



Karmaveer Bhaurao Patil University, Satara

**Syllabus for
B. Sc. I Animation Science**

**Under
Faculty of Science and Technology
(As per NEP 2020)**

With effect from Academic Year 2024-25

Syllabus for Bachelor of Science (B. Sc.) Part – I Animation Science

PREAMBLE:

This syllabus shall be applicable to the Bachelor of Science (B.Sc.) in Animation Science programme for the First Year in accordance with the National Education Policy (NEP) 2020, with effect from the academic year 2024–25.

The Bachelor of Science (B.Sc.) in Animation Science programme has been designed to provide students with a comprehensive foundation in animation, multimedia, digital technologies and creative computing. The curriculum integrates the principles of visual arts, design, computer science and emerging technologies to develop the knowledge, technical skills and creative abilities required for the animation and digital media industries.

The programme follows a multidisciplinary and outcome-based approach with an appropriate balance of theoretical concepts, laboratory work, studio practice, and project-based learning. It provides learning opportunities in 2D and 3D Animation, Character Design, Motion Graphics, Visual Effects (VFX), Game Design and Development, User Interface and User Experience (UI/UX) Design, Augmented Reality (AR), Virtual Reality (VR), Artificial Intelligence (AI) and digital content creation, while emphasizing the effective use of industry-standard software and production workflows.

The curriculum also promotes experiential learning through practical assignments, internships, On Job Training (OJT), portfolio development and collaborative projects. It aims to develop professional competence, creativity, ethical values, communication skills and lifelong learning abilities required for employment, entrepreneurship, higher education and research in animation, multimedia, gaming, digital media, and allied disciplines.

GENERAL OBJECTIVES OF THE PROGRAMME:

1. Provide comprehensive knowledge of animation principles, design concepts and digital media technologies.
2. Develop practical skills in 2D/3D animation, modeling, texturing, rigging, rendering and visual effects.
3. Enable students to understand and apply game design, UI/UX design and interactive media development.
4. Familiarize students with industry-standard software such as Maya, Unity, After Effects and essential animation tools.
5. Enhance creative thinking, storytelling and visual communication abilities.
6. Promote research orientation, problem-solving skills with innovation in animation and digital content creation.
7. Provide exposure to real-world working environments through internships, OJT and field projects.
8. Develop professional ethics, teamwork, communication skills and social responsibility.
9. Introduce emerging technologies such as Augmented Reality (AR), Virtual Reality (VR) and Artificial Intelligence in animation.
10. Prepare students for employment, higher education and entrepreneurial ventures in the animation and media industry.

GENERAL OUTCOMES OF THE PROGRAMME:

After completing the B.Sc. program, graduates will:

1. Knowledge and Understanding: - Apply fundamental knowledge of science, technology and animation principles to solve real-world problems.
2. Problem Analysis: -Identify, analyze and solve complex problems in animation, multimedia and digital production.
3. Design and Development: -Design and develop creative content including animations, games, UI/UX interfaces and visual effects.
4. Modern Tool Usage: -Use industry-standard tools and software effectively for animation, modelling, rendering and post-production.
5. Creativity and Innovation: -Demonstrate creative thinking and innovation in storytelling, character design and digital media production.
6. Research and Lifelong Learning: -Engage in independent learning, research and adoption to new technologies in animation and media.
7. Communication Skills: -Communicate ideas effectively through visual, oral and written mediums.
8. Teamwork and Leadership: - Work effectively in teams and demonstrate leadership skills in project-based environments.
9. Ethics and Professionalism: -Apply ethical principles and professional practices in animation and media industries.
10. Environment and Society: - Understand the impact of digital media on society and contribute responsibly to community and cultural development.

PROGRAMME SPECIFIC OBJECTIVES:

1. Create high-quality 2D and 3D animations using industry-standard tools and production techniques.
2. Design and develop digital content for animation, gaming, VFX, UI/UX, multimedia and interactive applications.
3. Apply Artificial Intelligence, scripting and emerging digital technologies in animation and content creation.
4. Demonstrate proficiency in modelling, texturing, rigging, lighting, rendering, compositing and post-production workflows.
5. Develop visual storytelling skills through script writing, AI Prompt-Based Filmmaking and drone-assisted cinematography.
6. Apply programming, problem-solving and project management skills in multimedia and IT-enabled creative industries.
7. Work collaboratively in professional environments while demonstrating leadership, communication and ethical practices.
8. Adapt to emerging technologies through continuous learning, innovation, research, freelancing, entrepreneurship, and higher education opportunities.
9. Design and develop interactive 2D and 3D games by applying game design principles, level design, game mechanics, storytelling, and industry-standard game development tools.
10. Develop game applications using programming, game engines, Artificial Intelligence (AI), physics simulation, user interaction, testing, debugging and deployment techniques for multiple platforms.

PROGRAMME SPECIFIC OUTCOMES:

After completing the B.Sc. Animation Science program, students will:

1. Apply the principles of art, design and animation and computer science to develop creative digital content.
2. Design and produce professional-quality 2D/3D animations, visual effects, games and interactive multimedia applications using industry-standard software.
3. Utilize modern technologies such as Artificial Intelligence (AI), UI/UX, AR/VR, scripting and digital production workflows to solve real-world creative challenges.
4. Demonstrate technical proficiency in programming, modeling, texturing, rigging, rendering, compositing, script writing, AI Prompt-Based Film making and drone-based visual production.
5. Work effectively in multidisciplinary teams, communicate professionally and manage animation and multimedia projects following industry standards.
6. Develop professional ethics, entrepreneurial abilities and lifelong learning skills to succeed in animation, gaming, IT, media and digital content industries.
7. Conduct research, analyse emerging trends and apply critical thinking to develop innovative solutions in animation, visual effects, gaming and digital media.
8. Create immersive digital experiences by integrating animation with emerging technologies such as Virtual Production, Extended Reality (XR), Digital Twins and the Metaverse.
9. Evaluate, optimize and implement efficient production pipelines, quality assurance practices and industry-standard workflows for animation and multimedia projects.
10. Build professional portfolios, intellectual property (IP) and original digital content while demonstrating leadership, innovation and global employability in the creative industries.

1. TITLE: Animation Science

2. YEAR OF IMPLEMENTATION: From 2024-2025

3. DURATION: 01 Year

4. PATTERN: Semester

5. MEDIUM OF INSTRUCTION: English

6. STUDENT ELIGIBILITY: 12th Science OR MCVC

7. FACULTY ELIGIBILITY: M.Sc. Animation / Computer Science

8. PRACTICAL BATCH: 20 Students

9. STRUCTURE OF COURSE:

As per NEP-2020 (2.0)

Sem (Level)	Course I	Course II	Course III	OE	VSC/ SEC	AEC/VEC/IKS	OJT/F P/ CEP/C C/RP	Total Credits	Degree/Cum. Cr. MEME
Sem I (4.5)	DSC I (2) DSC II (2) DSC P I (2)	DSC I (2) DSC II (2) DSC P I (2)	DSC I (2) DSC II (2) DSC P I (2)	OE I (2)	-	IKS I (2) (Generic)	-	22	UG Certificate: 44
Sem II (4.5)	DSC III (2) DSC IV (2) DSC P II (2)	DSC III (2) DSC IV (2) DSC P II (2)	DSC III (2) DSC IV (2) DSC P II (2)	OE II (2)	-	VEC I (2) DEGG and IIC	-	22	
Credits	12	12	12	04	-	04	-	44	Exit option: 4 Cr. NSQF/Internship/Skill Courses

DSC: Discipline Specific Course; **OE:** Open Elective; **TH:** Theory, **PR:** Practical, **IKS:** Indian Knowledge System, **AEC:** Ability Enhancement Course, **VSC:** Vocational Skill Course, **DSE:** Discipline Specific Elective, **DEGG:** Democracy Election and Good Governance

10. COURSE TITLE

1) First Semester

➤ Semester I Level 4.5

Level	Course No.	Course Code	Course Title	Category	Credit
4.5	Course - I				
	DSC - I	BAST-111	Animation visual Art	TH	02
	DSC - II	BAST-112	Digital Graphics	TH	02
	DSC P- I	BASP-113	Practical based on BAST 111 and BAST 112 courses	PR	02
	Course - II				
	DSC - I	BAST- 114	Fundamentals of Computer	TH	02
	DSC - II	BAST- 115	Procedural Programming language	TH	02
	DSC P- I	BASP- 116	Fundamentals of Computer + Procedural Programming language (Practical Based on BAST 114 + BAST 115 courses)	PR	02
	Course - III				
	DSC - I	BAST-117	Anatomy	TH	02
	DSC - II	BAST-118	Color theory	TH	02
	DSC P- I	BASP-119	Anatomy + Color theory (Practical Based on BAST 117 + BAST 118 courses)	PR	02
	IKS				
	IKS - I	BAST IKS	Introduction to Indian knowledge system	TH	02

➤ Second Semester

➤ Semester II Level 4.5

Level	Course No.	Course Code	Course Title	Category	Credit
4.5	Course - I				
	DSC - III	BAST-121	Computer Graphics	TH	02
	DSC - IV	BAST-122	Sound Editing	TH	02
	DSC P- II	BASP-123	Computer Graphics + Sound Editing (Practical Based on BAST 121 + BAST 122 courses)	PR	02
	Course - II				
	DSC - III	BAST-124	Web Designing	TH	02
	DSC - IV	BAST-125	Object Oriented Programming C++	TH	02
	DSC P- II	BASP-126	Web Designing + Object Oriented Programming C++ (Practical Based on BAST 124 + BAST 125 courses)	PR	02
	Course - III				
	DSC - III	BAST-127	Digital Animation	TH	02
	DSC - IV	BAST-128	Video editing	TH	02
	DSC P- II	BASP-129	Digital Animation + Video editing (Practical Based on BAST 127 + BAST 128 courses)	PR	02
	VEC				
	VEC - I	BAST VEC	Democracy, Election and Indian Constitution	TH	02

9. EVALUATION STRUCTURE:

➤ Semester I, Level 4.5

Course	Course Category	Course Code	Internal Evaluation Best of 2 from CCE I,II&III Selected for final score			Internal Evaluation	ESE	Total Marks	Credits
			CCE I	CCE II	CCE III				
Subject 1	T	BAST 111	10	10	10	20	30	50	02
	T	BAST 112	10	10	10	20	30	50	02
	P	BASP 113	10	10	10	20	30	50	02
Subject 2	T	BAST 114	10	10	10	20	30	50	02
	T	BAST 115	10	10	10	20	30	50	02
	P	BASP 116	10	10	10	20	30	50	02
Subject 3	T	BAST 117	10	10	10	20	30	50	02
	T	BAST 118	10	10	10	20	30	50	02
	P	BASP 119	10	10	10	20	30	50	02
OE	P	BASPOE 1	10	10	10	20	30	50	02
IKS	T	BASTIKS 1	10	10	10	20	30	50	02
			Total					550	22

➤ Semester II, Level 4.5

Course	Course Category	Course Code	Internal Evaluation Best of 2 from CCE I,II&III Selected for final score			Internal Evaluation	ESE	Total Marks	Credits
			CCE I	CCE II	CCE III				
Subject 1	T	BAST 121	10	10	10	20	30	50	02
	T	BAST 122	10	10	10	20	30	50	02
	P	BASP 123	10	10	10	20	30	50	02
Subject 2	T	BAST 124	10	10	10	20	30	50	02
	T	BAST 125	10	10	10	20	30	50	02
	P	BASP 126	10	10	10	20	30	50	02
Subject 3	T	BAST 127	10	10	10	20	30	50	02
	T	BAST 128	10	10	10	20	30	50	02
	P	BASP 129	10	10	10	20	30	50	02
OE	P	BASTOE 2	10	10	10	20	30	50	02
VEC	T	BASTVEC1	10	10	10	20	30	50	02
			Total					550	22

INTERNAL EVALUATION STRUCTURE

- Internal evaluation of theory papers shall carry a weightage of 40%.
- Activity: For the internal evaluation of theory papers following activities will be adopted for CCE I & CCE II: class test/ open book test/ online course/ Industrial review/ Industrial visit/ e learning video creation/ assignment/seminar/ case study/ fieldwork/ project.
- CCE III shall consist of multiple-choice questions.
- Each CCE will carry 10 marks for 2-credit theory papers and 20 marks for 4-credit theory papers and the best two scores will be considered for final score.
- Internal evaluation of practical papers shall carry a weightage of 40%.
- For practical examinations, internal evaluation will be based on student performance, attendance, journal records and viva voce.

OE: Open Elective, **VEC:** Value Education Course, **IKS:** Indian Knowledge System
CCE: Continuous Comprehensive Evaluation, **ESE:** End Semester Examination, **T:** Theory,
P: Practical

10.OTHER FEATURES:

A) LIBRARY:

Reference books, Textbooks and journals are available in Institute and Departmental Library. (Separate reference lists are attached along with the respective course syllabus)

B) EQUIPMENT:

- High Configured Computers : 50
 - Light box (Animo Age) : 40
 - LCD projector : 02
 - Smart board/ Interactive Panel : 03
 - Pen Tablet : 01
 - Mic and Sound System : 04
1. Graphics Workstations – High-performance computers equipped with advanced GPUs for 2D/3D animation, rendering and simulation tasks.
 2. Render Farm Access – A network of computers dedicated to rendering complex animation scenes efficiently.
 3. Animation Software Suite – Includes tools like Autodesk Maya, Blender, Adobe After Effects, Houdini and Unity/Unreal Engine.
 4. High-Resolution Monitors & Color Calibration Tools – For precision in visual output during animation production and post-processing.
 5. HD - Garuda drone for video shooting and capturing.



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(A State Public University Est. u/s 3(6) of MPUA 2016)
Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC (I)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Animation Visual Art (BAST 111)

Course Objectives: Student should be able to...

1. study on history of animation visual art.
2. understand difference between conceptual and commercial art.
3. learn various visual art forms.
4. describe human anatomy and proportions.

Course Outcomes: Student will be able to...

1. use of visual art in animation and related fields.
2. apply perspective composition and proportionate tint and tones in respective subject.
3. create model sheets and pose to pose character drawings with precise anatomy.
4. develop sketches and background for animation.

Module	Title and Contents	Hrs.
Module-1:	Introduction to Animation 1.1 Introduction to animation, History of Animation, Fundamentals of visual art (line, shape, form, space, colour, etc.). 1.2 Understanding visual principles of composition (proportion, unity, harmony, etc.) Introduction to Drawing and sketching. 1.3 History of drawing and sketching Various categories of drawing and sketching. 1.4 History of pencil, types of a Pencil, Instruments used in Drawing.	08
Module-2:	Visual Art Forms 2.1 Drawing, Illustration, Conceptual Art, Abstract Art, Commercial Art. 2.2 Digital Art, Visual and creative development of an artist. 2.3 How to draw gestures, Basic Proportions, Heads, Rotation in Arcs, Key Lines. 2.4 Perspective and its types, Introduction of Calligraphy, types of calligraphy, History of logo and how to design a Logo.	08
Module-3:	Character Designing 3.1 Attributes and Proportion, Anatomy, Character model sheet, Pose and Gestures, 3.2 Mannequin, Volume Construction, Balance, Muscles, Light & shade, Shape and Action Hands & Legs, Foreshortening Facial expressions. 3.3 Introduction to pose to pose sketching (Action analysis).	07
Module-4:	Animation Background Layout 4.1 Focal Point, Composition, Rule of thirds, Golden Ratio, Perspective, Color and Lighting, Lighting and shadow, color harmony. 4.2 Introduction to Acting, Modeling, Sketching from Acting, sketching from live models. 4.3 Introduction to Rapid Sketching Techniques, Sketching from Memory, live action.	07

Reference Books:

1. R. Williams, The Animator Survival Kit, Faber & Faber, 2015.
2. S.F. Mike, Animation Background Layout, Imprint Unknown, 2002.
3. R. Box, Basic Drawing Techniques, Step-by-Step Leisure Arts, 2000.
4. H. Christopher, How to Draw Animation: Learn the Art of Animation from Character Design to Storyboards and Layouts, Watson-Guptill, 1997.
5. O. Thomas F. & Johnston, The Illusion of Life: Disney Animation, Hyperion, 1995.

Evaluation Pattern (40:60)**Total Marks: 50****Internal Continuous Evaluation (20 Marks):**

- CCE - I : 10 Marks
 - CCE - II: 10 Marks
 - CCE - III: 10 Marks
- (Best of 2 from CCE I, II & III Selected for final Score)

End Semester Examination (50 Marks):

- Question -1: Solve the following questions (5 questions of 2 Marks)
 - Question -2: Attempt any two out of three questions (3 questions of 10 marks)
 - Question -3: Attempt any four out of Six questions (6 questions of 05 marks)
- (50 Marks converted into 30 Marks)**



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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC (II)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Digital Graphics (BAST 112)

Course Objectives: Student should be able to...

1. recognized and classify types of graphics.
2. understand graphics making tools and toolbox.
3. identify difference between vector and raster graphics.
4. distinguish different between conceptual styles and commercial types of designs.

Course Outcomes: Student will be able to...

1. analyze different types of designing software and its interface.
2. apply principles of design in different project.
3. create a logo using a scientific color scheme.
4. execute printing issues and solutions.

Module	Title and Contents	Hrs.
Module-1:	Overview of Digital Graphics & CorelDraw basics 1.1 Types of graphics, Starting and quitting CorelDraw. 1.2 Changing the language, changing start-up settings. 1.3 Understanding vector graphics and bitmaps. 1.4 Starting and opening drawings, working with multiple drawings, Undoing, redoing, and repeating actions, Zooming, panning, and scrolling.	08
Module-2:	Lines, shapes, and outlines& Objects, symbols, and layers 2.1 Working with lines, outlines, and brushstrokes, Drawing . 2.2 Shaping objects, Working with objects, Working with layers, Working with . 2.3 Linking and embedding objects, Managing projects.	08
Module-3:	Color, fills, and transparencies & Text 3.1 Working with color, Filling objects, Changing the transparency of . 3.2 Managing and sharing fills and transparencies, Using color management, Adding and . 3.3 Formatting text Working with text in different languages, Managing fonts, Using writing tools.	07
Module-4:	Working with pages and layout tools, printing & File format 4.1 Specifying the page layout, Choosing a page background Adding, duplicating, 4.2 Inserting page numbers, Using the rulers, Printing basics, Preparing files for print service providers, 4.3 Importing and exporting files, Supported file formats.	07

Reference Books: -

1. DT Editorial Services, CorelDRAW 2018 in Simple Steps, Dream tech Press, 2018.
2. G.D. Bouton, CorelDRAW X5 Unleashed, Cengage Learning, 2011.
3. S. Bain, CorelDRAW Graphics Suite: The Official Guide to Graphic Design, Peachpit Press, 2008.

4. D. McClelland, CorelDRAW Graphics Suite: Digital Illustration and Design, Peachpit Press, 2007.
5. S. Mark, CorelDraw Training: Back to the Basics and Beyond, Lynda.com, Inc., 2004.

Evaluation Pattern (40:60)

Total Marks: 50

Internal Continuous Evaluation (20 Marks):

- CCE - I : 10 Marks
 - CCE - II: 10 Marks
 - CCE - III: 10 Marks
- (Best of 2 from CCE I, II & III Selected for final Score)

End Semester Examination (50 Marks):

- Question -1: Solve the following questions (5 questions of 2 Marks)
- Question -2: Attempt any two out of three questions (3 questions of 10 marks)
- Question -3: Attempt any four out of Six questions (6 questions of 05 marks)

(50 Marks converted into 30 Marks)



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Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC P(I)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: DSC P - I (BASP 113)

Animation visual Art + Digital Graphics (Practical's based on BAST 111 + BAST 112 courses)

Course Objectives: Student should be able to...

1. understand visual art and animation process.
2. classify human, animal anatomy with proportions.
3. study on pose-to-pose action with human and animal anatomy.
4. determine vector and raster graphics for specific production pipeline.

Course Outcomes: Student will be able to...

1. apply sketching types and techniques.
2. implement principles of design in various project.
3. create business card and professional certificate design with scientific color scheme.
4. analyze printing issues and solutions.

SR. No.	Title and Content (Any 15 out of 20 Practical's)	Hrs.
1.	Create visual composition drawing (Freehand sketching).	60
2.	Create Pencil Drawing and Shading Techniques.	
3.	Create Composition and Perspective Drawing.	
4.	Gesture Drawing and Action Sketching.	
5.	Human Figure and Head Construction.	
6.	Character Design and Model Sheet Development.	
7.	Facial expressions, hands and feet proportional construction.	
8.	Background Layout Design for Animation.	
9.	Sketching from Live Model.	
10.	Integrated Animation Pre-Production Artwork.	
11.	Create Logo & Brand Identity Design.	
12.	Create Printable Graphic Design.	
13.	Create Advertising & Promotional Design.	
14.	Create Digital Graphic Design.	
15.	Create Packaging Design.	
16.	Create Publication Design.	
17.	Create Vector Illustration & Creative Graphics.	
18.	Create Professional Print Production.	

19.	Create Invitation card design.	
20.	Create 3-fold brochure design.	
Reference Books: - 1. G.D. Bouton, CorelDRAW X8: The Official Guide, McGraw-Hill Education, 2016. 2. G.D. Bouton, CorelDRAW X7: The Official Guide, McGraw-Hill, 2014. 3. M. Swift, CorelDRAW Training: Back to the Basics and Beyond, Lynda.com, Inc., 2004. 4. R. Box, Basic Drawing Techniques, Step-by-Step Leisure, 2000. 5. Hale, R. Beverly & T. Coyle, Anatomy Lessons from the Great Masters, Watson-Guptill, 2000.		
Evaluation Pattern (40:60)		
Total Marks: 50		
Internal Evaluation (20 Marks): • Journal: 10 Marks • Students' Performance: 05 Marks • Viva: 05 Marks		Practical Exam Paper (30 Marks): • ESE = 30 Marks



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Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC(I)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Fundamentals of Computer (BAST 114)

Course Objectives: Student should be able to...

1. study on history and evaluation of computers and types of operating system.
2. understand system and its conversions with computer codes.
3. define computer literacy and principles skills with microcontrollers.
4. Categorized and classify services of internet and protocols

Course Outcomes: Student will be able to...

1. differentiate evaluation and types of computers.
2. evaluate classification of computer with combinational circuits.
3. describe different number systems and basics of programming.
4. analyze history of computer languages and world wide web browsers.

Module	Title and Contents	Hrs.
Module-1:	Introduction to Computer 1.1 Evaluation of computer and its generations, Classification of Computer Software's (System and Application). 1.2 Introduction to Microsoft Office. (Word, Excel, Power point, Access, PDF). 1.3 Input and output devices. 1.4 Secondary storage devices Memory and its types.	08
Module-2:	Number System 2.1 Number system and its conversions. 2.2 Boolean Algebra and its laws. 2.3 Computer Codes. 2.4 combinational circuits.	08
Module-3:	Computer Languages 3.1 Introduction to Microcontrollers. 3.2 Algorithms and flowchart. 3.3 Computer Languages (High, Middle and Low-level languages).	07
Module-4:	Internet and its applications 4.1 Introduction to internet, history and applications. 4.2 Basic services of internet (electronic mail, telnet, intranet, extranet). 4.3 protocols (ftp, smtp, tcp/ip, ppp etc.). 4.4 introduction to world wide web and browsers.	07

Reference Books: -

1. A. Elahi, Computer Systems: Digital Design, Fundamentals of Computer Architecture and Assembly Language, Springer,2018.
2. P. K. Sinha, Computer Fundamentals, BPB Publications,2007.
3. P. Sinha & P.K. Sinha, Computer Fundamentals: Concepts, Systems & Applications, BPB Publications, 2004.
4. J. Pieprzyk, T. Hardjono & J. Sunberry, Fundamentals of Computer Security, Springer,2003.
5. W. Stallings, Computer Organization and Architecture: Designing for Performance, Pearson,2000.

Evaluation Pattern (40:60)**Total Marks: 50****Internal Continuous Evaluation (20 Marks):**

- CCE - I : 10 Marks
 - CCE - II: 10 Marks
 - CCE - III: 10 Marks
- (Best of 2 from CCE I, II & III Selected for final Score)

End Semester Examination (50 Marks):

- Question -1: Solve the following questions (5 questions of 2 Marks)
- Question -2: Attempt any two out of three questions (3 questions of 10 marks)
- Question -3: Attempt any four out of Six questions (6 questions of 05 marks)

(50 Marks converted into 30 Marks)



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Faculty of Science & Technology

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Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC (II)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Procedural Programming Language (BAST 115)

Course Objectives: Student should be able to...

1. study the fundamental of C language.
2. learning various operators of C language.
3. understand output statements and data input apply.
4. describe looping statements of C language.

Course Outcomes: Student will be able to...

1. classify fundamental algorithm and flowchart apply algorithm and flowcharts.
2. Identify relation, logical and various operators.
3. inference various conditional statements for solve the problem.
4. create various looping statements for getting desired result.

Module	Title and Contents	Hrs.
Module-1:	Fundamental of C language 1.1 Introduction, syntax, applications. 1.2 Flow Charts. 1.3 What is 'C'? Constants, Variables, data types in 'C.' 1.4 Statements, Definition Symbolic Constantans.	08
Module-2:	C language Operators 2.1 Operators: Arithmetic Operator, Relation Operator, Logical Operators. 2.2 Assignment Operator, Conditional Operator, Comma. 2.3 Increment and Decrement Expression.	08
Module-3:	Input / Output Statements of C 3.1 Data Input - Output Statements. 3.2 Data Input and Output Using - getch(), putch(), getche(), getchar(), putchar(). 3.3 Formatted input – output – printf (), scanf().	07
Module-4:	Control & conditional Statements of C 4.1 Looping and Control Structures. 4.2 Conditional Statements- if, if-else, nested if. 4.3 Switch case statements, go to statements. 4.4 Looping- while, do-while, for, nested for .	07

Reference Books: -

1. Y. Kanetkar, Let Us C: Authentic Guide to C Programming Language, BPB Publications, 2022.
2. H. Schildt, C: The Complete Reference, McGraw-Hill Education, 2017.
3. R. Thareja, Computer Fundamentals & Programming in C, Oxford University Press, 2016.
4. Y. Kanetkar, Let Us C, BPB Publications, 2015.
5. E. Balagurusamy, ANSI C, EBG Foundation, Coimbatore, 2012.

Evaluation Pattern (40:60)**Total Marks: 50****Internal Continuous Evaluation (20 Marks):**

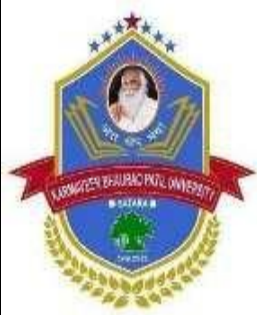
- CCE - I : 10 Marks
- CCE - II: 10 Marks
- CCE - III: 10 Marks

(Best of 2 from CCE I, II & III Selected for final Score)

End Semester Examination (50 Marks):

- Question -1: Solve the following questions (5 questions of 2 Marks)
- Question -2: Attempt any two out of three questions (3 questions of 10 marks)
- Question -3: Attempt any four out of Six questions (6 questions of 05 marks)

(50 Marks converted into 30 Marks)



Karmaveer Bhaurao Patil University, Satara

(A State Public University Est. u/s 3(6) of MPUA 2016)

Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC P(I)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: DSC P - I (BASP 116)
Fundamentals of Computer + Procedural Programming language (Practical Based on BAST 114 + BAST 115 courses)

Course Objectives: Student should be able to...

1. study operation of a computer processor.
2. understand data and information in computer systems.
3. describe standard word and spread sheets, graphics generation packages.
4. learn flow chart.

Course Outcomes: Student will be able to...

1. demonstrate the concept of input and output devices of computers.
2. generate operating system and problem-solving method.
3. create algorithms and flow chart problem-solving process
4. analyse programs and iterative control structures with functions.

Sr. No.	Title and Contents (Any 15 out of 20 Practical's)	Hrs.
1.	Identification and Classification of Computer Hardware and Software.	60
2.	Create and format a professional document in MS Word using headings, tables, images, page layout, headers/footers and PDF export.	
3.	Spreadsheet Data Management and Presentation.	
4.	Presentation and Digital Document Creation.	
5.	Number System Conversion.	
6.	Boolean Algebra and Logic Gate Verification	
7.	Design of a Combinational Logic Circuit.	
8.	Algorithm and Flowchart Development.	
9.	Introduction to Computer Languages and Microcontrollers.	
10.	Internet Services, Protocols and Web Browsers.	
11.	Algorithm and Flowchart Development.	
12.	C Program Using Constants, Variables and Data Types.	
13.	C Program Using Arithmetic and Assignment Operators.	
14.	Relational, Logical and Conditional Operators.	
15.	Increment, Decrement and Expression Evaluation.	
16.	Character Input and Output Using C Functions.	
17.	formatted Input and Output Using scanf() and printf().	

18.	Decision-Making Using if, if-else and Nested if.	
19.	Menu-Driven Program Using switch Statement.	
20.	Looping and Nested Loop Programs.	

Reference Books: -

1. Y. Kanetkar, Let Us C: Authentic Guide to C Programming Language, BPB Publications, 2022.
2. A. Elahi, Computer Systems: Digital Design, Fundamentals of Computer Architecture and Assembly Language, Springer, 2018.
3. H. Schildt, C: The Complete Reference, McGraw-Hill Education, 2017 .
4. B.W. Kernighan & D.M. Ritchie, C Programming Language, Prentice Hall, 1988.
5. J. Pieprzyk, T. Hardjono & J. Siberry, Fundamentals of Computer Security, Springer, 2003.

Evaluation Pattern (40:60)

Total Marks: 50

Internal Evaluation (20 Marks): • Journal : 10 Marks • Students' Performance: 05 Marks • Viva: 05 Marks	Practical Exam Paper (30 Marks): • ESE = 30 Marks
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Karmaveer Bhaurao Patil University, Satara

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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC(I)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Anatomy (BAST 117)

Course Objectives: Student should be able to...

1. understand the definition of anatomy and its importance in the study of the human body.
2. identify the various bones in the human body.
3. discuss the significance and applications of studying animal anatomy in animation fields.
4. discuss the significance of human and animal anatomy in animation fields.

Course Outcomes: Student will be able to...

1. Describe the basic anatomical structures and functions of the human, animal, and cartoon bodies, and explain the similarities and differences among these anatomies.
2. Analyze and compare the anatomical features and proportions of humans, animals, and cartoon characters.
3. Apply their knowledge of human and animal anatomy to illustrate accurate and dynamic anatomical features in both realistic and stylized cartoon forms.
4. Create detailed anatomical drawings and models of humans, animals, and cartoon characters.

Module	Title and Contents	Hrs.
Module-1	Introduction of Anatomy 1.1 Introduction of anatomy. 1.2 Definition of anatomy, levels of structural organization, anatomical terminology and directional terms Anatomy and drawing. 1.3 Proportion of anatomy, Methods of Drawing, Key, Skeleton, Bones. 1.4 The arm Bones, Arm Muscles and insertion, Head and neck.	08
Module-2	Human Skeletal System 2.1 Bones and their functions. 2.2 Types of bones, Bone structure, Joints and their classifications, Muscular System, Types of muscles Torso. 2.3 Muscle tissue structure and function. 2.4 Muscles and insertion, Muscle contraction and physiology, Spine. 2.5 Nervous System, Hand Method Bloking, Skull, Facial Expression.	07
Module-3	Animal Anatomy 3.1 Introduction to Animal Anatomy. 3.2 Definition and importance of studying animal anatomy. 3.3 similarities and differences between human and animal anatomy. 3.4 Basic anatomical terms and body planes in animals. 3.5 Overview of organ systems in animals, Skeletal System. 3.6 Structure and function of the skeletal system in animals. 3.7 Anatomy and physiology of animal muscles. 3.8 Anatomy and function of the nervous system in animals.	08

Module-4	Comics Anatomy and Cartoon Anatomy 4.1 Introduction of comics and cartoon anatomy. 4.2 Basic Shape Cartoon Construction, Anatomical Proportion. 4.3 The skeleton Foundation, Construction of head. 4.4 Types of Characters, Budling and action poses. 4.5 Difference between hero and villain Body proportion, Facial Expression.	07
Reference Books: - 1. R. Williams, The Animator's Survival Kit, Faber & Faber, 2001. 2. J. Sheppard, Anatomy: A Complete Guide for Artists, Watson-Guptill Publications, 1992. 3. A. Loomis, Figure Drawing for All It's Worth, Viking Press, 1943. 4. C. Hart, How to Draw Comic Book Heroes and Villains, Watson-Guptill Publications, 1995. 5. F. Thomas & O. Johnston, The Illusion of Life: Disney Animation, Hyperion, 1981.		
Evaluation Pattern (40:60)		
Total Marks: 50		
Internal Continuous Evaluation (20 Marks): • CCE - I : 10 Marks • CCE - II: 10 Marks • CCE - III: 10 Marks (Best of 2 from CCE I, II & III Selected for final Score)		End Semester Examination (50 Marks): • Question -1: Solve the following questions (5 questions of 2 Marks) • Question -2: Attempt any two out of three questions (3 questions of 10 marks) • Question -3: Attempt any four out of Six questions (6 questions of 05 marks) (50 Marks converted into 30 Marks)



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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC(II)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Color Theory (BAST 118)

Course Objectives: Student should be able to...

1. understand the fundamentals of color science, including the visible spectrum, colorimetry, and color–light interaction.
2. apply color theory to create harmonious compositions and mix primary, secondary and tertiary colors.
3. analyze the evolution of color theory and compare major theories of color vision.
4. create original color compositions and justify color choices using symbolism, psychology, and afterimage effects.

Course Outcomes: Student will be able to...

1. recall and describe the fundamental principles of color theory, including primary and secondary colors, the color wheel, and color harmony.
2. explain the causes of color perception, including the roles of light, object properties, and human vision as they relate to different theories of color, such as the retinex theory.
3. apply the concepts of color constancy in practical scenarios by analyzing how various lighting conditions impact color perception in digital images or artworks.
4. analyze different color vision theories and their implications for understanding human perception, comparing and contrasting the retinex theory with traditional models of color vision.

Module	Title and Contents	Hrs.
Module-1:	Introduction of color 1.1 Introduction of colour, Introduction of color science, History of Color, 1.2 Introduction of materials, History of Printing Media, 1.3 Range of visible spectrum, Color Terminology, Physics, Color imetry, and Psychophysics, 1.4 Computational Theories of Color Vision Introduction of materials	08
Module-2:	Color Vision 2.1 Making Colour Wheel,Making composition with colors Color Journal, 2.2 Comparative Color Vision and Evolution, Dispositions, Dispositional Theories of Color , 2.3 Color Eliminativism, Functionalist Primary Quality Theories of Color , 2.4 Spectrum Inversions ,Color Ontology, Color psychology.	07
Module-3:	Color Gradation and symbolism 3.1 Interactions of Gradation and contrast, Color Vision ,Color Gamma, 3.2 Interactions of Gradation and contrast, Warm and cool Colour, Mixing of primary, Secondary, Tertiary Colors, Tints, Tones and Shades, 3.3 Making Color Wheel ,Making composition with colors, Color Journal Warm and cool Colour, Color symbolism, 3.4 Mixing of primary, Secondary, Tertiary Colors, Tints, Tones	08

Module-4:	Color Harmony 4.1 Color Wheel, Painting of some Scenes, Color Journal, Color Harmony, Aesthetic response to Harmonious color. 4.2 Phenomenon of after images, After images and attributes of color. 4.3 Albert Munsell's theory of balanced color, Definition of balanced color, Creating Harmony in color, Effects of light, Color Constancy. 4.4 Simultaneous Contrast, Color symbolism, Attaching noses to colors. 4.5 Colors to express meaning, Symbolic meaning of colors.	07
Reference Books: - 1. E.H. Land, Recent Advances in Retinex Theory, Vision Research, 1980. 2. B.A. Wandell, Color Constancy and the Natural Image, MIT Press, Leo M. Chalupa & John S. Werner, 2004. 3. J.M. Parramón, Color Theory, Watson-Guption's Artist Library, 1989. 4. A. Byrne & D.R. Hilbert, Readings on Color: The Philosophy of Color, MIT Press, 1997. 5. C. L. Hardin, Color for Philosophers: Unweaving the Rainbow, Hackett Publishing Company, 1988.		
Evaluation Pattern (40:60)		
Total Marks: 50		
Internal Continuous Evaluation (20 Marks): • CCE - I : 10 Marks • CCE - II: 10 Marks • CCE - III: 10 Marks (Best of 2 from CCE I, II & III Selected for final Score)	End Semester Examination (50 Marks): • Question -1: Solve the following questions (5 questions of 2 Marks) • Question -2: Attempt any two out of three questions (3 questions of 10 marks) • Question -3: Attempt any four out of Six questions (6 questions of 05 marks) (50 Marks converted into 30 Marks)	



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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: I

Type: DSC P(I)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: DSC P- I (BASP 119)

Anatomy + Color theory (Practical Based on BAST 117 + BAST 118 courses)

Course Objectives: Student should be able to...

1. Understand human anatomy with proportion.
2. Classify and articulate scientific biological and industrial animation anatomy .
3. Analyze the development of color theory and major theories of color vision.
4. Design and modify original color compositions using symbolism, psychological effects and afterimages.

Course Outcomes: Student will be able to...

1. Describe the basic structures and functions of human, animal, and cartoon anatomy and their similarities and differences.
2. Analyze and compare the anatomy and proportions of humans, animals, and cartoon characters.
3. Apply human and animal anatomy knowledge to illustrate accurate and dynamic realistic and stylized cartoon forms.
4. Create different designs with Color Psychology and Symbolism Composition.

Sr. No.	Title and Contents (Any 15 out of 20 Practical's)	Hrs.
1.	Human proportion chart.	60
2.	Full skeleton front/back/side.	
3.	Arm and hand skeletal construction.	
4.	Torso and muscle map.	
5.	Skull and facial construction.	
6.	Gesture and pose sheet.	
7.	Human–animal comparative sheet.	
8.	Animal skeleton and muscle sheet.	
9.	Cartoon character construction sheet.	
10.	Create Hero vs. villain anatomy sheet.	
11.	Create Visible Spectrum and Color Terminology.	
12.	Create Scientific Color Wheel.	
13.	Create Primary, Secondary and Tertiary Color.	

14.	Warm and Cool Color Composition.	
15.	Color Gradation, Contrast and Gamma.	
16.	Color Vision and After-Image Experiment.	
17.	Simultaneous Contrast and Color Interaction.	
18.	Color Harmony and Munsell-Based Balanced Color.	
19.	Color Psychology and Symbolism Composition.	
20.	Animation Scene Color Script / Color Key Design.	

Reference Books:

1. P. Kanetkar, Let Us C: Authentic Guide to C Programming Language, BPB Publications, 2022.
2. A. Elahi, Computer Systems: Digital Design, Fundamentals of Computer Architecture and Assembly Language, Springer, 2018.
3. J.D. Foley, Andries van Dam, Steven K. Feiner & John F. Hughes, Computer Graphics: Principles and Practice, Addison-Wesley Professional, 2013.
4. A. Byrne & D.R. Hilbert, Readings on Color: The Philosophy of Color, MIT Press, 1997.
5. C. L. Hardin, Color for Philosophers: Unweaving the Rainbow, Hackett Publishing Company, 1988.

Evaluation Pattern (40:60)

Total Marks: 50

Internal Evaluation (20 Marks):

- Journal : 10 Marks
- Students' Performance: 05 Marks
- Viva: 05 Marks

Practical Exam Paper (30 Marks):

ESE = 30 Marks



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Faculty of Science & Technology

Yashvantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: II

Type: DSC(III)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Computer Graphics (BAST 121)

Course Objectives: Student should be able to...

1. learn graphics designing concepts.
2. understand scientific color theory and color mode.
3. classify image types and properties.
4. study printing principles composition process and techniques.

Course Outcomes: Student will be able to...

1. analyze the elements of photoshop.
2. create essential digital media designs.
3. generate print media design using cmyk mode.
4. implement skills for presentational visual designs.

Module	Title and Contents	Hrs.
Module-1:	Workspace basics & Toolbox 1.1 Workspace basics, Panels and menus, Tools, Positioning elements with snapping, Position with the Ruler tool, Rulers, Grid and guides, Pixel. 1.2 Pixel – Resolution – Image Resolution– Printing Resolution – Monitor Resolution, about drawing, drawing shapes, Painting tools, Brush presets, Creating and modifying brushes, Painting with a pattern, creating patterns. 1.3 drawing with the Pen tools, editing paths, Adding color to paths. Gradients Creating type, editing text, creating type effects. 1.4 Formatting Characters, Line and character spacing, Formatting paragraphs.	08
Module-2:	Image and color basics 2.1 Image essentials, Image size and resolution, Creating, opening, and importing images. 2.2 choosing colors in the Color and Swatches panels. 2.3 viewing multiple images, convert an image to Bitmap mode. 2.4 customizing indexed color tables, about color, choosing colors. 2.5 High dynamic range images, blending modes, Color modes. 2.6 converting between color modes, customizing color pickers and swatches, Understanding color management.	07

Module-3:	Layers & selecting 3.1 Layer basics, Managing layers, Selecting, grouping, and linking layers, Moving, stacking, and locking layers, Editing layer masks, Masking layers with vector masks. 3.2 Combining multiple images into a group portrait, Revealing layers with clipping masks, Aligning layers. 3.3 Create Smart Objects, Layer opacity and Blending modes , Layer effects and styles Making selections, Moving, copying, and deleting selected pixels, Making quick selections, Selecting with the lasso tools, Selecting with the marquee tools.	08
Module-4:	Filters / effects & saving, exporting, Printing 4.1 Filter basics, Oil Paint filter, Add Lighting Effects, applying specific filters. 4.2 Layer effects and styles, saving images. 4.3 File formats Supported file formats in Photoshop CC. 4.4 Saving files in graphics formats.	07

Reference Books: -

1. J. McCurry & H.K. Mills, Adobe Photoshop CC 2022 Beginner's Guide: A Complete Step-By-Step Manual to Great Photography, 2022.
2. S. John, Photoshop: The Ultimate Beginners' Guide to Mastering Adobe Photoshop, 2016.
3. L. Snider, Photoshop CC: The Missing Manual, O'Reilly Media, Inc., 2014.
4. L. DaNae Dayley & Brad Dayley, Photoshop CC Bible, Wiley, 2013.
5. G.P.Zorana, 3D in Photoshop CS6: The Ultimate Guide for Creative Professionals, Focal Press, 2010.

Evaluation Pattern (40:60)

Total Marks:50

Internal Continuous Evaluation (20 Marks): • CCE - I : 10 Marks • CCE - II: 10 Marks • CCE - III: 10 Marks (Best of 2 from CCE I, II & III Selected for final Score)	End Semester Examination (50 Marks): • Question -1: Solve the following questions (5 questions of 2 Marks) • Question -2: Attempt any two out of three questions (3 questions of 10 marks) • Question -3: Attempt any four out of Six questions (6 questions of 05 marks) (50 Marks converted into 30 Marks)
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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester - II

Type: DSC(IV)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Sound Editing (BAST 122)

Course Objectives: Student should be able to...

1. learn elements and equipment of sound editing.
1. study foley mixing techniques.
2. define set sound file and sound track pipeline.
3. understand digital audio editing techniques.

Course Outcomes: Student will be able to...

1. assemble equipment which are useful for sound recording and editing.
2. record basic sound and export into various sound formats.
3. create clear soundtrack using audition noise removal.
4. compose and compile various sound formats for professional projects.

Module	Title and Contents	Hrs
Module-1:	Audition Interface 1.1 Introduction to Sound and Sound Editing. 1.2 Characteristics of Sound: Frequency, Amplitude, Wavelength, Phase and Timbre. 1.3 Analog and Digital Audio. 1.4 Audio Signals, Sampling Rate, Bit Depth and Digital Audio Formats. 1.5 Mono, Stereo, Surround Sound and Multichannel Audio. 1.6 Decibels, Loudness, Dynamic Range and Signal-to-Noise Ratio. 1.7 Audio Recording Equipment: Microphone, Audio Interface, Mixer, Headphones and Speakers. 1.8 Introduction to Digital Audio Workstations (DAWs).	08
Module-2:	Effect and Processing 2.1 Principles of Professional Audio Recording. 2.2 Types and Applications of Microphones: Dynamic, Condenser and Lavalier. 2.3 Microphone Polar Patterns and Microphone Placement. 2.4 Audio Levels, Gain Staging and Preventing Clipping. 2.5 Basic Editing: Cut, Copy, Paste, Trim, Split, Fade and Crossfade. 2.6 Timeline-Based Audio Editing and Track Management. 2.7 Noise Reduction, Hum Removal, Click Removal and Audio Restoration. 2.8 Editing Dialogue, Voice-over and Narration. 2.9 Synchronization of Audio with Video.	07

Module-3:	Production 3.1 Introduction to Audio Processing and Effects. 3.2 Equalization (EQ): High-Pass, Low-Pass, Parametric and Graphic EQ. 3.3 Dynamics Processing: Compressor, Limiter, Expander and Gate. 3.4 Reverb, Delay, Echo, Chorus and Distortion. 3.5 Volume Automation, Panning and Stereo Imaging. 3.6 Audio Mixing: Dialogue, Music, Ambience and Sound Effects. 3.7 Sound Effects and Foley: Recording, Editing and Layering. 3.8 Background Music and Ambient Sound. 3.9 Principles of Professional Audio Mixing and Balancing.	08
Module-4:	Post Production 4.1 Role of Sound in Animation and Visual Storytelling. 4.2 Sound Design for 2D and 3D Animation. 4.3 Dialogue Editing, ADR and Voice Synchronization. 4.4 Foley and Sound Effects for Character and Object Movement. 4.5 Music Editing and Synchronization with Visuals. 4.6 Creating Soundscapes and Emotional Atmospheres. 4.7 Audio Post-Production Workflow for Film and Animation. 4.8 Audio Mastering, Loudness and Final Quality Control. 4.9 Audio Export: WAV, MP3, AAC and Other Delivery Formats. 4.10 Introduction to Professional Sound Editing Software and DAWs.	07
Reference Books: - 1. M. Jago, Adobe Audition CC Classroom in a Book, Adobe Creative Team, 2018. 2. M. Jago & Adobe Creative Team, Adobe Audition CC Classroom in a Book: 2nd Edition, Adobe Press, 2018. 3. D.M. Huber, Modern Recording Techniques, Routledge, 2017. 4. S. Langford, Digital Audio Editing: Correcting and Enhancing Audio in Pro Tools, Routledge, 2013. 5. M. Jago, Adobe Audition CC User Manual, Adobe Systems Incorporated, 2012.		
Evaluation Pattern (40:60)		
Total Marks: 50		
Internal Continuous Evaluation (20 Marks): • CCE - I : 10 Marks • CCE - II: 10 Marks • CCE - III: 10 Marks (Best of 2 from CCE I, II & III Selected for final Score)		End Semester Examination (50 Marks): • Question -1: Solve the following questions (5 questions of 2 Marks) • Question -2: Attempt any two out of three questions (3 questions of 10 marks) • Question -3: Attempt any four out of Six questions (6 questions of 05 marks) (50 Marks converted into 30 Marks)



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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: II

Type: DSC P(II)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: DSC P- II (BASP 123)
Computer Graphics + Sound Editing (Practical Based on BAST 121 + BAST 122 courses)

Course Objectives: Student should be able to...

1. study graphics software's and its characteristics.
2. understand image types and properties.
3. learn sound track and its frequencies.
4. describe sound composition techniques.

Course Outcomes: Student will be able to...

1. create backgrounds using scientific color scheme.
2. generate web templates and other essentials professional designs using photoshop.
3. develop mono and stereo soundtracks.
4. evaluate and compose sound tracks for different medias.

Sr. No.	Title and Contents (Any 15 out of 20 Practical's)	Hrs.
1.	Background Replacement and Professional Portrait Retouching.	60
2.	Damaged Photograph Restoration Using Healing and Retouching Tools.	
3.	Designing a 3D Icon Using Photoshop Shape, Layer Style and Lighting Effects.	
4.	Designing a Lettermark Logo Using Typography and Vector Shapes..	
5.	Creating a Cinematic Movie Poster with Portrait Effects.	
6.	Designing a Movie Poster Using Textured Backgrounds and Layer Effects.	
7.	Colorizing a Black-and-White Photograph Using Photoshop Colorization Techniques.	
8.	Professional Business Card Design Using Photoshop Layout and Typography Tools.	
9.	Designing a Tri-Fold Brochure Using Grids, Guides and Typography.	
10.	Designing a Professional Advertising Creative for Print and Digital Media	
11.	Record a short voice clip with sampling rate, bit depth, waveform, amplitude and frequency.	
12.	Record a 30–60 second voice-over using a microphone using noise-free recording techniques.	
13.	Edit a recorded audio clip using cut, trim, split, copy, paste, fade-in, fade-out and crossfade techniques.	
14.	Noise Reduction and Audio Restoration.	

15.	Equalization and Dynamic Processing.	
16.	Sound Effects and Foley Creation.	
17.	Audio Mixing.	
18.	Audio Synchronization with Animation/Video.	
19.	Sound Design for Animation.	
20.	Final Audio Post-Production.	

Reference Books: -

1. P. Shirley, M. Ashikhmin, Steve Marschner et al., Fundamentals of Computer Graphics, CRC Press, 2021.
2. B. Owsinski, The Mixing Engineer's Handbook, Bobby Owsinski Media Group, 2021.
3. T.A. Möller, E. Haines & N. Hoffman, Real-Time Rendering, CRC Press, 2018.
4. M. Pharr, W. Jakob & G. Humphreys, Physically Based Rendering: From Theory to Implementation, Morgan Kaufmann, 2016.
5. D. Sonnenschein, Sound Design: The Expressive Power of Music, Voice and Sound Effects in Cinema, Michael Wiese Productions, 2001.

Evaluation Pattern (40:60)

Total Marks: 50

Internal Evaluation (20 Marks):

- Journal: 10 Marks
- Students' Performance: 05 Marks
- Viva: 05 Marks

Practical Exam Paper (30 Marks):

ESE = 30 Marks



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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: II

Type: DSC (III)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Web Designing (BAST 124)

Course Objectives: Student should be able to...

1. study web works procedure.
2. understand effective web page designing process.
3. learn tool and strategies for websites designing
4. define html simple and impressive design techniques.

Course Outcomes: Student will be able to...

1. evaluate theories and conventions in web design.
2. create tagging text and content.
3. analyse background coding in modern websites with html and css.
4. generate entire website using html.

Module	Title and Contents	Hrs.
Module-1:	Introduction to Web 1 Introduction to Web, Internet, WWW and Web Applications. 2 Web Page, Website, Web Server, Web Browser and Domain Name. 3 Client–Server Architecture. 1.4 Basic Web Development Process.	08
Module-2:	Introduction to HTML 2.1 Introduction to HTML and HTML Document Structure. 2.2 HTML Elements, Tags, Attributes and Comments. 2.3 Headings, Paragraphs, Text Formatting, Lists and Hyperlinks. 2.4 Images, Audio, Video and Multimedia Elements, Tables and Forms in HTML.	07
Module-3:	CSS and Web Page Styling 3.1 Introduction to CSS and its importance in Web Designing. 3.2 Types of CSS: Inline, Internal and External, CSS Selectors, Properties and Values. 3.3 Colors, Backgrounds, Borders, Shadows, Fonts, Text Formatting and Web Typography. 3.4 Box Model: Margin, Border, Padding and Content, Positioning, Display and Overflow Properties.	08
Module-4:	JavaScript and Interactive Web Pages 4.1 Introduction to JavaScript and Client-Side Scripting. 4.2 JavaScript Syntax, Variables, Data Types and Operators, Conditional Statements and Loops. 4.3 Functions, Arrays and Objects, Events and Event Handling. 4.4 DOM Manipulation, Form Validation, JSON and Data Handling, Interactive Web Page Development.	07

Reference Books: -

1. P. Kumar, Web Design with HTML & CSS: HTML & CSS Complete Beginner's Guide, Notion Press, 2021.
2. W. Willard, HTML Beginner's Guide, Tata McGraw-Hill, 2003.
3. S. Holzner, HTML Black Book, Dream tech Press, 2000.
4. T.A. Powell, HTML and XHTML: The Complete Reference, Tata McGraw-Hill, 2000.
5. Prof. D.R. Dhainje, Server Database and Application Development, 2005.

Evaluation Pattern (40:60)**Total Marks: 50****Internal Continuous Evaluation (20 Marks):**

- CCE - I : 10 Marks
- CCE - II: 10 Marks
- CCE - III: 10 Marks: MCQ Test

(Best of 2 from CCE I, II & III Selected for final Score)

End Semester Examination (30 Marks):

- Question -1: Solve the following questions
(5 questions of 2 Marks)
- Question -2: Attempt any two out of three questions
(3 questions of 10 marks)
- Question -3: Attempt any four out of Six questions
(6 questions of 05 marks)

(50 Marks converted into 30 Marks)



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(A State Public University Est. u/s 3(6) of MPUA 2016)

Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: II

Type: DSC (IV)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Object Oriented Programming C++ (BAST 125)

Course Objectives: Student should be able to...

1. study fundamental C++ programming concepts.
2. describe classes and objects in C++.
3. learn constructors and destructors in C++.
4. understand files management and templates in C++.

Course Outcomes: Student will be able to...

1. modify and extend short programs that use standard conditional and control structures and functions.
2. demonstrate the use of arithmetic and relational operators including operator precedence and the use of parentheses.
3. create design, implement, debug and test programs using the fundamental elements of c++.
4. design the use of data abstraction & encapsulation.

Module	Title and Contents	Hrs.
Module-1:	Introduction to Language 1.1 Introduction to C++ and Features. 1.2 Object-Oriented Programming Concepts. 1.3 C++ Keywords. 1.4 Data Types and Variables, Constants and Type Qualifiers. 1.5 Input and Output Statements, Operators.	08
Module-2:	Loops and Statements 2.1 Decision-Making Statements. 2.2 Looping Statements. 2.3 Jump Statements. 2.4 Functions, Function Overloading. 2.5 Recursion, Storage Classes.	07
Module-3:	Access Control and Inheritance and Type of Inheritance 3.1 Classes and Objects. 3.2 Member Functions. 3.3 Constructors and Destructors. 3.4 Access Specifiers, Functions. 3.5 Inheritance, Types of Inheritance.	08
Module-4:	Polymorphism 4.1 Polymorphism. 4.2 Virtual Functions. 4.3 Encapsulation. 4.4 Data Abstraction. 4.5 Exception Handling , Templates.	07

Reference Books: -

1. E. Balagurusamy, Object-Oriented Programming with C++, McGraw Hill, 2020.
2. R. Mercer & MacMillan, Computing Fundamentals with C++: Object-Oriented Programming & Design, , 2019.
3. D. Etter & Jeanine Ingber, Problem Solving with C++, Pearson, 2016.
4. J. Rogers, Object Oriented Neural Networks in C++, Academic Press,2000.
5. S. Oualline, Practical C++ Programming,1995.

Evaluation Pattern (40:60)**Total Marks: 50****Internal Continuous Evaluation (20 Marks):**

- CCE - I : 10 Marks
 - CCE - II: 10 Marks
 - CCE - III: 10 Marks
- (Best of 2 from CCE I, II & III Selected for final Score)

End Semester Examination (50 Marks):

- Question -1: Solve the following questions (5 questions of 2 Marks)
- Question -2: Attempt any two out of three questions (3 questions of 10 marks)
- Question -3: Attempt any four out of Six questions (6 questions of 05 marks)

(50 Marks converted into 30 Marks)



Karmaveer Bhaurao Patil University, Satara

(A State Public University Est. u/s 3(6) of MPUA 2016)

Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: II

Type: DSC P(II)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: DSC P-II (BASP 126)

Web Designing + Object Oriented Programming C++ (Practical Based on BAST 124 + BAST 125 courses)

Course Objectives: Student should be able to...

1. study and design an effective web page.
2. describe tool and strategies for websites designing.
3. learn fundamental programming concepts and methodologies.
4. understand files management and templates in C++.

Course Outcomes: Student will be able to...

1. organize theories and conventions in web design.
2. create tagging text and content.
3. modify and extend short programs that use standard conditional and control structures and functions.
4. demonstrate the use of arithmetic and relational operators including operator precedence and the use of parentheses.

Sr. No.	Title and Contents (Any 15 out of 20 Practical's)	Hrs.
1.	Create HTML pages using basic HTML tags.	60
2.	Create a webpage with an ordered list and unordered list.	
3.	Design page using CSS.	
4.	Create a simple student registration form.	
5.	Create a webpage with a table showing student names, roll numbers, and marks.	
6.	Create a responsive image gallery where images are displayed.	
7.	Create a webpage and use CSS to change the background color, text color, font size, and alignment.	
8.	Create a product card layout.	
9.	Design a simple Login form and Registration form using HTML.	
10.	Create a simple college homepage	
11.	Write a C++ program to calculate Fibonacci Series.	
12.	Write a C++ program to calculate Prime number.	
13.	Write a C++ program to calculate Sum of Digits.	
14.	Write a C++ program to calculate Swap two numbers without using third variable.	
15.	Write a C++ program to calculate to Check Whether Number is Even or Odd.	

16.	Write a C++ program for OOPs Concepts.	
17.	Write a C++ program for Constructor.	
18.	Write a C++ program for Destructor.	
19.	Write a C++ program for Inheritance.	
20.	Write a C++ program for Encapsulation.	

Reference Books: -

1. P. Kumar, Web Design with HTML & CSS: HTML & CSS Complete Beginner's Guide, Notion Press, 2021.
2. R. Mercer & MacMillan, Computing Fundamentals with C++: Object-Oriented Programming & Design, 2019.
3. J. Duckett, HTML and CSS: Design and Build Websites, John Wiley & Sons, 2011.
4. Prof. D.R. Dhainje, Server Database and Application Development, 2005.
5. J. Rogers, Object Oriented Neural Networks in C++, Academic Press, Steve Oualline, Practical C++ Programming, 1995.

Evaluation Pattern (40:60)

Total Marks: 50

Internal Evaluation (20 Marks):

- Journal : 10 Marks
- Students' Performance: 05 Marks
- Viva: 05 Marks

Practical Exam Paper (30 Marks):

ESE = 30 Marks



Karmaveer Bhaurao Patil University, Satara

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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester - II

Type: DSC (III)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Digital Animation (BAST 127)

Course Objectives: Student should be able to...

1. Understand interface of multimedia applications and its types.
2. Classify and types of symbols and Instances.
3. learn tweens and articulated motions with inverse.
4. describe postproduction and outputs.

Course Outcomes: Student will be able to...

1. evaluate types and trick of 2d animation.
2. Analyzed and evaluate animation preproduction concept.
3. Define kinematics and constraint in animation production.
4. design 2d character action animation using production and post-production techniques.

Module	Title and Contents	Hrs
Module-1:	Interface and Fundamentals of Digital Animation 1.1 Types and applications of 2D digital animation, Digital animation production pipeline Getting to Know the Workspace, working with the Library Panel, Understanding the Timeline. 1.2 Organizing Layers in a Timeline, Using the Properties Inspector, Using the Tools Panel Undoing Steps in Flash. 1.3 Previewing Your Movie, Modifying the Content and Stage. 1.4 Saving Your Movie Publishing Your Movie, Finding Resources for Using Flash, Checking for Updates.	08
Module-2:	2D Animation Concepts 2.1 role and applications in digital animation. 2.2 Timeline, frames, keyframes and layers. 2.3 Frame-by-frame and pose-to-pose animation. 2.4 Tweening: Motion Tween, Classic Tween and Shape Tween. 2.5 Symbols, instances and reusable animation assets. 2.6 Timing, spacing, easing and motion paths , Changing the Pacing and Timing Animating, Swapping Tween Targets, Creating Nested Animation, Using the Motion Editor Easing.	07
Module-3:	Visual Animation, Kinematics and constraint 3.1, Articulated Motion with Inverse Kinematics, Constraining Joints, Inverse Kinematics with Shapes. 3.2 Simulating Physics with Inverse Kinematics About Interactive Movies. 3.3 Character rigging, bones and inverse kinematics, Masking, morphing and motion effects, Audio synchronization and basic lip-sync concepts.	08

	3.4 Creating Buttons Understanding ActionScript 3.0, Preparing the Timeline, adding a Stop Action, , Creating Destination, Keyframes, Creating a Home Button with Code Snippets, Code Snippets Options, Playing Animation at the Destination, Animated Buttons, Understanding TLF Text Adding Simple Text, Adding Multiple Columns.	
Module-4:	Digital Animation Production and Rendering 4.1 Animation production workflow and scene composition, Interactive and multimedia animation concepts Understanding the Project File, Using Sounds, Understanding Flash Video, Using Adobe Media Encoder 4.2 Encoding Options, Playback of External Video, Working with Video and Transparency, Using Cue Points, Loading External Content, Removing External Content, Controlling Movie Clips Creating Masks, 4.3 Understanding Publishing, Publishing for the Web, Understanding the Bandwidth Profiler, Adding Metadata, 4.4 Publishing a Desktop Application, Publishing for a Mobile Device, Keeping Organized with Projects	07
Reference Books: - 1. C. Georgenes, How to Cheat in Adobe Flash CS6: The Art of Design and Animation, Focal Press, 2012. 2. T. Perkins, Adobe Flash Professional CS6 Classroom in a Book, Adobe Press, 2012. 3. R. Shupe & Zevan Rosser, Learning ActionScript 3.0: A Beginner's Guide, O'Reilly Media, 2010. 4. K. Peters, ActionScript 3.0 Animation: Making Things Move!, O'Reilly Media, 2007. 5. C. Moock, Essential ActionScript 3.0, O'Reilly Media, 2007. 6. S. Bhangal, Foundation ActionScript Animation: Making Things Move!, Friends of ED 2006.		
Evaluation Pattern (40:60)		
Total Marks: 50		
Internal Continuous Evaluation (20 Marks): • CCE - I : 10 Marks • CCE - II: 10 Marks • CCE - III: 10 Marks (Best of 2 from CCE I, II & III Selected for final Score)		End Semester Examination (50 Marks): • Question -1: Solve the following questions (5 questions of 2 Marks) • Question -2: Attempt any two out of three questions (3 questions of 10 marks) • Question -3: Attempt any four out of Six questions (6 questions of 05 marks) (50 Marks converted into 30 Marks)



Karmaveer Bhaurao Patil University, Satara

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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: II

Type: DSC (IV)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: Video Editing (BAST 128)

Course Objectives: Student should be able to...

1. study of freeware editing software and recent tools with parameters.
2. understand the fundamental concepts of video editing
3. describe video techniques prevalent for industry.
4. learn post production process using effect rack.

Course Outcomes: Student will be able to...

1. create organize content and sequences for video editing.
2. generate advanced documentary.
3. developed e-contain video for e-learning or it industry.
4. analyze post for film making.

Module	Title and Contents	Hrs.
Module-1:	Fundamentals of Video Editing 1.1 Introduction to Video Editing and its applications. 1.2 Video editing workflow and stages of post-production. 1.3 Types of video editing: Linear and Non-linear Editing. 1.4 Video formats, resolutions, frame rates and aspect ratios. 1.5 Video codecs, containers and compression. 1.6 Basic principles of continuity, sequencing and storytelling. 1.7 Introduction to shots, scenes, transitions and cuts.	08
Module-2:	Interface and Basic Editing 2.1 Introduction to Adobe Premiere Pro and its applications. 2.2 Project creation, workspace and interface. 2.3 Media management and importing assets. 2.4 Sequence settings and timeline structure. 2.5 Source Monitor, Program Monitor and Timeline. 2.6 Basic editing operations: Insert, Overwrite, Trim and Ripple. 2.7 Selection, Track Selection, Razor and other editing tools. 2.8 Organizing clips using bins and labels.	07
Module-3:	Advanced Video Editing Techniques 3.1 Cutting techniques and continuity editing. 3.2 Transitions and transition principles. 3.3 Video effects and effect controls. 3.4 Motion, Position, Scale, Rotation and Opacity. 3.5 Keyframes and basic animation. 3.6 Speed and duration, slow motion and time remapping. 3.7 Color correction and basic color grading. 3.8 Titles, captions and graphic elements.	08

Module-4:	Compositing and Export 4.1 Introduction to audio editing in Premiere Pro. 4.2 Audio tracks, volume control and audio transitions. 4.3 Audio effects, noise reduction and basic mixing. 4.4 Multicam and synchronization concepts. 4.5 Green screen and basic chroma keying. 4.6 Adjustment layers and nested sequences. 4.7 Export settings, formats, codecs and media optimization. 4.8 Video publishing for broadcast, web and social media.	07
Reference Books: - 1. Paul Ekert, Adobe Premiere Pro CC: A Complete Course and Compendium of Features, Beezix Inc.,2019. 2. M. Jago, Adobe Premiere Pro CC Classroom in a Book, Adobe Press. 3. J. Ozer, Adobe Premiere Pro CC: A Tutorial Approach, Mercury Learning and Information,2019. 4. J.I. Greenberg & Robbie Carman, Adobe Premiere Pro Studio Techniques, Adobe Press, 2013. 5. R. Harrington & R. Carman, From Still to Motion: A Photographer's Guide to Creating Video with Your DSLR, Peach pit Press,2010. 6. K. Malkiewicz & M. D. Mullen, Cinematography, Simon & Schuster, 2009.		
Evaluation Pattern (40:60)		
Total Marks: 50		
Internal Continuous Evaluation (20 Marks): • CCE - I : 10 Marks • CCE - II: 10 Marks • CCE - III: 10 Marks (Best of 2 from CCE I, II & III Selected for final Score)	End Semester Examination (50 Marks): • Question -1: Solve the following questions (5 questions of 2 Marks) • Question -2: Attempt any two out of three questions (3 questions of 10 marks) • Question -3: Attempt any four out of Six questions (6 questions of 05 marks) (50 Marks converted into 30 Marks)	



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Faculty of Science & Technology

Yashwantrao Chavan Institute of Science, Satara

Board of Studies in Animation Sciences

Programme: B.Sc.

Semester: II

Type: DSC P (II)

Marks: 50

Credits: 2

From: A. Y. 2024-25

Name of the Course and code: DSC P- II (BASP 129)
Digital Animation + Video editing (Practical Based on BAST 127 + BAST 128 courses)

Course Objectives: Student should be able to...

1. study different animation techniques based on style, requirements, and advantages.
2. learn principles of 2d animation.
3. classify video types and its formats.
4. understand various style and concept of video editing.

Course Outcomes: Student will be able to...

1. evaluate traditional and digital 2d animation techniques.
2. create 2d animation classical and digital character animation.
3. developed e-contain video for e-learning or its industry.
4. demonstrate video effects & transitions in premiere pro.

Sr. No.	Title and Contents (Any 15 out of 20 Practical's)	Hrs.
1.	Animate bouncing ball using Multimedia application.	60
2.	Animating flag by using Multimedia application.	
3.	Grapping/Rigging character by Multimedia application.	
4.	Digital layout design by using Multimedia application.	
5.	Animating Human Walk cycle by using-by-using Multimedia application.	
6.	Animating Animal Walk cycle by using-by-using Multimedia application.	
7.	Animating Human Run cycle by using-by-using Multimedia application.	
8.	Animating Animal Run cycle by using-by-using Multimedia application.	
9.	Creating advance action animation by using Multimedia application.	
10.	Render scene with BG and character animation.	
11.	Create a new project and sequence with audio and videos.	
12.	Editing and Timeline Operations.	
13.	Editing and Shot Sequencing with effect controls.	
14.	Transitions and Video Effects with color corrections.	
15.	Text, Titles and Motion Graphics.	
16.	Speed Control and Time Remapping.	
17.	Color Correction and Color Grading.	

18.	Audio Editing and Mixing.	
19.	Green Screen and Basic Compositing.	
20.	Complete Short Video Production and Export.	
Reference Books: - 1. P. Ekert, Adobe Premiere Pro CC: A Complete Course and Compendium of Features, Beezix Inc.,2019. 2. M. Jago, Adobe Premiere Pro Classroom in a Book, Adobe Press, 2024. 3. J. Ozer, Adobe Premiere Pro CC: A Tutorial Approach, Mercury Learning and Information, 2019. 4. J.I. Greenberg & Robbie Carman, Adobe Premiere Pro Studio Techniques, Adobe Press, 2013. 5. R. Williams, The Animator's Survival Kit, Faber & Faber,2012.		
Evaluation Pattern (40:60)		
Total Marks: 50		
Internal Evaluation (20 Marks): • Journal : 10 Marks • Students' Performance: 05 Marks • Viva: 05 Marks		Practical Exam Paper (30 Marks): ESE = 30 Marks