



Chhattisgarh Swami Vivekanand Technical University (CSVTU), Bhilai (CG)

Scheme of Teaching and Examination

Courses of Study and Scheme of Examination of Bachelor of Vocation
(B.Voc.) in Graphics & Multimedia (2019-20)

Level 5 (Semester-I)

S. No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Examination (Theory/Practical)			Total Marks	Credit
				L	T	P	ESE	CT	TA		
1.	CSE	B104511(022)	Web Applications	4	1	-	40	5	5	50	3
2.	CSE	B104512(022)	Communication Skill-I	4	1	-	40	5	5	50	3
3.	CSE	B104513(022)	Graphic Design (Basic Sketching and Human Anatomy in Drawing)	4	1	-	40	5	5	50	3
4.	CSE	B104514(022)	Illustration And Photo-Editing	4	1	-	40	5	5	50	3
Lab/Practical											
5.	CSE	B104521(022)	Web Applications (Lab)	-	-	3	50	-	-	50	1.5
6.	CSE	B104522(022)	Illustration And Photo-Editing (Lab)	-	-	3	50	-	-	50	1.5
On-Job-Training (OJT)/Qualification Packs											
1.	CSE	B104531(022)	Character Designer	-	-	-	Any one			200	15
2.	CSE	B104532(022)	Storyboard Artist	-	-	-					
3.	CSE	B104533(022)	Editor	-	-	-					

L-Lecture, T-Tutorial, P-Practical, ESE-End Semester Exam, CT- Class Test, TA- Teacher's Assessment

*MES - Modular Employable Skill OP - Qualification Pack, IP - Intellectual Property, SSC -Sector Skill Councils



Chhattisgarh Swami Vivekanand Technical University (CSVTU), Bhilai (CG)

Scheme of Teaching and Examination

Courses of Study and Scheme of Examination of Bachelor of Vocation
(B.Voc.) in Graphics & Multimedia (2019-20)

Level 5 (Semester-II)

S. No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Examination (Theory/Practical)			Total Marks	Credit
				L	T	P	ESE	CT	TA		
1.	CSE	B104551(022)	Pre-Production	4	1	-	40	5	5	50	3
2.	CSE	B104552(022)	Audio Editing	4	1	-	40	5	5	50	3
3.	CSE	B104553(022)	Video Editing	4	1	-	40	5	5	50	3
4.	CSE	B104554(022)	Communication Skill- II	4	1	-	40	5	5	50	3
Lab/Practical											
5.	CSE	B104561(022)	Audio Editing (Lab)	-	-	3	50	-	-	50	1.5
6.	CSE	B104562(022)	Video Editing (Lab)	-	-	3	50	-	-	50	1.5
On-Job-Training (OJT)/Qualification Packs											
Any one of the QP's can be opted as offered in Level 5 Semester-I				-	-	-	Any one			200	15

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Chhattisgarh Swami Vivekanand Technical University (CSV TU), Bhilai (CG)

Scheme of Teaching and Examination

Courses of Study and Scheme of Examination of Bachelor of Vocation (B.Voc.) in Graphics and Multimedia (2020-21)

Level 6 (Semester-I)

S. No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Examination (Theory/Practical)			Total Marks	Credit
				L	T	P	ESE	CT	TA		
1.	Computer Science and Engineering	B104611(022)	Principles of Animation and Techniques of Animation	2	1	-	40	5	5	50	3
2.	Computer Science and Engineering	B104612(022)	Basic of 3-D Modelling	2	1	-	40	5	5	50	3
3.	Computer Science and Engineering	B104613(022)	Texture and Lighting	2	1	-	40	5	5	50	3
4.	Computer Science and Engineering	B104614(022)	Communication Skill-III	2	1	-	40	5	5	50	3
Lab/Practical											
5.	Computer Science and Engineering	B104621(022)	Digital Animation with Flash - Lab	-	-	3	50	-	-	50	1.5
6.	Computer Science and Engineering	B104622(022)	Maya - Lab	-	-	3	50	-	-	50	1.5
On-Job-Training (OJT)/Qualification Packs											
1.	Computer Science and Engineering	B104631(022)	Modeller	-	-	30	200	Any one		200	15
2.	Computer Science and Engineering	B104632(022)	Animator								
3.	Computer Science and Engineering	B104633(022)	Rendering Artist								
Total				16	4	36	460	20	20	500	30

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Chhattisgarh Swami Vivekanand Technical University (CSV TU), Bhilai (CG)

Scheme of Teaching and Examination

Courses of Study and Scheme of Examination of Bachelor of Vocation (B.Voc.) in Graphics and Multimedia (2020-21)

Level 6 (Semester-II)

S. No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Examination (Theory/Practical)			Total Marks	Credit
				L	T	P	ESE	CT	TA		
1.	Computer Science and Engineering	B104651(022)	3 D Animation	2	1	-	40	5	5	50	3
2.	Computer Science and Engineering	B104652(022)	Introduction to 3 D Motion Graphics & VFX	2	1	-	40	5	5	50	3
3.	Computer Science and Engineering	B104653(022)	Introduction to Rendering	2	1	-	40	5	5	50	3
4.	Computer Science and Engineering	B104654(022)	Communication Skill-IV	2	1	-	40	5	5	50	3
Lab/Practical											
5.	Computer Science and Engineering	B104661(022)	3 D Animation Lab	-	-	3	50	-	-	50	1.5
6.	Computer Science and Engineering	B104662(022)	Rendering-Lab	-	-	3	50	-	-	50	1.5
On-Job-Training (OJT)/Qualification Packs											
1.	Computer Science and Engineering	B104671(022)	Modeller	-	-	30	200	Any one	200	500	15
2.	Computer Science and Engineering	B104672(022)	Animator								
3.	Computer Science and Engineering	B104673(022)	Rendering Artist								
Total				16	4	36	460	20	20	500	30

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Chhattisgarh Swami Vivekanand Technical University (CSVTVU, NEWAI (C.G.))

SCHEME OF TEACHING AND EXAMINATION

Bachelor of Vocation (B.Voc.) in Graphics & Multimedia

Level 7 (Semester -II)

S. No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Examination (Theory/ Practical)			Total Marks	Credit
				L	T	P	ESE	CT	TA		
1.	CSE	B104751(022)	Muscle System	4	1	-	40	5	5	50	3
2.	CSE	B104752(022)	Rigging	4	1	-	40	5	5	50	3
3.	CSE	B104753(022)	Advanced Modelling with Z-Brush	4	1	-	40	5	5	50	3
4.	CSE	B104754(022)	Entrepreneurship Essentials	4	1	-	40	5	5	50	3
Lab/ Practical											
5.	CSE	B104761(022)	Maya Muscle (Lab)	-	-	3	50	-	-	50	1.5
6.	CSE	B104761(022)	Rigging with Maya (Lab)	-	-	3	50	-	-	50	1.5
On-Job-Training (OJT)/ Qualification Packs											
1.	Any one of the QP's can be opted as offered in Level 7 Semester I			-	-	-	Any one			200	15

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Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)

Semester: B.Voc. (Level 7 Sem II)

Subject: Muscle System

Total Theory Periods: 40 hours

Minimum number of Class tests: 02

Branch: CSE

Subject Code: B104751(022)

Total Tutorial Periods: 12 hours

Total Credits: 03

Course Objectives:

- To understand the Muscle system
- To learn different type skinning
- To aware Deformations
- To learn the different conversion and Jiggle
- To aware about collision and Nodes

Unit I: Introduction: Muscle and Bone system/Joints and IK handles, creating Muscle system and maintaining naming conventions, Types of Muscle, Muscle Components, Muscle Jiggle, create a capsule, capsule setting, convert of cylinder to capsule, joint to capsules, meshes to bones, NURB to Muscle Objects, muscle attach point, Create / Delete Muscle.

Unit II: Skinning: types, import and export of skin weights, apply default weights, Paint Muscle weights, Load and save weights, Mirror weights, Transfer weights, Prune weights, IK and FK basics, IK and FK switch, stretchy IK and FK,

Unit III: Introduction to Deformers: Type of Deformation- Sticky Deformation Relative Sticky deformation, sliding deformation, Displacement deformation and rendering, Force deformation, Per-Point Jiggle Deformation Relax deformation, Smooth deformation, Use of deformers in rigging process.

Unit IV: Different Mode: Apply the Muscle deformer, Convert Maya skin to Maya Muscle, Connect Muscle Objects to a Muscle deformer, Re-Initialize setup data on Maya Muscle, Auto-Fix Invalid Sticky Bind points, disconnect muscle nodes, disconnect selected Muscle Objects, Visualize the Sticky Bind distance, set up Relative Sticky deformation, create a Muscle Direction object, set up Displacement deformation, set up Force deformation, Set up Jiggle deformation,

Unit V: Collision, Nodes: Introduction to Collision, need of collision, types of collision, point – caching, Introduction to Muscle Nodes, objectives of Muscle Nodes Type of Muscle nodes

Reference Books:

1. Autodesk Maya 2011, Maya Muscle, Autodesk
2. Introduction to Maya Muscle, Autodesk Publisher.
3. Autodesk Maya 2019: A Comprehensive Guide, 11th Edition

Course Outcomes:

- Understand the basic concepts of Muscle and Bone system in graphic systems
- To Know about different way of skinning and Weights.
- Understand deformation of muscle.
- Understand conversion of muscle object in to another and displacement deformation.

Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.)

Semester: B.Voc. (Level 7 Sem II)

Subject: Rigging

Total Theory Periods: 40 hours

Minimum number of Class tests: 02

Branch: CSE

Subject Code: B104752(022)

Total Tutorial Periods: 12 hours

Total Credits: 03

Course Objectives:

- Understand basic of rigging
- Understand the creation of character
- Understand Nurbs and techniques
- Understand concept of Kinematics
- To aware the advance techniques

Unit-1: Introduction – Understanding Rigging, Introduction to constraints and implementation to rigging, maintaining proper hierarchy, grouping and creating controls, Orienting Joints, Naming Joints, Mirroring Joints Rigging the characters, working with Muscle rigging, Introduction to automated rigging systems and methods.

Unit-2: Rigging Characters: Building a Bones System, Using the Bone Tools, making objects into bones, Using the Skin Modifier, working with weights, Mirror settings, Display and Advanced settings, using deformers, Rigs are smooth, intuitive and responsive and meet production requirements, rigged assets deform correctly from all required camera positions and angles, solutions for complex rigging problems when required.

Unit-3: Nurbs: What are Nurbs, Components of Nurbs curves, degree of Nurbs curves, Bezier curves. insert knot, reverse curve direction. Loft, Revolve Surface, Extruded Surface, Planar Surface, Beveled Surface, Boundary Surface – Combining Techniques– Modeling with Deformers – Editing NURBS Surfaces – Using NURBS Surfacing to Create Polygons – Converting NURBS to Polygons

Unit-4: Using Inverse Kinematics: Rigging principles, processes, systems and techniques like Forward versus Inverse Kinematics, creating an Inverse Kinematics System, Using the Various Inverse Kinematics Methods, Applied IK, History Independent (HI) IK solver, History Dependent (HD) IK solver, IK Limb solver, Spline IK solver

Unit-5: Advanced Rigging: Embedding small scripts in the hierarchy control system, to save time and facilitate handling, Advanced rigging, Vertex weighting techniques, rigging solutions to Anatomical Problems, using advanced rigging to archive natural articulation of character.

Reference Books:

1. Introduction to Autodesk Maya 2015, Darakhshani Dariush, Autodesk.
2. Mastering Autodesk Maya 2016, Palamar Todd, Wiley Publishing
3. Learning Maya | Character Rigging and Animation, Alias

Course Outcomes:

The student will learn-

- To understand proper use of rigging
- To aware rigging characters
- To understand utilization of Nurbs
- To aware basic of Kinematics and advance techniques use with rigging

Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.)

Semester: B.Voc. (Level 7 Sem II)

Subject: Advanced Modelling with Z- Brush

Total Theory Periods: 40 hours

Minimum number of Class tests: 02

Branch: CSE

Subject Code: B104753(022)

Total Tutorial Periods: 12 hours

Total Credits: 03

Course Objectives:

- Inculcate knowledge on Z-Brush
- Demonstrate various tools of Z-Brush
- Understand Transformation and Mapping
- Understand Advance Level of Modelling

Unit-1: Introduction: Z-Brush 2 features, system requirement, Z-Brush 2 concept, working with Z-Brush 2, working with the canvas, working with layouts, working with palettes, Z-Brush 2 configuration, using start-up documents, tray modes, working with Z-Script palette and working with the preference palette.

Unit-2 Z-Brush Tools: Types of tools in Z-Brush 2, modes, options and related palettes, explaining the tool palette, working with tools, working with pixel based tools, working with gyro tool, Autodesk Maya and Autodesk 3D max settings, introduction to curves, the alpha adjust curve, the edit curve, the smoothing curve, the diffuse curve, the specular curve, the trans curve, the reflect curve, the noise curve and the intensity curve.

Unit-3: Transformation and Mapping: Strokes, lighting, shadows, transformation, working with alphas, texture concepts, texture inventory, understanding the texture palette, texture mapping, seamless textures, painting textures and materials.

Unit-4: Modelling: Creases mesh visibility, morph target, multi-resolution modelling, edge loop, different maps, explain projection master, working with Z Spheres, understanding adaptive skinning and understanding unified skinning.

Unit-5: Advance Mode: Sculpting, sculpting brushes, using stencils, sculpting using projection master, understanding and render palette and posing characters.

Reference Books:

1. Beginner Guide of Z-Brush, 3dtotal Publishing
2. Character Modeling with Maya and Z-Brush, Jason Patnode, Focal Press
3. Getting Started in Z-Brush: An Introduction to Digital Sculpting and Illustration, Greg Johnson, Focal Press

Course Outcomes:

The student will learn-

- Understand basic concepts of Z-Brush and its Tools
- Understand Transformation of Models
- Understand Systematic use of Mapping
- Understand advance level of Modelling

Chhattisgarh Swami Vivekananda Technical University, Bhilai (C.G.)

Semester: B.Voc. (Level 7 Sem II)

Subject: Entrepreneurship Essentials

Total Theory Periods: 40 hours

Minimum number of Class tests: 02

Branch: CSE

Subject Code: B104754(022)

Total Tutorial Periods: 12 hours

Total Credits: 03

Course Objectives:

- Make students familiar about the entrepreneurship development and small business management
- Train in Entrepreneurship
- Learn the Business Model, New Design and Innovation, Business plan and Startup Valuation

Unit-1: Fundamentals of Entrepreneurship: Meaning of Entrepreneurship - characteristics, functions, and types of entrepreneurship - Entrepreneur - Role of entrepreneurship in economic development, Definition Motivation, Vision, Mission and Value, Entrepreneur Qualities.

Unit-2 Know the parameters to assess opportunities and limitations for new business ideas: Factors affecting entrepreneur growth - economic – non-economic. Entrepreneurship development programmes - need - objectives – course contents - phases - evaluation. Institutional support to entrepreneurs, Myths and Realities around Entrepreneurship –cause of failure of Startup, Forms of Legal Entities, Factor Driving Competitive Advantage

Unit-3: Business Model: Meaning of Marketing Research, Feature of marketing Startup, Meaning of Business Model Canvas, Types of Business Model Canvas, Feature of Wining Business Mode,

Unit-4: Trend, Design and Innovation: Meaning and feature of Trend, identifying opportunities based of Trend, Circle of Competence and Effectiveness, Lean Startup, Design and Innovation.

Unit-5: Financial Statement, Business plan and Startup Valuation: Introduction of Financial Statements, Need of Financial Statements, Depreciation and amortization, Treatment of Capital Gain or loss form sale of Fixed Asset. Cost, Volume, Profit Break-Even Analysis, Business plan and pitching the Business plan, funding on New Venture – Capital, Budgeting decision, Startup Evaluations.

Reference Books:

1. S. Choudhury, (2017), Project Management, McGraw Hill Education
2. Priyanka Singh and Supriya Singh, (2018), Entrepreneurship and Project Management, Thakur Publication Pvt. Ltd., Chennai.
3. Gupta, C.B. and Srinivasan N.P (2014) Entrepreneurial Development, Sultan Chand and Sons
4. Khanka S.S., (2006), Entrepreneurial Development, S Chand publishing.
5. Robert D. Hisrich, Michael P. Peters, Entrepreneurship, McGrawhill publication,11th Edition, 2020

Course Outcomes:

The student will learn-

- Understand entrepreneurship and its impact in development
- Identify the opportunities available in developing entrepreneurial qualities

Chhattisgarh Swami Vivekananda Technical University, Bilai (C.G.)

- Aware Business Mode, Trends and Innovation in Business
- Prepare feasible business plan
- Aware the Finance and other requirements for New Business Plan and Startup

Related Online Contents [MOOC, SWAYAM, NPTEL, Websites etc.]

Entrepreneurship Essentials, By Prof. Manoj Kumar Mandal, Rajendra Mishra School of Engineering
Entrepreneurship, IIT Kharagpur

Chhattisgarh Swami Vivekananda Technical University, Bilai (C.G.)

Semester: B.Voc. (Level 7 Sem II)

Branch: CSE

Subject: Maya Muscle (Lab)

Subject Code: B104761(022)

Total Practical Periods: 36 hours

Total Credits: 1.5

List of Practicals:

Practical's based on theory to be implemented in Autodesk Maya Muscle

Chhattisgarh Swami Vivekananda Technical University, Bilai (C.G.)

Semester: B Voc. (Level 7 Sem II)

Subject: Rigging with Maya Lab

Total Practical Periods: 36 hours

Branch: CSE

Subject Code: B104762(022)

Total Credits: 1.5

List of Practicals:

1. 3D modelling
2. 3D animation
3. 3D Rigging
4. Texturing and Lighting
5. Rendering and compositing