCA41MMP201 **Course name:** Practical Based on Texture painting **Course Category:** Major Mandatory
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of 3D modeling Software.
Course Objectives:
To study Texture Painting workflow, create UV maps, Layer Masks, Integration between Texture Painting Software and Blender.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Student will develop a vocabulary of key terms related to the Texture Painting.
CO2: Integration between Texture Painting Software and Blender.
CO3: Student will develop and create compatible and clear UV Maps.
CO4: Learn creation of texture using Layers.

Content

Sr.no.	Description of Practical	Practical Hours
1	Understanding the User Interface	2
2	To study the tool panel	2
3	Creating compatible and clear UV Maps	2
4	Exporting 3d model from 3D Creation Suite and Importing the Model	2
5	Perform Texture Painting	2
6	Creating simple 3D Model and Painting Texture on it (Model 1) (Ex: Ceramic Teapot)	2
7	To create a texture using Layers	2
8	Design texture using Smart Mask	2
9	Creating complex 3D Model and Painting Texture on it (Model 2) (Ex: Designer Shoes)	2
10	Integration with Blender software	2
11	Project	10

Reference Books :

1. Beginning PBR Texturing : Learn Physically Based Rendering with Adobe's Substance Painter by Abhishek Kumar , First Edition, Apress Publishers
2. Realistic Asset Creation with Adobe Substance 3D, by Zeeshan Jawed Shah, Packt Publishing Limited

Syllabus
Semester-III

Course code: CA41MMP202 **Course name:** Practical Based on Basics of Character Animation **Course category:** Major Mandatory
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of Graphics Software.
Course Objectives:
Students will acquire proficiency in animation, graphic design, and interactive content creation. They will develop skills in storyboarding, use of the timeline, and exporting animations in various formats.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Storyboarding and create animated digital multimedia content for media using the tools.
CO2: Understand how to create and develop a narrative with storyboarding.
CO3: Students will understand synchronizing visuals with audio elements.
CO4: Student will be able to create an animated web banner ad and export it for web usage.

Content -

Sr.no.	Description of Practical	Practical Hours
1	Create a vector-based logo using Software	2
2	Develop an interactive infographic using basic shapes and objects.	2
3	Animate an abstract art piece using transformation and drawing tools.	2
4	Create an animated typography video using a variety of colors, palettes, and text effects.	2
5	Develop a short animated storyboard for a simple narrative.	2
6	Create an animated music video by synchronizing visuals with audio elements.	2
7	Design an animation that demonstrates the use of shape twinning and symbols.	2
8	Create an animation with a dynamic masking effect.	2
9	Design an animated web banner ad and export it for web usage.	2
10	Undertake a comprehensive project to create a short animated story.	2
11	Project	10

Reference Books:
1. Adobe Animate Classroom In A Book, Russell Chan, Adobe, 2023 release.
2. Adobe Animate CC: Learn by Video (2015 release) by Joseph Labrecque, Rob Schwartz, Russell Chun, Adobe Press.

Syllabus
Semester-III

Course code: SCA41VSP201		**Course name:** Graphics Design
Course category: Vocational Skill Course		
Credits: 2	**Teaching Scheme:** L-0 P-4	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of Graphics Software.		
Course Objectives:		
To understand how to design different types of vector graphics.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: To Create Text effect.		
CO2: Design illustrations.		
CO3: Create mobile app prototypes and mockup design.		
CO4: Design Different types of posters, business cards, flyers.		

Content -

Sr.no.	Description of Practical	Practical Hours
1	To Study Workspace of (Graphics Software).	2
2	Design Infographic design using pathfinder and shape builder tools.	2
3	To create a simple digital collage using basic tools like layers, selection tools, and blending modes.	2
4	Learn layout, typography, and imagery to effectively communicate the event's message create a poster for an upcoming event	2
5	Create effectively visualize data and information using icons, charts, and illustrations.	2
6	Designing a logo for a fictional company or organization using vector graphics.	2
7	Experiment with different fonts, sizes, weights, and alignments to convey a specific message (Like holiday package, sport event, Music Event etc.)	2
8	Design a set of branding collateral (business card, letterhead, envelope) for a fictional company	2
9	Design Professional Brochure for fictional company.	2
10	Create Stationary Design.	2
11	Design Product Advertisement graphics.	2
12	Implement Different types of illustrations using pen tool.	2
13	Design Various styles of icons.	2
14	Design packaging for a product of their choice using graphics software They should consider factors such as branding, product visibility, and practicality in their design.	2
15	Creating graphics for social media posts (e.g., Instagram, Facebook).	2

16	Develop a complete brand identity package for a startup, including a logo, business cards, letterheads, and social media graphics.	2
17	Combine multiple images seamlessly and adjust lighting and color to create a cohesive composition.	2
18	These assignments cover a range of graphic design skills and applications, allowing students to develop their creativity and proficiency with various design tools.	2
19	Design Mobile App using Artboard tool.	2
20	Create Responsive website layouts using different types of screen sizes.	2
21	Project	20

Reference Books:

1. Adobe Illustrator Classroom in a Book: The Official Training Workbook from Adobe, by Brian Wood. 2023.
2. Graphic Design For Everyone by Cath Caldwell, DK Publisher, 2019.

Semester: FOURTH

Syllabus
Semester-IV

Course code: SCA41MML204 **Course name:** Advance Texture Painting **Course category:** Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of 3D Modeling.		
Course Objectives:		
To impart basic introduction to Game Texturing Pipeline, Texture Pipeline for Movies, Filters, Applying a Filter, fundamental about Generators and Low Poly and High Poly Workflow.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Bridge the fundamental concepts of Texturing Pipeline with the present level of		
Knowledge of the students.		
CO2: Student will develop a vocabulary of key terms related to the Texture Pipeline		
CO3: Familiarize Filters, Applying a Filter, fundamental about Generators		
CO4: Introduction to Low Poly and High Poly Workflow.		

Contents -

Unit	Content	Teaching hours
1	**Texture Painting Basics** What Is UV Mapping?, Texture Pipeline for Movies, Texture Pipeline for Games, Texturing Using 3D Painting Applications, Texturing Using 2D Painting Application.	06
2	**Working with Procedural Maps** Filters, Applying a Filter, Commonly Used Filters, Dirt Generator, and Metal Edge Wear Generator.	08
3	**Working with Generator** Dripping Rust Generator, Launching the Renderer, Auto Stitcher, Low Poly and High Poly Workflow.	08
4	**Integration with (Advanced 3D Modeling Software)** Advanced 3D Modeling Software to Texture Painting Software Workflow, Integration with Advanced 3D Modeling Software, Exporting from (Texture Painting Software) for Use in Advanced 3D Modeling Software.	08

Text Books :

1. Beginning PBR Texturing : Learn Physically Based Rendering with Adobe's Substance Painter by Abhishek Kumar , First Edition, Apress Publishers
2. Realistic Asset Creation with Adobe Substance 3D, by Zeeshan Jawed Shah, Packt Publishing Limited

Reference Books:

1. Creating Games with Unity, Substance Painter, & Maya by Jingtian Li, Adam Watkins, Kassandra Arevalo, Matthew Tovar , CRC Publications.
2. Digital Texturing & Painting, Owen Demers, Christine Urszenyi, New rider publisher.

Syllabus
Semester-IV

Course code: SCA41MML205		**Course name:** Advanced Character Animation
Course category: Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basics of Graphics Software.		
Course Objectives:		
Creating motion using keyframes, understand importing and creating elements, Creating and using animation. Working with symbols.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: To learn basic 2D Animation, character animation.		
CO2: Understand Interactive application.		
CO3: Design animating banners for websites		
CO4: Publishing animated files.		

Contents -

Unit	Content	Teaching hours
1	**Advanced Animation Techniques** **Advanced Timeline Management** Exploring timeline features, Working with nested timelines Utilizing frame labels and markers **Rigging and Character Animation** Bone tool and Inverse Kinematics (IK), Character rigging best practices, Advanced character animation techniques **Advanced Motion Tweens** Custom easing and motion paths, Utilizing the motion editor for precise control, Integrating 3D rotation and scaling. **Shape Morphing** Creating shape tweens for morphing effects, Fine-tuning morphing animations, Applying morphing to text and vector graphics.	06
2	**Interactive and Dynamic Content** **Advanced Character Rigging and Animation** In-depth exploration of the Bone tool and Inverse Kinematics (IK), Rigging complex characters with multiple joints and deformers, Creating expressive facial animations with advanced rigging techniques. **Creating Interactive Interfaces** Designing buttons and interactive elements, Implementing rollover and click animations, Integrating audio and video controls. **Mastering Motion Tweening** Custom easing and advanced motion paths for smoother, animations, Incorporating 3D rotation, scaling, and skewing for dynamic effects, Fine-tuning animations using the Motion Editor for precise control.	08
3	**Advanced Multimedia Integration** **Audio and Video Integration** Syncing animations with audio, Incorporating video elements, Advanced audio and video editing within 2D Animation Software.	08

	Particle Systems and Special Effects Creating particle effects for dynamic animations, Exploring advanced filter and blending options, Implementing special effects for a visually appealing output	
4	**Exporting and Publishing** Exporting animations in various formats (HTML5, GIF, video), Implementing responsive design principles, Publishing to different platforms (web, mobile, social media) **Advanced Project Workflow** Collaborative workflows in 2D Animation Software, Version control and file management, Best practices for efficient project organization	08

Text Books :
1. Adobe Animate Classroom in a Book by Russell Chun, Adobe Press, 2015 2. Adobe Animate CC: Learn by Video (2015 release) by Joseph Labrecque, Rob Schwartz, Russell Chun , Adobe Press
Reference Books:
1. Beginning Adobe Animate CC, TOM GREEN, Joseph Labrecque, 2017, Apress publisher. 2. Tradigital Animate CC, Stephen Brooks, CRC Press.

Syllabus
Semester-IV

Course code: SCA41MML206 **Course name:** User Experience (UX) & User Interface (UI) Design
Course category: Major Mandatory
Credits: 2 **Teaching Scheme:** L-2 P-0 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic knowledge of Graphic Design & Design Principals.
Course Objectives:
The basic objective of User Experience & User Interface Design is to Design user friendly simple, functional website And Mobile Apps.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Understand the concept of User Experience Design, solve problems using UX Techniques, Structure and manage the User Requirements for Projects.
CO2: Learn to create personas, journey maps, Empathy map, and wireframes.
CO3: Students efficiently use Design principles when design user interface for websites or mobile apps.
CO4: Mockup design for mobile apps.

Contents -

Unit	Content	Teaching hours
1	**Basics of User Experience Design** Define Experience Design, UXD Myths, Need of User Experience Design, Definition, Advantages of UXD, UXD Strategy, Project Objective and Approach, Business Requirements, UXD Elements, characteristics of UXD.	06
2	**Research Using UX Process** Exploring the problem, generating ideas, Refining solution, User Research: User interviews, Contextual inquiry, survey, focus group, card sorting, Research Techniques, Personas: what are Personas, why create personas, finding information for personas, Empathy map.	08
3	**Generating Ideas, Content Management, Business Requirement & Solution to Prototype:** Better Deliverables. Defining to Design, Design principles, Information Architecture, Wireframing, Prototyping, wireframe vs Prototype Usability Testing, feedback.	08
4	**The Importance & Principals of User Interface** Defining the User Interface, Importance of good design, Graphical User Interface, Screen Design, color theory, Typography, Imagery, Emphasis, Balance, Alignment, Contrast, Repetition, color, space, Proximity, Hierarchy, Naturalness, Consistency, Friendliness, Clarity, Interaction, Transparency. **Elements of user interface design:** Input controls, Components, other components.	08

Text Books:
1. A Project Guide to UX Design by Russ Unger and Carolyn Chandler, Second Edition New Riders publication.
2. The Essential Guide to User Interface Design: An Introduction to GUI Design Principles and Techniques, Wilbert O. Galitz, third edition WILEY publication.
3. Design Thinking for Dummies by Christian Muller-Roterberg , Wiley publication.
Reference Books:
1. The UX Design Field Book, Doug Collins, 2022.
2. UI/UX Design Basics and Fundamentals, John RICHARDS, Independently Published, 2018

Syllabus
Semester-IV

Course code: SCA41MMP203 **Course name:** Practical Based on Advance Texture painting **Course category:** Major Mandatory		
Credits: 1	**Teaching Scheme:** L-0 P-2	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of 3D modeling Software		
Course Objectives:		
To study Texturing Pipeline, Texturing Using 2D Painting Application, Filter, Integration between (Texture Painting Software and Advanced 3D Software)		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Student will develop a vocabulary of key terms related to the Texture Painting.		
CO2: Integration between (Texture Painting Software) and (an advanced 3D software).		
CO3: Understanding the workflow of advance 3D modeling.		
CO4: Working with tools.		

Content -

Sr.no.	Description of Practical	Practical Hours
1	Understanding the Texturing Pipeline	2
2	Design Optimized UV Mapping pipeline	2
3	Creating compatible and clear UV Maps	2
4	Exporting 3d model from advanced 3d modeling software and Importing the Model	2
5	Creating and Applying a Filter	2
6	Understanding Generators	2
7	Exploring and Understanding the process of Rendering	2
8	Understanding Low Poly and High Poly Workflow	2
9	Painting texture on complex 3d Model (example : Car, Gun, Watch)	2
10	Integration with advanced 3D modeling software	2
11	Project	10

Reference Books:

1. Beginning PBR Texturing: Learn Physically Based Rendering with Adobe's Substance Painter by Abhishek Kumar, First Edition, and Apress Publishers.
2. Realistic Asset Creation with Adobe Substance 3D, by Zeeshan Jawed Shah, Packt Publishing.

Syllabus
Semester-IV

Course code: SCA41MMP204 **Course name:** Practical Based on Advanced of Character Animation **Course category:** Major Mandatory
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of Graphics & Image Editing Software.
Course Objectives:
Students will acquire proficiency in animation, graphic design, and interactive content creation. They will develop skills in storyboarding, use of the timeline, and exporting animations in various formats.
Course Outcomes: At the end of the course, the students will be able to -
CO1: To learn basic 2D Animation, character animation.
CO2: Design animating banners for websites.
CO3: Understanding Character Animation.
CO4: Learn apply audio clips between character animation.

Content -

Sr.no.	Description of Practical	Practical Hours
1	To draw a basic 2D Animation character using different tools	2
2	Illustrate the concept of shape morphing by animating the transformation of one shape into another.	2
3	Animate ball bouncing animation using motion tween	2
4	Use to import Graphic design software or .eps file and animate it	2
5	To animate car using different PNG	2
6	Object Interaction: Illustrate the interaction between two objects, such as a ball bouncing off a wall or a character picking up an item.	2
7	Simple Pendulum Swing: Teach the principles of pendulum motion and easing by animating a swinging pendulum.	2
8	Animating Expressions: Have students animate a character's facial expressions, conveying different emotions.	2
9	Animating a Butterfly Flutter: Focus on creating a delicate and realistic motion by animating the fluttering of a butterfly's wings.	2
10	Lip Syncing Exercise: Introduce the principles of lip syncing by animating a character speaking or singing to a provided audio clip.	2
11	Project	10

Reference Books:

1. Adobe Animate Classroom in a Book by Russell Chun, Adobe Press, 2015.
2. Adobe Animate CC: Learn by Video (2015 release) by Joseph Labrecque, Rob Schwartz, Russell Chun, Adobe Press.

Syllabus
Semester-IV

Course code: SCA41SEP201		**Course name:** Sound Editing
Course category: Skill Enhancement Course		
Credits: 2	**Teaching Scheme:** L-0 P-4	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of Characteristics of Sound.		
Course Objectives:		
To understand how to edit sound and remove noise from sound.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: To Learn Sound Editing techniques.		
CO2: Apply Sound mixing, Sound noise, Sound file formats etc.		
CO3: Understanding different types of sound format.		
CO4: Learn sound effects.		

Contents -

Sr. no.	Description of Practical	Practical Hours
1	To Learn software workspace.	2
2	Study the tools of Sound Editing Software.	2
3	Implement audio cutting and adjusting techniques.	2
4	Perform Basic sound editing operations.	2
5	Understanding the process of Import Audio Files.	2
6	Study how to Record Audio.	2
7	To study how to Copying, Cutting and Pasting Audio	2
8	Adding Background Music and Other Media Files.	2
9	To study the adjusting volume with keyframe.	2
10	Working With the Effects Rack.	2
11	Edit audio using Time Stretching	2
12	Apply audio using the Multitrack Mixer.	2
13	Study how to record audio in software.	2
14	To create audio by using Pitch Correction.	2
15	Manipulate Noise Reduction from sound.	2
16	To study the Restoration Effects of sound.	2
17.	Apply Looping (Fade in – Fade out) effect	2
18.	Create Remixing of audios.	2
19.	To create audio by using Audio Effects.	2
20.	Exporting sound files in different types of Formats.	2
21	Project.	20

Reference Books :

1. Adobe Audition CC Classroom in a book Adobe Creative Team (Author), Maxim Jago (Author) in a Book Second Edition.
2. Using Audition by Dabbs Ron, McGraw-Hill Education publisher.

Semester: FIFTH

Syllabus
Semester-V

Course code: SCA41MML301 **Course name:** 3D Design and Visualization **Course category:** Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic of 3D Modeling and Animation.		
Course Objectives:		
The basic objective is to be able to create, edit, and analyze 3D models. Development of modeling, texturing and rendering.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Learn to User interface and Navigation.		
CO2: To create 3D Objects.		
CO3: Understanding the process of texturing.		
CO4: Understand how to render 3D animation.		

Contents -

Unit	Content	Teaching hours
1	**Interface:** Exploring the Interface, Controlling and Configuring the Viewports, Working with Files, Importing, and Exporting files, User Preference Window Moving in 3D Space, Panels **Create & Edit Objects:** Creating and Editing Primitive Objects, Selecting Objects and Using Layers Transforming Objects, Pivoting, Aligning, and Snapping, Cloning Objects and Creating Object Arrays, Grouping, Linking, and Parenting Objects, Accessing Sub Objects and Modifiers and Using the Modifier Stack, Drawing and Editing 2D Splines and Shapes, Modeling with Polygons, Using the Graphite Modeling Tools and Painting with Objects, Working with Compound Objects, Deforming Surfaces and Using the Mesh Modifiers.	06
2	**Materials** Creating and Applying Standard Materials with the Slate Material Editor, Adding Material Details with Maps, Using Specialized Material Types, Creating Compound Materials and Using Material Modifiers.	08
3	**Textures** Unwrapping UVs and Mapping Textures. **Working with Cameras, and Lighting** Using Lights and Basic Lighting Techniques, Using the Sunlight and Daylight Systems, Working with Advanced Lighting.	08
4	**Animating Objects and Rendering a Scene** Understanding Animation and Keyframes, Animating with Constraints and Simple Controllers, Render Settings, Rendering a JPEG Image, Creating a Video Clip	08

Text Books :
1. Autodesk 3ds Max 2014 Bible by Kelly L. Murdock 2. Autodesk 3ds Max 2021: Modeling Essentials, 3rd Edition by Pradeep Mamgain
Reference Books:
1. Autodesk 3ds Max 2024: A Comprehensive Guide, 24th Edition by Prof Sham Tickoo

Syllabus

Semester-V

Course code: SCA41MML302	**Course name:** Visual Effects	
Course category: Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20

Pre-requisites: Basic understanding of graphic design principles (optional but helpful). Familiarity with video editing software basic computer proficiency, including file management and system navigation.

Course Objectives:

To introduce the fundamentals of motion graphics and visual effects Equip students with the skills to create professional animations, text effects, and motion graphics and to teach advanced features such as motion tracking, 3D animations, and compositing techniques.

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

CO1: Understand the interface, tools, and features of Software.

CO2: Create professional-quality animations, motion graphics, and visual effects.

CO3: Apply motion tracking, compositing, and 3D layer animations in projects.

CO4: Render and export projects optimized for various platforms, including web, broadcast, and social media.

Contents -

Unit	Content	Teaching hours
1	**Introduction** Focuses on understanding the interface, basic tools, and workflow, creating compositions, working with layers and animating properties like position and opacity, logo animation.	06
2	**Animation and Intermediate Techniques** Motion using keyframes, graph editor, text animations, kinetic typography. 3D layers, cameras, lights, and intermediate effects like masks and track mattes, culminating in a 10-second animated typography project.	08
3	**Advanced Features and Visual Effects** Introduces expressions, motion tracking, and compositing techniques like rotoscoping and Chroma keying, Rendering practices, 15-second VFX sequence combining motion tracking and effects will complete this unit.	08
4	**Advanced Motion Graphics** Final Project emphasizes advanced animation techniques, character rigging, and plugins like Element 3D, Rendering final video into different format.	08

Reference Books:

1. Adobe After Effects CC Classroom in a Book by Lisa Fridsma, Brie Gyncild.

2.Adobe After Effects CC Visual Effects and Compositing: Studio Techniques by Mark Christiansen

Syllabus
Semester-V

Course code: SCA41MML303 **Course name:** Rotoscope Animation **Course category:** Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic knowledge of animation.		
Course Objectives:		
The basic objective is to introduce students with various elements of Rotoscoping and Tracking.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: To Learn basics of rotoscoping.		
CO2: Learn user Interface.		
CO3: Different tools and their workings.		
CO4: Understand how to render final output.		

Contents -

Unit	Content	Teaching hours
1	**Introduction to rotoscoping** Rotoscoping basics, Essentials of rotoscoping, Fundamentals of rotoscoping **Introduction to fusion workspace** Workflow, Customizing your workspace, Setting up a project.	06
2	**The workspace layout** Flow area, Console , Timeline , Spline editor **Tools and Timeline** Introduction to Tool panel, Layouts, Introduction to Timeline, Time codes, types of rotoscope techniques, keyframe and masking, effects	08
3	**Importing footage** Introduction to loader, Importing and interpreting video and audio Working with footage items, Preparing and importing still images	08
4	**Rendering and Exporting** Basics of rendering, How to render files in different formats, Render settings	08

Reference Books:
1. VFX Fundamentals: Visual Special Effects Using Fusion 8.0
2. Rotoscoping, Bratt Benjamin, Focal Press

Syllabus
Semester-V

Course code: SCA41MMP301 **Course name:** Practical Based on 3D Design and Visualization **Course category:** Major Mandatory
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basics Knowledge of Graphics and 3D Animation Software.
Course Objectives: Design 3D Models and 3D animations.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Designing a 3D Model.
CO2: Understanding of lighting concepts.
CO3: Creating an Image based render.
CO4: Understanding render setup.

Content -

Sr.no.	Description of Practical	Practical Hours
1	Creating and editing primitive objects	2
2	Understanding modeling with polygons	2
3	Learning grouping, linking, and parenting objects	2
4	Understanding Modifiers	2
5	Creating and applying materials	2
6	Learning the sunlight and daylight systems	2
7	To configure and aim cameras	2
8	Learning animation and keyframes	2
9	Procedure to render a scene	2
10	To Study how to render a video	2
11	Project	10

Reference Book:
1. Autodesk 3ds Max 2024: A Comprehensive Guide, 24th Edition by Prof Sham Ticko.
2. Autodesk 3ds Max 2021: A Detailed Guide to Arnold Renderer by Pradeep Mamgain.

Syllabus
Semester-V

Course code: SCA41MMP302 **Course name:** Practical Based on Visual Effects **Course category:** Major Mandatory
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Computer Skills: Ability to navigate file systems and manage digital assets. Fundamental Design Knowledge: Familiarity with concepts like color theory, typography, and layout
Course Objectives:
To introduce learners to the core tools and workflow of software through hands-on practice to develop proficiency in creating animations, text effects, and motion graphics by working on real-world projects, advanced techniques such as 3D layers, motion tracking, and compositing through practical exercises, emphasize the importance of creative storytelling and design principles in motion graphics.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Demonstrate the ability to navigate the interface and efficiently use its tools.
CO2: Create professional animations and visual effects by applying learned techniques to practical tasks.
CO3: Experiment with advanced features like motion tracking, expressions, and 3D space to enhance their projects.
CO4: Build a portfolio showcasing a range of practical projects, including animated text, motion graphics, and visual effects.

Content -

Sr.no.	Description of Practical	Practical Hours
1	Shoot a video with a green screen background and replace it with a digital environment using compositing software Keying.	2
2	Isolate a moving object or character from a video clip using rotoscoping techniques.	2
3	Create a double role video using masking.	2
4	Track camera motion in live-action footage and integrate a 3D object into the scene.	2
5	Design and integrate a digital environment or background into a live-action scene. Digital Matte Painting.	2
6	Convert a daylight scene into nighttime using color grading and lighting effects.	2
7	Develop a complete VFX sequence integrating modeling, animation, compositing, and effects.	2
8	Simulate an explosion or destruction effect (e.g., building collapse) using dynamics and particles.	2
9	Create a realistic particle effect like rain, smoke, or fire using simulation tools.	2
10	Develop a complete VFX sequence integrating modeling, animation, compositing, and effects.	2
11	Optimize workflows and integrate learned skills into a 30-second final project, showcasing their mastery.	10

Reference Books:

1. Adobe After Effects CC Classroom in a Book by Lisa Fridsma, Brie Gyncild.
2. Adobe After Effects CC Visual Effects and Compositing: Studio Techniques by Mark Christiansen.

Syllabus
Semester-V

Course code: SCA41MEL301	**Course name:** Virtual Reality	
Course category: Major Elective		
Credits: 3	**Teaching Scheme:** L-3 P-0	**Evaluation Scheme:** CA-60 ESE-40
Pre-requisites: Basics of Graphics and 3D Software.		
Course Objectives:		
Understanding Concept of virtual reality and its working also describes the Fundamentals of sensation, perception, technical aspects of virtual reality systems.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Understand the design and implementation of the hardware that enables VR systems to be built.		
CO2: Describe the importance of interaction and audio in VR systems.		
CO3: Study Timeline and movie clips.		
CO4: Analyze Secondary color correction.		

Contents -

Unit	Content	Teaching hours
1	**Introduction:** Definition of VR, modern experiences, historical perspective, Hardware, sensors, displays, software, virtual world generator, game engines, human senses, perceptual psychology, psychophysics.	09
2	**The Geometry of Virtual Worlds & Light and Optics:** Geometric modeling, transforming rigid bodies, yaw, pitch, roll, axis-angle representation, quaternions, 3D rotation inverses and conversions, homogeneous transforms, transforms to displays, look-at and eye transforms, canonical view and perspective transforms, viewport transforms.	09
3	**The Physiology of Human Vision & Visual Perception:** Parts of the human eye, photoreceptors and densities, scotopic and photopic vision, display resolution requirement, eye movements, neural vision structures, sufficient display resolution, and other implications of physiology on VR, Depth perception, motion perception, vection, stroboscopic apparent motion, and color perception.	09
4	**Visual Rendering & Motion in Real and Virtual Worlds:** Graphical rendering, ray tracing, shading, BRDFs, rasterization, Barycentric coordinates, elocities, acceleration, vestibular system, virtual world physics, simulation.	09
5	**Visual Rendering & Motion in Real and Virtual Worlds:** Graphical rendering, ray tracing, shading, BRDFs, rasterization, barycentric coordinates, elocities, acceleration, vestibular system, virtual world physics, simulation.	09

Text Books :
1. Virtual Reality, Steven M. LaValle, Cambridge University Press.

Syllabus
Semester-V

Course code: SCA41MEL302 **Course name:** Basics of Cinematography & Lights **Course category:** Major Elective		
Credits: 3	**Teaching Scheme:** L-3 P-0	**Evaluation Scheme:** CA-60 ESE-40
Pre-requisites: Basics Understanding of Camera operations and knowledge of Audio & Video Software		
Course Objectives:		
Convey the narrative through visual elements like composition, camera angles, and movement. Maintain visual coherence across scenes.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Utilize various lighting setups, such as three-point lighting, natural light, and creative lighting, to suit different scenarios.		
CO2: Apply principles of visual composition, such as the rule of thirds, leading lines, and depth, to create balanced and engaging frames.		
CO3: Execute dynamic camera movements (e.g., panning, tracking and handheld) to enhance storytelling.		
CO4: Understand how cinematography and lighting decisions affect color grading, editing, and overall visual continuity.		

Contents -

Unit	Content	Teaching hours
1	**Basics of Cinematography, Visual Language and Language of the lens** Writing with motion, frame as definition, view of the lens, color and light, visual texture, Movement, point-of –view, Design Principals, overlap, sinuous line, compositional triangles, frame basics, rule of third, lens perspective, deep focus, compression of space, manipulating perspective, selective focus, image control at the lens.	09
2	**Visual storytelling, Coverage and Continuity, Camera & sensors** Visual Metaphor, stories with pictures, lightning as storytelling, film noir, light and shadow, Cinematic basics, static frame, building blocks of scenes, Character Shots, Invisible techniques, Shooing methods, Montage, Continuity and types of continuity, color terminology, Digital signal path, HD recording, RAW Vs. Baked, Digital Negative, Pixels, Digital sensors, Shutters.	09
3	**Measurement, Exposure, Linear, gamma, log** Waveform monitor, Color bars, vectorscope**,** video test card, Calibration test charts, Image resolution, Exposure theory, element of exposure, response curve, types of exposure, tools of exposure, Dynamic range ,film gamma and video gamma, Inefficiency of linear, log encoding, log curves.	09
4	**Image Control & Grading, Tools of lighting, Lightning basics** At the dit cart, Color correction and color grading, controllers, control surfaces, control parameters, Exporting and reusing, luts and looks, Converse Filters, tools of lightning, Fundamentals of lightning, Lightning techniques, principals of lightning. Day Exteriors.	09
5	**Optics & Focus, Camera movement** Physical basics of optics, focus, Depth-of-field, macrophotography, Lens Extenders, filters factors, Lens care, Camera movement in filmmaking, basic technique, types of move, moving shots, camera support for movements, Camera Mounts	09

Text Books :
1. Digital Cinematography by Wheeler Paul, Taylor & Francis Ltd publisher.
2. Understanding Cinematography by Hall Brian , The Crowood Press Ltd.
Reference Books:
1. Cinematography theory and practice for cinematographers & Directors by blain Brown, A Focal Press book
2. Basic Cinematography by Lancaster Kurt , Taylor & Francis Inc.

Syllabus
Semester-V

Course code: SCA41MEP301 **Course name:** Practical Based on Virtual Reality		
Course category: Major Elective		
Credits: 1	**Teaching Scheme:** L-0 P-2	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basics Knowledge of 3D Designing		
Course Objectives: Understanding Concept of virtual reality and its working also describes the		
Fundamentals of sensation, perception, technical aspects of virtual reality systems.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Understand the design and implementation of the hardware that enables VR systems to be built.		
CO2: Describe the importance of interaction and audio in VR systems.		

Content -

Sr.no.	Description of Practical	Practical Hours
1	Create a virtual environment for any use case. The application must include at least 4 scenes which can be changed dynamically, a good UI, animation and interaction with objects. Mini project consist of theoretical understanding implements with suitable mini project.	30

Text Books :
1. Virtual Reality, Steven M. LaValle, Cambridge University Press.
Reference Books:
1.Understanding Virtual Reality: Interface, Application and Design, and Alan B Craig, (The Morgan Kaufmann Series in Computer Graphics)".San Francisco, CA William R Sherman, Morgan Kaufmann Publishers.

Syllabus
Semester-V

Course code: SCA41MEP302 **Course name:** Practical Based on Basics of Cinematography & Lights
Course category: Major Elective
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basics of Visual Effects.
Course Objectives:
To study the workflow, create a project, Understand and explore software rendering to render an output in the form of a video.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Learn to create Camera Movement and the Immersive Long Take, Digital Movement.
CO2: Students efficiently use Varieties of Aesthetic Immersion, Simulation and its Discontents.
CO3: Understanding audio editing techniques.
CO4: Learn Chroma keying process.

Content -

Sr.no.	Description of Practical	Practical Hours
1	To Study Different Camera angles to shot cinematic videos.	2
2	To Study Different Cinematic Cameras Used to shot cinematic videos	2
3	To Study different gadgets used for shooting high quality audio and video.	2
4	To Study different lights and filters used for high quality lighting effects.	2
5	Apply options available for audio editing	2
6	Implement digital movements for objects	2
7	To study and understand different types color correction workflows	2
8	Conversion of different video formats	2
9	Understand and study chroma keying process	2
10	To study process of Render a video	2
11	Project	10

Text Books :
1. Digital Cinematography by Wheeler Paul, Taylor & Francis Ltd publisher. 2. Understanding Cinematography by Hall Brian , The Crowood Press Ltd
Reference Books:
1. Cinematography theory and practice for cinematographers & Directors by blain Brown, A Focal Press book
2. Basic Cinematography by Lancaster Kurt , Taylor & Francis Inc.

Syllabus
Semester-V

Course code: SCA41VSP301 **Course name:** Rotoscope using tracking **Course category:** Vocational skill Course		
Credits: 2	**Teaching Scheme:** L-0 P-4	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic knowledge of video editing software		
Course Objectives:		
Teach core concepts of rotoscoping and VFX tracking, isolating subjects and tracking motion, hands-on experience with industry-standard VFX tools, and seamless integration of VFX into live-action footage, Foster creativity in visual storytelling using VFX.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Perform advanced rotoscoping and motion tracking.		
CO2: Create professional VFX using industry tools.		
CO3: Design and composite VFX into live-action videos.		
CO4: Build a portfolio showcasing VFX skills.		

Contents -

Sr.no.	Description of Practical	Practical Hours
1	Basic Shape Rotoscoping – Isolate simple geometric objects from a background.	2
2	Human Silhouette Rotoscoping – Cut out a person from a video with minimal motion.	2
3	Hair and Fine Detail Rotoscoping – Rotoscope hair or transparent fabrics using feathering and edge refinement.	2
4	Motion Blur Rotoscoping – Handle fast-moving objects with motion blur.	2
5	Green Screen Cleanup – Rotoscope parts missed during chroma keying.	2
6	Edge Matte Refinement – Smooth and refine jagged edges in complex mattes.	2
7	Complex Shape Rotoscoping – Isolate moving objects with irregular shapes.	2
8	Foreground-Background Separation – Rotoscope overlapping subjects in the frame.	2
9	Animated Masking – Animate masks to follow moving objects frame by frame.	2
10	Depth Matte Creation – Create multiple mattes to separate background, midground, and foreground elements.	2
11	Basic 2D Tracking – Track a simple object's motion and attach text or graphics.	2
12	Corner Pin Tracking – Replace a screen on a mobile phone or TV using corner pinning.	2
13	Planar Tracking – Track and insert images onto walls or floors with perspective changes.	2
14	Camera Tracking (Matchmoving) – Track camera motion to integrate 3D objects into live footage.	2
15	Object Tracking – Track moving 3D objects and composite elements on them.	2
16	Tracking in Low Light – Track footage with poor lighting or grainy quality.	2
17.	Occlusion Handling in Tracking – Handle situations where the tracked object is partially hidden.	2

18.	Stabilizing Shaky Footage – Use tracking data to stabilize handheld footage.	2
19.	Shadow and Light Matching – Use tracked data to match lighting for inserted VFX elements.	2
20.	Advanced Motion Tracking with VFX Integration – Combine tracking data with VFX (e.g., explosions, holograms).	2
21	Create a dynamic sci-fi action sequence blending live-action footage with VFX elements. The project will focus on advanced rotoscoping for subject isolation and VFX tracking to integrate futuristic effects like holograms, energy blasts, and environment extensions.	20

Reference Books:
1. Rotoscoping: Techniques and Tools for the Aspiring Artist by Benjamin Bratt
2. Matchmoving: The Invisible Art of Camera Tracking by Tim Dobbert

Semester: SIXTH

Syllabus
Semester-VI

Course code: SCA41MML304	**Course name:** Video Editing	
Course category: Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic knowledge of video editing.		
Course Objectives:		
To understand the basic elements used in video editing.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Learn User interface.		
CO2: Understand how to import media and organize them.		
CO3: Edit video using different tools and effect.		
CO4: Learn how to render final output.		

Contents -

Unit	Content	Teaching hours
1	**Interface :** The workspace layout, Customizing your workspace, Setting up a project, Setting up a sequence. **Importing Media :** Getting started, Importing assets, Working with the Media Browser, Importing images, The media cache	06
2	**Organizing Media :** Getting started, The Project panel, Working with bins, Organizing media with content analysis, Monitoring footage, Modifying clips **Essentials of video editing :** Using the Source Monitor, Navigating the Timeline, Essential editing commands	08
3	**Working with clips and markers :** Program Monitor controls, Controlling resolution, Using markers, Using Sync Lock and Track Lock, Finding gaps in the Timeline, Moving clips **Adding transitions :** Transition basics , Edit points and handles, Adding video transitions, Using A/B mode to fine-tune a transition, Adding audio transitions	08
4	**Advanced editing techniques :** Retiming clips, Replacing clips and footage, Advanced trimming. **Adding Audio & video effects :** Setting up the interface to work with audio, Examining audio characteristics, Adjusting audio volume, Adjusting audio gain, Creating a split edit, Working with video effects, Key framing effects, Effects presets **Exporting frames, clips, and Sequences :** Overview of export options, Exporting single frames, Exporting a master copy, Working with Adobe Media Encoder, Exchanging with other editing applications	08

Reference Books:

1. Premiere Pro Editing Workshop, Publisher: Taylor & Francis Ltd.

Syllabus
Semester-VI

Course code: SCA41MML305 **Course name:** Digital Sculpting **Course category:** Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic of 3D Modeling		
Course Objectives:		
The basic objective is to be able to create, edit, and sculpt 3D models. Development of sculpting and rendering.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Learn to tools of sculpting.		
CO2: Create 3D Objects.		
CO3: Understanding the process of sculpting.		
CO4: Understand how to render Sculpted 3D Models.		

Contents -

Unit	Content	Teaching hours
1	**Interface:** Exploring Blender's User Interface for Sculpting, **Overview of Blender's Sculpting Workflows:** Creating dynamic topology with Dyntopo, Using the Voxel Remesher in a low-to-high detail workflow, Exploring the most powerful sculpting mode – Multire solution	06
2	**Sculpting a Simple Character Head with Basic Brushes** Creating the large forms with Grab brush, Smoothing the lumpy and jagged surfaces, Inflate brush, Adding detail with Crease brush, Draw Sharp brush and Pinch brush. **How to Make a Base Mesh for a 3D Sculpture** Using the Skin modifier, Using Metaballs, Importance of Booleans, Using the Lasso Trim tool	08
3	**Learning the Power of Subdivision and the Multiresolution Workflow** Generating quad mesh with QuadriFlow, Exploring subdivision surfaces, Understanding multiresolution modifier, **Using Advanced Features and Customizing the Sculpting Brushes** Using custom falloff, Exploring custom stroke options, Setting up custom alpha textures, Using face sets as automatic masks, the Line Project tool, Posing fingers with the Pose brush	08
4	**Making Accessories** Vertex Painting, Using Mask Extract, Using the Cloth brush, Using the Cloth Filter, Preparing mesh cloth simulation, Simulating cloth to wrap around a character, Sculpting with Radial Symmetry **Creating and Understanding Hair tools** Hair particles, Adding surface details, Creating long flowing hair with curves Rendering Sculptures for Your Portfolio	08

Reference Books:

1. Sculpting the blender way by Xury Greer, Packt Publishing Ltd.

Syllabus
Semester-VI

Course code: SCA41MML306	**Course name:** Motion Graphic Design	
Course category: Major Mandatory		
Credits: 2	**Teaching Scheme:** L-2 P-0	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Knowledge of Composition and animation Principals.		
Course Objectives:		
This course has several different approaches to animation with respect to advanced movement to tell stories and deliver massage while maintaining a well-designed approach		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Creating motion graphics that effectively convey messages and narratives.		
CO2: Ability to manage motion graphics projects from concept to final output.		
CO3: Coordinating movements and live action.		
CO4: Understanding animation principles such as timing, easing, and storytelling.		

Contents -

Unit	Content	Teaching hours
1	**Motion Graphics: A perspective, History of Motion Graphics** What is Motion Graphics-Introduction, Difference between Motion Graphics and Animation, Motion Graphics and visual effects, Benefits of Motion Graphics, Brief history of motion Graphics, Motion Graphics in film and Television, Early cinematic Invention, Experimental Animation	06
2	**Motion Graphics in Film and Television, Interactive Media and Environments** Film titles, Network Branding, Commercial, Public service announcements, and Difference Interactive media, Motion over web and Multimedia, Animated Exteriors, Digital Signage.	08
3	**Choreographing Movement, Live-Action ,Image and other consideration** Language of Motion, Motion Literacy, coordinating movements, Spatial Consideration, Temporal properties, Visual Properties, Image consideration live- Action consideration , typographic consideration, Pictorial and Sequential composition	08
4	**Conceptualization, Animation process** assessments regarding audience, research topic, restrictions, Formulation of Idea, Cultivation, Story Board, Animatic, Frame by frame, Interpolation Spatial Interpolation, Visual interpolation, Temporal interpolation, Motion graphic compositing, Motion Graphics Sequencing.	08

Reference Books:

1. Motion Graphics Design: Applied History and Aesthetics, Jon Krasner, Focal Press
2. Motion Graphics, Crook Ian University of Central Lancashire, Bloomsbury Publishing PLC

Syllabus
Semester-VI

Course code: SCA41MMP303 **Course name:** Practical Based on Video Editing **Course category:** Major Mandatory
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic knowledge of video editing.
Course Objectives:
To understand the basic elements used in video editing
Course Outcomes: At the end of the course, the students will be able to -
CO1: Learn User interface.
CO2: Understand how to import media and organize them.
CO3: Edit video using different tools and effect.
CO4: Learn how to render final output.

Content -

Sr.no.	Description of Practical	Practical Hours
1	Organize media assets (video clips, audio files, images).	2
2	To learn tasks like cutting, trimming, and navigating the timeline.	2
3	To practice on fundamental editing techniques such as cutting, trimming, splitting clips, and arranging them on the timeline.	2
4	Practice creating smooth transitions between clips using different techniques.	2
5	Learn to adjust the speed of a clip (e.g., slow motion or fast motion).	2
6	Practice on audio quality and use it to enhance your video.	2
7	Learn how to adjust audio levels, add background music, to create atmosphere and impact.	2
8	Enhance the visual quality of your footage using basics of color correction and grading.	2
9	Learn how to add video effects and audio effects to the clips.	2
10	Add text overlays, titles, and graphics to your video to provide context, highlight key points, or add visual interest.	2
11	Project	10

Reference Books:

1. Adobe-premiere-pro-cs6-classroom-in-a-book
2. Premiere Pro Editing Workshop, Publisher: Taylor & Francis Ltd.

Syllabus

Semester-VI

Course code: SCA41MMP304 **Course name:** Practical Based on Digital Sculpting **Course category:** Major Mandatory
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic of 3D Modeling.
Course Objectives:
Design 3D Sculpts and Normal Maps.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Design a 3D Model and an Image based render
CO2: Understanding of lighting concepts and render setup

Content -

Sr.no.	Description of Practical	Practical Hours
1	Understanding dynamic topology using Dyntopo	2
2	Modeling with Voxel Remesher	2
3	Demonstrate Grab, Inflate, Crease, Pinch Brushes	2
4	Learning about Skin modifier	2
5	Generating mesh with QuadriFlow	2
6	Learning subdivision surfaces	2
7	Understanding multiresolution modifier	2
8	Creating low poly – to – high poly detail	2
9	Understanding Vertex Painting	2
10	Design Hair particle	2
11	Project	10

Reference Books :
1. Sculpting the blender way by Xury Greer, Packt Publishing Ltd.

Syllabus
Semester-VI

Course code: SCA41MEL303 **Course name:** Augmented Reality **Course category:** Major Elective
Credits: 3 **Teaching Scheme:** L-3 P-0 **Evaluation Scheme:** CA-60 ESE-40
Pre-requisites: Basic Knowledge of Simulation.
Course Objectives:
Students will learn basics of tracking, displays and sensors.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Understanding different type's displays and tracking. Basics of Visualization.
CO2: Basics of Camera simulation.
CO3: Learn AR Software architecture and workspace.
CO4: Apply collaboration system.

Contents -

Unit	Content	Teaching hours
1	**Introduction to Augmented Reality** Brief history, applications, mixed reality continuum, virtual reality, biquitous computing. **Displays** - Multimodal displays, audio display, haptic, tactile and tangible displays Gustatory displays, visual perception, characteristics.	09
2	**Computer Vision for Augmented reality** Marker tracking, Multiple camera infrared tracking, Natural feature tracking by detection, Incremental tracking, simultaneous localization and mapping **Calibration and Registration** - Camera calibration, ,calibration, Registration, latency. Visual Coherence - Photometric registration, Common illumination, Diminished reality, Camera simulation.	09
3	**Situated visualization** - Challenges, visualization registration, Annotation and labeling, X-ray visualization, spatial manipulation, Information filtering Interaction - Output modalities, Input modalities, Tangible interfaces, Virtual user interfaces on real surfaces, Multi-view interfaces.	09
4	**Modeling and annotation** - Specifying geometry, Specifying appearance, semi-automatic reconstruction, free form modeling. Authoring - Requirement of AR authoring, elements of authoring, standalone authoring solutions, **Navigation** - Foundation of Human navigation, exploration and recovery, Route visualization, view point guidance, Multiple perspectives	09
5	**Collaboration** - Properties of collaboration system, co-located collaboration System, Remote collaboration. **Software architecture** - AR Application requirements, Software engineering requirement, data flow, scene graphs, Developer support.	09

Text Books :
1. Augmented Reality by Dieter Schmalstieg, Tobias Hollerer , Pearson publication.
2. Augmented Reality with Unity AR Foundation, Jonathan Linowes Packt Publishing Limited.
Reference Books:
1. Virtual and Augmented Reality (VR/AR), Bernhard Jung, Paul Grimm, Ralf Doerner, Wolfgang Broll 2022.

Syllabus
Semester-VI

Course code: SCA41MEL304 **Course name:** Basics of Photography **Course category:** Major Elective		
Credits: 3	**Teaching Scheme:** L-3 P-0	**Evaluation Scheme:** CA-60 ESE-40
Pre-requisites: Basic understanding of visual arts and design principles, Familiarity with using digital devices like smartphones or cameras, creative storytelling and visual expression.		
Course Objectives:		
To introduce fundamental concepts of photography, including composition, lighting, and exposure, develop technical skills in handling cameras and photography equipment, enhance creative vision and storytelling through images, post-processing techniques for image enhancement, explore various photography genres like portrait, landscape, and product photography.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Demonstrate knowledge of camera functions and photography techniques.		
CO2: Apply principles of composition and lighting to create impactful images.		
CO3: Analyze and critique photographs based on technical and creative aspects.		
CO4: Develop a personal photography portfolio showcasing diverse styles and themes.		

Contents -

Unit	Content	Teaching hours
1	**Introduction to Photography** Fundamental concepts of photography, including its history and evolution. Students will learn about the basic principles of exposure, including shutter speed, aperture, and ISO, and how these elements work together to produce a well-exposed image, Emphasis will be placed on understanding light, both natural and artificial and how it affects photography, types of cameras, lenses, and their respective functions, along with the basic operation of a camera.	09
2	**Camera Settings and Techniques** camera settings and techniques for capturing high-quality images. Mode to control exposure settings, understanding white balance, and mastering focus techniques. Manipulating the depth of field, motion blur, and using various metering modes, Adjusting settings for different lighting conditions and subjects.	09
3	**Composition and Framing** This unit focuses on the art of composition and how to frame a photograph effectively. Key concepts such as the rule of thirds, leading lines, symmetry, and the golden ratio will be discussed in detail, balance elements within the frame to create visually compelling images, importance of perspective, viewpoint, and the use of space to convey mood and emotion in photography.	09
4	**Lighting and Exposure** Control Proper lighting is a critical component of photography, and this unit explores how to manipulate light to achieve the desired effect. Different types of lighting, including natural light, artificial light, and studio lighting setups. Techniques for controlling exposure using light modifiers, reflectors, diffusers, and filters. Students will experiment with different lighting scenarios to understand how light interacts with subjects and how to use it creatively.	09

5	**Post-Processing and Image Enhancement** Basics of photo editing and post-processing using software. Enhance images through color correction, cropping, retouching, and adjusting exposure and contrast. Non-destructive editing techniques and how to maintain the integrity of the original image while making improvements. Ethical considerations regarding image manipulation and copyright will also be discussed to ensure responsible editing practices.	09

Reference Books:
1. The Basics of Photography: The photography handbook for who beginning in photography by Rajitha Dashin, rajitha nishadh.
2. The Basic Book of Photography by Grimm Tom

Syllabus
Semester-VI

Course code: SCA41MEP303 **Course name:** Practical Based on Augmented Reality **Course category:** Major Elective
Credits: 1 **Teaching Scheme:** L-0 P-2 **Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic Knowledge of Simulation.
Course Objectives:
Students will learn basics of tracking, displays and sensors.
Course Outcomes: At the end of the course, the students will be able to -
CO1: Understanding different types displays.
CO2: Basics of Camera simulation.
CO3: Learn different types of tracking.
CO4: Create AR Environment.

Contents -

Sr.no.	Description of Practical	Practical Hours
1	Create an AR environment for any use case. The application must include at least 4 scenes which can be changed dynamically, a good UI, animation and interaction with objects. Mini project consist of theoretical understanding implements with suitable mini project.	30

Reference Books :

1. Augmented Reality by Dieter Schmalstieg, Tobias Hollerer , Pearson publication.

Syllabus
Semester-VI

Course code: SCA41MEP304	**Course name:** Practical Based on Basics of Photography	
Course category: Major Elective		
Credits: 1	**Teaching Scheme:** L-0 P-2	**Evaluation Scheme:** CA-30 ESE-20
Pre-requisites: Basic understanding of visual arts and design principles, Familiarity with using digital devices like smartphones or cameras, creative storytelling and visual expression.		
Course Objectives:		
To introduce fundamental concepts of photography, including composition, lighting, and exposure, develop technical skills in handling cameras and photography equipment, enhance creative vision and storytelling through images.		
Course Outcomes: At the end of the course, the students will be able to -		
CO1: Demonstrate knowledge of camera functions and photography techniques.		
CO2: Apply principles of composition and lighting to create impactful images.		
CO3: Analyze and critique photographs based on technical and creative aspects.		
CO4: Develop a personal photography portfolio showcasing diverse styles and themes.		

Contents -

Sr.no.	Description of Practical	Practical Hours
1	Experiment with different combinations of Aperture, Shutter Speed, and ISO.	2
2	Practice shooting photos using manual controls for full exposure control.	2
3	Take photos using various aperture settings to see their effect on depth of field.	2
4	Capture images at different shutter speeds to control motion blur or freeze action.	2
5	Take photos in low light conditions with various ISO settings to balance noise.	2
6	Shoot portraits using only available natural light, focusing on lighting angles and shadows.	2
7	Experiment with wide-angle, telephoto, and macro lenses for different perspectives.	2
8	Take photos using the Rule of Thirds to create balanced compositions.	2
9	Capture motion using a slow shutter speed and experiment with freezing action using fast shutter speeds.	2
10	Capture extreme close-ups of small objects using a macro lens.	2
11	Take portraits or product shots with flash or continuous lighting setups.	10

Reference Books:

1. The Basics of Photography: The photography handbook for who beginning in photography by Rajitha Dashin, rajitha nishadh.
2. The Basic Book of Photography by Grimm Tom