Syllabus for T.Y.B.Sc.(Animation) to be implemented from

2017-18

1) **Title of the Course : B. Sc. (Animation)**

T.Y.B.Sc. Animation Syllabus
(To be implemented from Academic Year 2017-18)

2) Preamble:
B. Sc. (Animation) is a systematically designed three year course that prepares the student for a career in Animation Industry. The syllabus of Animation subject forms the required basics for pursuing higher studies in Animation. The Syllabus also develops requisite professional skills and problem solving abilities for pursuing a career in Animation Industry.

3) Introduction:
At **first year of under-graduation** basic foundation of important skills required for animation development is laid. A course in basics of animation, 2D animation, foundation art, 3D design, mass communication are laid down along with necessary introduction to programming languages and information technology. Simultaneously three practical courses are designed to supplement the theoretical training.

At **second year under-graduation**: The animation skills are further strengthened by the courses in 3D Production pre Production and Post Production, Animation techniques, multimedia systems and multimedia communication and Action script. A new course is introduced named Value Education containing values based education, mind mapping, skill development and personality development, pertaining the needs of the current social scenario which is a requirement for the rapid developing field of Animation and its side effects. Three practical courses alongside help in hands-on training.

third year under-graduation: Six theory papers in each semester and practical courses cover the entire spectrum of topics necessary to build knowledge base and requisite skill set. Third practical course also includes project work which gives students hands on experience in solving a real world problem.

Objectives:

- To familiarize the students with various approaches, methods and techniques of Animation Technology.
- To develop competencies and skills needed for becoming an effective Animator.
- Mastering traditional & digital tools to produce stills and moving images.
- Exploring different approaches in computer animation.
- To enable students to manage Animation Projects from its Conceptual Stage to the final product creation.
- To train students in applying laws of human motion and psychology in 2-D or 3-D characters.
- To develop expertise in life-drawing and related techniques.
- To apply Audio and Video Production Techniques to an Animation Project.
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4) Eligibility:

- Higher Secondary School Certificate (10+2) or its equivalent Examination with English with any three science subjects such as Physics, Chemistry, Biology, Mathematics, Geography, biology, etc. or

- Three Years Diploma Course of Board of Technical Education conducted by Government of Maharashtra or its equivalent. Or
- Higher Secondary School Certificate (10+2) Examination with English and any of the following vocational subjects in technical group of + 2 level (MCVC). e.g. Subjects are.
  - Electrical Maintenance
  - Mechanical Maintenance
  - General Civil Engineering .
  - Electronics Computer Science
  - Information Technology
  - Electronics Technology (J1/J2/J3)
- Qualifying Elementary / Intermediate School level drawing examination is desirable.

Admission Process : Admission is based on the basis of Entrance Examination conducted at College level. Respective college will announce the Entrance Examination. There will be a paper of 100 (Hundred) Marks containing 50 questions (Two Marks for each Question).

Entrance test is based on the topics related with awareness of information technology, skill of visualization, lateral / create thinking, , English, non verbal reasoning & verbal reasoning.

Merit list for admission is prepared by considering 50 % of total Marks obtained in Entrance Examination and 50 % of total Marks obtained in 12 th or equivalent Examination (Mentioned in eligibility criteria).

 Reservation and relaxation will be as per the rules of University of Pune and Government of Maharashtra.

Medium of Instruction :- The medium of instruction for the course shall be English. Duration :- The duration of B.Sc.(Animation) Degree Program shall be three years.

Standard of Passing :-
i)   In order to pass in the first year theory examination, the candidate has to obtain 40 marks out of 100 in each subject. (Minimum 32 marks out of 80 marks must be obtained in the University Examination.). There shall be continuous internal assessment of 20 Marks for each subject.
ii) ii) In order to pass in the second year and third year theory examination, the candidate has to obtain 20 marks out of 50 in each subject. (Minimum 16 marks out of 40 marks must be obtained in the University Theory Examination.) There shall be continuous internal assessment of 10 Marks for each subject.
iii) iii) In order to pass in practical examination, the candidate has to obtain 40 marks out of 100 in each subject. (Minimum 32 marks out of 80 marks must be obtained in the University Examination.) There shall be continuous internal assessment of 20 Marks for each subject.

Rules of A.T.K.T. :- Rules of A.T.K.T. of B.Sc. Degree will be applicable to this Degree Course Also.

Fees :- Fees of the course will be decided by competent authority of university.

Note: Admissions will be given as per the selection procedure / policies adopted by the respective college, in accordance with conditions laid down by the University of Pune.Reservation and relaxation will be as per the Government rules.

5 A) Examination Pattern:
First Year B. Sc. Animation

First Year :- Total 1200 Marks. (Annual Pattern) 800 Marks for 8 Theory Papers and 400 Marks for 4 Practical Courses. Examinations will be conducted as per the University Guidelines.

Pattern of Examination: Annual
Theory courses : AN-1101, AN-1102, AN-1103, AN-1104, AN-1105, AN-1106, AN-1107, AN-1108 : Annual Pattern
Practical courses : AN-1109, AN-1110, AN-1111, AN-1112: Annual Pattern

Paper/ Course No.	Title	Total Number of lectures/practical's per Term	Standard of passing		
			Internal marks out of **20**	External marks out of **80**	Total marks out of **100**
AN-1101	Introduction to Elements of Information Technology	Three lectures/Week (Total 80 lectures)	08	32	40 *
AN-1102	Introduction to Programming Languages	Three lectures/Week (Total 80 lectures)	08	32	40 *
AN-1103	Basics of Animation	Three lectures/Week (Total 80 lectures)	08	32	40 *
AN-1104	Foundation Art	Three lectures/Week (Total 80 lectures)	08	32	40 *

AN-1105	Computer Based 2D Animation	Three lectures/Week (Total 80 lectures)	08	32	40 *
AN-1106	Introduction to Graphics	Three lectures/Week (Total 80 lectures)	08	32	40 *
AN-1107	Elements of 3D Design	Three lectures/Week (Total 80 lectures)	08	32	40 *
AN-1108	Introduction to Mass Communication and Media Literacy	Three lectures/Week (Total 80 lectures)	08	32	40 *
AN-1109	Practical Paper I : Introduction to Programming languages	25 Practical slots of 4 lectures each	08	32	40 *
AN-1110	Practical Paper II : Foundation Art & Basics of Animation	25 Practical slots of 4 lectures each	08	32	40 *
AN-1111	Practical Paper III : Introduction to Graphics	25 Practical slots of 4 lectures each	08	32	40 *
AN-1112	Practical Paper IV : Elements of 3D Design	25 Practical slots of 4 lectures each	08	32	40 *

* Subject to compulsory passing in external examination and getting minimum 40 marks out of 100

Notes:
1. Total marks: Theory 100 marks
2. Internal marks for theory papers given on the basis of internal assessment tests and for practicals on continuous assessment of lab work.

Theory examination will be of three hours duration for each theory course. There shall be 5 questions each carrying equal marks. The pattern of question papers shall be:

Question 1	8 sub-questions, each of 2 marks; answerable in 2 -3 lines and based on entire syllabus
Question 2, 3 ,4 and 5	4 out of 5/6– short answer type questions; answerable in 8 – 10 lines ; mix of theory and problems

Internal examination: Internal assessment of the student by respective teacher will be based on written test, 10 marks each term. The written test shall comprise of objective type questions – Multiple Type Questions, True / False, Definitions, Answer in Two or three line question (Describe/Explain).There shall be 20 questions.

Practical: Continuous assessment of Lab work based on Lab book.

Practical Examination: Practical examination shall be conducted by the respective college at the end of the academic year. Practical examination will be of 3 hours duration for each practical course. Certified journal is compulsory to appear for practical examination. There shall be two expert and two examiners per batch for the practical examination.

Second Year B. Sc. Computer Science
Examination Pattern :-

Second and Third Year of B.Sc.(Animation):- (Semester Pattern) The Semester Pattern followed for B.Sc. Degree will be applicable.
The distribution of papers and marks shall be as follows:- 300 Marks (50 marks for each paper) for 6 Theory Papers per semester. 300 Marks for 3 Practical Courses per year.

*Note :-Second & Third Year Practical Examination for all the Six Practical Courses will be conducted at the end of the respective Academic Year. Each Practical Course will be evaluated for 50 marks. Total Marks for Practical examination is 300. i.e.

Examinations will be conducted as per the University Guidelines.

No	Title: Semester I	Title: Semester II
1	(AN-2101) Value Education	(AN-2201) Value Education (Skill Development, Personality Development, Mind Mapping)
2	(AN-2102) 3D Production (Using Software Maya)	(AN-2202) 3D Production (Using Software Mudbox)
3	(AN-2103) Graphics Art (Using Software Adobe Indesign)	(AN-2203) Introduction to Action Script (Using Software Adobe Flash)
4	(AN-2104) Multimedia Systems	(AN-2204) Multimedia Communication

5	(AN-2105) Animation Techniques – I	(AN-2205) Animation Techniques – II
6	(AN-2106) Production Process – I	(AN-2206) Production Process – II

Pattern of examination: Semester

Theory courses: (Sem I: AN-2101, AN-2102, AN-2103, AN-2104, AN-2105, AN-2106): Semester
(Sem II:AN-2201, AN-2202, AN-2203, AN-2204, AN-2205, AN-2206): Semester

Practical Courses: AN-2107, AN-2108, AN-2109: Annual

Paper/ Course No.	Title	Total Number of lectures/practicals Per Semester	Standard of passing		
			Internal marks out of 10 (theory) Out of 20 (practicals)	External marks out of 40 (theory) Out of 80 (practicals)	Total passing marks out of 50 (theory) and out of 100(practicals)
Theory Paper I (AN- 2101)	Value Education	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper II (AN- 2102)	3D Production (Using Software Maya)	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper III (AN- 2103)	Graphics Art (Using Software Adobe Indesign)	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper IV (AN- 2104)	Multimedia Systems	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper V (AN- 2105)	Animation Techniques – I	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper VI (AN- 2106)	Production Process – I	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper I (AN- 2201)	Value Education (Skill Development, Personality Development,	Four lectures/Week (Total 48 per Semester)	04	16	20 *

	Mind Mapping)				
Theory Paper II (AN- 2202)	3D Production (Using Software Mudbox)	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper III (AN- 2203)	Introduction to Action Script (Using Software Adobe Flash)	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper IV (AN- 2204)	Multimedia Communication	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper V (AN- 2205)	Animation Techniques – II	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Theory Paper VI (AN- 2206)	Production Process – II	Four lectures/Week (Total 48 per Semester)	04	16	20 *
Practical paper I (AN- 2207) (First & Second Sem)	3D Production I & II	Practicals of 4 lectures each 25 practicals/Yr.)	08	32	40 **
Practical paper II (AN- 2208) (First & Second Semester)	Graphics Arts, Introduction to Action Script	Practicals of 4 lectures each 25 practicals/ Yr.)	08	32	40 **
Practical paper III (AN- 2209) (First & Second Semester)	Animation Techniques I & II, Production Process I & II	Practicals of 4 lectures each 25 practicals/ Yr.)	08	32	40 **

* Subject to compulsory passing in external examination and getting minimum 20 marks out of 50

** Subject to compulsory passing in external examination and getting minimum 40 marks out of 100

Notes:
1. Total marks: Theory for each semester (50 $\times$ 6) = 300 marks
2. Total marks per year 600 (Theory) + 300 marks (practicals) = 900 marks
3. Internal marks for theory papers given on the basis of continuous internal assessment
4. Internal marks for practical papers given on the basis of continuous internal assessment based on Lab book

Theory examination will be of two hours duration for each theory course. There shall be 4 questions carrying equal marks. The pattern of question papers shall be:

Question 1	10 questions, each of 1 marks	10 marks
Question 2 3	Sub-questions carrying 5 marks (2 out of 3)	10 marks each
Question 4	Sub-questions carrying marks depending on their complexity with options	10 marks

Internal examination: Internal assessment of the student by respective teacher will be based on written test, 10 marks each Semester. The written test shall comprise of objective type questions – Multiple Type Questions, True / False, Definitions, Answer in Two or three line question (Describe/Explain) There shall be 20 questions.
Practicals: Continuous assessment of practical performance based on Lab book

Practical Examination: Practical examination shall be conducted at the respective college at the end of the academic year. Practical examination will be of 3 hours duration. Certified journal is compulsory to appear for practical examination. There shall be one expert and two examiners per batch for the practical examination. One of the examiners will be external.

Third Year B. Sc. Animation

Examination Pattern :-

Second and Third Year of B.Sc.(Animation):- (Semester Pattern) The Semester Pattern followed for B.Sc. Degree will be applicable.
The distribution of papers and marks shall be as follows:- 300 Marks (50 marks for each paper) for 6 Theory Papers per semester. 300 Marks for 3 Practical Courses per year.

*Note :-Second & Third Year Practical Examination for all the Six Practical Courses will be conducted at the end of the respective Academic Year. Each Practical Course will be evaluated for 50 marks. Total Marks for Practical examination is 300. i.e.

Examinations will be conducted as per the University Guidelines.

No	Title: Semester III	Title: Semester IV
1	(AN-3101) Script Writing	(AN-2201) IPR and Cyber Security
2	(AN-3102) Web technology	(AN-2202) User Interface (UI) Design
3	(AN-3103) game Design	(AN-2203) Game Production
4	(AN-3104) Digital Editing	(AN-2204) Motion Graphics
5	(AN-3105) VFX – I	(AN-2205) VFX- II
6	(AN-3106) Creative Thinking	(AN-2206) New Media

Pattern of examination: Semester

Theory courses:
(Sem III: AN-3101, AN-3102, AN-3103, AN-3104, AN-3105, AN-3106): Semester
(Sem IV: AN-3201, AN-3202, AN-3203, AN-3204, AN-3205, AN-3206): Semester
Practical Courses: AN-3107, AN-3108, AN-3109: Annual

Theory Papers					
Paper/Course No.	Title	Total Number of lectures Per Semester	Standard of passing		
			Internal marks out of 10 (theory) Out of 20 (practicals)	External marks out of 40 (theory) Out of 80 (practicals)	Total passing marks out of 50 (theory) and out of 100 (practicals)
SEM III					
AN-3101	Script Writing	48	4	16	20*
AN-3102	Web technology	48	4	16	20*
AN-3103	game Design	48	4	16	20*
AN-3104	Digital Editing	48	4	16	20*
AN-3105	VFX – I	48	4	16	20*
AN-3106	Creative Thinking	48	4	16	20*
SEM IV					
AN-3201	IPR and Cyber Security	48	4	16	20*
AN-3202	User Interface (UI) Design	48	4	16	20*
AN-3203	Game Production	48	4	16	20*
AN-3204	Motion Graphics	48	4	16	20*
AN-3205	VFX – II	48	4	16	20*
AN-3206	New Media	48	4	16	20*
Practical Papers					
AN-3207 (Semester III & IV)	Practicals Based on AN-3102, AN-3202, AN-3103, AN3203– Sem III & Sem IV	25 practicals/ year	08	32	40 **

AN-3207 (Semester III & IV)	Practicals Based on AN-3104, AN-3204, AN-3105, AN3205– Sem III & Sem IV	25 practicals/ year	08	32	40 **
AN-3207 (Semester III & IV)	Animation Showreeal and Animation Project	25 practicals/ year	08#	32##	40 **

* Subject to compulsory passing in external examination and getting minimum 20 marks out of 50

** Subject to compulsory passing in external examination and getting minimum 40 marks out of 100

Internal Evaluation based on case study of any animated movie

Evaluation based on Animation Showreel for 40 marks (10 marks Internal Evaluation, 30 marks external evaluation) and Animation project 40 marks (10 marks Internal Evaluation, 30 marks external evaluation).

Notes: Total marks: Theory for each semester (50 $\times$ 6) = 300 marks

1. Total marks per year 600 (Theory) + 300 marks (practicals) = 900 marks
2. Internal marks for theory papers given on the basis of continuous internal assessment
3. Internal marks for practical papers given on the basis of continuous internal assessment based on Labbook

Theory examination will be of two hours duration for each theory course. There shall be 4 questions carrying equal marks. The pattern of question papers shall be:

Question 1	10 questions, each of 1 marks	10 marks
Question 2 and 3	Sub-questions carrying 5 marks (2 out of 3)	10 marks each
Question 4	Sub-questions carrying marks depending on their complexity with options	10 marks

Internal examination: Internal assessment of the student by respective teacher will be based on written test, 10 marks each Semester. The written test shall comprise of objective type questions – Multiple Type Questions, True / False, Definitions, Answer in Two or three line question (Describe/Explain) There shall be 20 questions.

Practicals: one internal assessment test + practical journals + attendance + activity.

Practical Examination: Practical examination shall be conducted at the respective college at the end of the academic year. Practical examination will be of 3 hours duration. Certified journal is compulsory to appear for practical examination. There shall be one expert and two examiners per batch for the practical examination. One of the examiners will be external.

5 B) Standard of Passing:
   i. In order to pass in the first year theory examination, the candidate has to obtain 40 marks out of 100 in each course. (Minimum 32 marks out of 80 must be obtained in the University Theory Examination.)
   ii. In order to pass in the Second Year and Third Year theory examination, the candidate has to obtain 20 marks out of 50 in each course of each semester. (Minimum 16 marks out of 40 must be obtained in the University Theory Examination.)
   iii. In order to pass in practical examination, the candidate has to obtain 40 marks out of 100 in each course. (Minimum 32 marks out of 80 must be obtained in the University Examination.)

5 C) ATKT Rules:
While going from F.Y.B.Sc. to S.Y.B.Sc. at least 8 courses (out of total 12) should be passed; however all F.Y.B.Sc. courses should be passed while going to T.Y.B.Sc.
While going from S.Y.B.Sc. toT.Y.B.Sc., at least 12 courses (out of 21) should be passed (Practical Course at S.Y.B.Sc. will be equivalent to 2 courses).

5 D)Award of Class:
The class will be awarded to the student on the aggregate marks obtained during the second and third year in the principal subject only. The award of the class shall be as follows:

1	Aggregate 70% and above	First Class with Distinction
2	Aggregate 60% and more but less than 70%	First Class
3	Aggregate 55% and more but less than 60%	Higher Second Class
4	Aggregate 50% and more but less than 55%	Second Class
5	Aggregate 40% and more but less than 50%	Pass Class
6	Below 40%	Fail

5 E) External Students: There shall be no external students.

5 F) Setting question papers:
F.Y.B.Sc.: For theory papers I and II annual question papers shall be set by the University of Pune and assessment done at the respective colleges. Questions should be designed to test the conceptual knowledge and understanding of the basic concepts of the subject. For Practical Papers, the Question paper slips will be provided by the University of Pune and assessment done at the respective colleges.

S.Y.B.Sc. and T.Y.B.Sc.: For theory papers I and II for each semester and also for the annual practical examination question papers set by the University of Pune. Centralized assessment for theory papers done as per the University instructions. Questions should be designed to test the conceptual knowledge and understanding of the basic concepts of the subject. For Practical Papers: Papers shall be set by the University of Pune and assessment done by the internal examiner and external examiner appointed by University of Pune.

5G) Verification and Revaluation Rules:

As per university Statues and rules for verification and revaluation of marks in stipulated time after declaration of the semester examination result.

6) Course Structure:

Duration: The duration of B.Sc. Computer Science Degree Program shall be three years.

a) **All are Compulsory Papers:**

F.Y.B.Sc. : 6 Theory + 3 Practical (Annual)

S .Y.B.Sc.: 6 Theory per semester + 3 Practical (Annual)

T.Y.B.Sc.: 6 Theory per semester + 3 Practical (Annual)

b) **Question Papers   :**

F.Y.B.Sc.Theory paper:

University Examination   – 80 marks (at the end of 2nd term)

Internal Examination   – 20 marks

S.Y / T.Y. - B.Sc.Theory paper:

University Examination   – 40 marks (at the end of each term)

Internal Examination   – 10 marks

F.Y. / S.Y / T.Y. - B.Sc.Practical Paper:

University Examination   – 80 marks (at the end of 2nd term)

Internal Examination – 20 marks

c) **Medium of Instruction:** The medium of instruction for the course shall be **English.**

7) Equivalence of Previous Syllabus:

	F.Y. B.Sc. Animation 2012 Pattern		**F.Y. B.Sc. Animation 2015 Pattern**
I (Theory)	Elements of Information Technology	AN-1101	Introduction to Elements of Information Technology
II(Theory)	Introduction to Programming Languages.	AN-1102	Introduction to Programming Languages
III(Theory)	Basics of Animation.	AN-1103	Basics of Animation
IV(Theory)	Foundation Art	AN-1104	Foundation Art
V(Theory)	Computer Based 2D Animation.	AN-1105	Computer Based 2D Animation
VI(Theory)	Multimedia & Computer Graphics.	AN-1106	Introduction to Graphics
VII(Theory)	Introduction to 3D Animation & Modeling- I	AN-1107	Elements of 3D Design
VIII(Theory)	Introduction to Mass Communication & Media Literacy.	AN-1108	Introduction to Mass Communication and Media Literacy
P I	Practical Course Paper-I based on Theory Paper-I & II.	AN-1109	Introduction to Programming languages
P II	Practical Course Paper-II based	AN-1110	Foundation Art & Basics of

	on Theory Paper-III & IV		Animation
P III	Practical Course Paper-III based o Theory Paper-V	AN-1111	Introduction to Graphics
P IV	Practical Course Paper-IV based on Theory Paper VI &VII	AN-1112	Elements of 3D Design

	S.Y. B.Sc. Animation 2012 Pattern		**S.Y. B.Sc. Animation 2015 Pattern**
	Semester I		**Semester I**
I (Theory)	Technical English-I.	AN-2101	Value Education
II(Theory)	3-D Animation-I.	AN-2102	3D Production (Using Software Maya)
III(Theory)	Production Process-I.	AN-2103	Graphics Art (Using Software Adobe Indesign)
IV(Theory)	Multimedia-I	AN-2104	Multimedia Systems
V(Theory)	Composing and Editing.	AN-2105	Animation Techniques – I
VI(Theory)	Color Theory	AN-2106	Production Process – I
P I	Practical Course Paper-I based on Theory Paper-II.	AN-2207	3D Production I & II
P II	Practical Course Paper-II based on Theory Paper-III & IV.	AN-2208	Graphics Art Introduction to Action Script
P III	Practical Course Paper-III based o Theory Paper-V & VI.	AN-2209	Animation Techniques I & II Production Process I & II
	Semester II	**Semester II**	
I (Theory)	Technical English-II.	AN-2201	Value Education (Skill Development, Personality Development, Mind Mapping)
II(Theory)	3-D Animation-II.	AN-2202	3D Production (Using Software Mudbox)
III(Theory)	Production Process-II.	AN-2203	Introduction to Action Script (Using Software Adobe Flash)
IV(Theory)	Multimedia-II.	AN-2204	Multimedia Communication
V(Theory)	Layout and Perspective.	AN-2205	Animation Techniques – II
VI(Theory)	Sketching and Landscaping.	AN-2206	Production Process – II
P I	Practical Course Paper-I based on Theory Paper-II.	AN-2207	3D Production I & II
P II	Practical Course Paper-II based on Theory Paper-III & IV.	AN-2208	Graphics Art Introduction to Action Script
P III	Practical Course Paper-III based o Theory Paper-V & VI.	AN-2209	Animation Techniques I & II Production Process I & II

	T.Y. B.Sc. Animation 2012 Pattern		**T.Y. B.Sc. Animation 2015 Pattern**
	Semester III		**Semester III**
I (Theory)	Script Writing-I.	AN-3101	Script Writing
II(Theory)	Content Development Direction-I	AN-3102	Web Technology
III(Theory)	Gaming Technology	AN-3103	Game Design
IV(Theory)	Digital Editing and Motion Graphics-I.	AN-3104	Digital Editing
V(Theory)	Visual Effects-I.	AN-3105	VFX – I
VI(Theory)	V.F.X.-I.	AN-3106	Creative Thinking
P I	Practical Course Paper-I based on Theory Paper-II.	AN-3207	Web Design User Interface (UI) design
P II	Practical Course Paper-II based on Theory Paper-III & IV.	AN-3208	Motion Graphics VFX II
P III	Practical Course Paper-III based o Theory Paper-V & VI.	AN-3209	100 marks project including- Showreel Protfolio or Game Design
	Semester IV		
I (Theory)	Script Writing-II.	AN-3201	IPR and Cyber Security
II(Theory)	Content Development Direction-II.	AN-3202	User Interface (UI) Design
III(Theory)	Gaming Production	AN-3203	Game Production
IV(Theory)	Digital Editing and Motion Graphics-II.	AN-3204	Motion Graphics
V(Theory)	Visual Effects-II.	AN-3205	VFX – II
VI(Theory)	V.F.X.-II.	AN-3206	New Media
P I	Practical Course Paper-I based on Theory Paper-II	AN-3207	Web Design and User Interface (UI) design Game Design and Game Production
P II	Practical Course Paper-II based on Theory Paper-III & IV.	AN-3208	Digital Editing and Motion Graphics VFX I & II
P III	Practical Course Paper-III based o Theory Paper-V & VI.	AN-3209	100 marks project including- Showreel Protfolio or Game Design

8) University Terms: Dates for commencement and conclusion for the first and second terms will be declared by the University authorities. Terms can be kept by only duly admitted students. The

term shall be granted only on minimum 75 percent attendance at theory and practical course and satisfactory performance during the term.

9) Qualification of Teachers:
Teachers to be appointed for B.Sc. (Animation) Course should have following Educational qualifications.
1) M.Sc. (Computer/electronics/Mathematics/Statistics /Physics) along with Minimum 2 years diploma in Animation or any equivalent degree in Animation.
2) M.C.A.. (Science/Engineering) along with Minimum 2 years diploma in Animation or any equivalent degree in Animation.
Along with above mentioned qualifications , Qualifying in NET /SET examination is essential as per UGC & university rule.

10) Detailed Syllabus with Recommended Books:

Savitribai Phule Pune University, Pune - 7
(Formerly University of Pune)
Course Name : B.Sc. Animation
Class : F.Y., S.Y., T.Y.
Framework of the Revised Syllabus
to be implemented from Academic year 2015-2016

F.Y. B.Sc. Animation	
Theory Papers	
Paper ID	**Paper Name**
AN-1101	Introduction to Elements of Information Technology
AN-1102	Introduction to Programming Languages
AN-1103	Basics of Animation
AN-1104	Foundation Art
AN-1105	Computer Based 2D Animation
AN-1106	Introduction to Graphics
AN-1107	Elements of 3D Design
AN-1108	Introduction to Mass Communication and Media Literacy
Practical Papers	
AN-1109	Introduction to Programming languages
AN-1110	Foundation Art & Basics of Animation
AN-1111	Introduction to Graphics
AN-1112	Elements of 3D Design
S.Y. B.Sc. Animation	
Theory Papers	
Semester I	
Paper ID	**Paper Name**
AN-2101	Value Education
AN-2102	3D Production (Using Software Maya)
AN-2103	Graphics Art (Using Software Adobe Indesign)
AN-2104	Multimedia Systems
AN-2105	Animation Techniques – I
AN-2106	Production Process – I
Semester II	
Paper ID	**Paper Name**
AN-2201	Value Education (Skill Development, Personality Development, Mind Mapping)
AN-2202	3D Production (Using Software Mudbox)

Paper ID	Paper Name
AN-2203	Introduction to Action Script (Using Software Adobe Flash)
AN-2204	Multimedia Communication
AN-2205	Animation Techniques – II
AN-2206	Production Process – II

Practical Papers

Paper ID	Paper Name
AN-2207	3D Production I & II
AN-2208	- Graphics Art - Introduction to Action Script
AN-2209	- Animation Techniques I & II - Production Process I & II

T.Y. B.Sc. Animation

Theory Papers

Semester I

Paper ID	Paper Name
AN-3101	Script Writing
AN-3102	Web Technology
AN-3103	Game Design
AN-3104	Digital Editing
AN-3105	VFX – I
AN-3106	Creative Thinking

Semester II

Paper ID	Paper Name
AN-3201	IPR and Cyber Security
AN-3202	User Interface (UI) Design
AN-3203	Game Production
AN-3204	Motion Graphics
AN-3205	VFX – II
AN-3206	New Media

Practical Papers

Paper ID	Paper Name
AN-3207	- Web Design and UI Design - Game Design and Game Production
AN-3208	- Digital Editing and Motion Graphics - VFX I & II
AN-3209	100 marks project including- - Animation Show reel - Animation Project

Savitribai Phule Pune University
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Proposed Draft of T.Y.B.Sc (Animation) Syllabus
To be implemented from Academic Year - 2017-18
Semester III
Subject : - Script Writing Code : AN-3101

Aims and objectives

Aims:
To introduce students to the skills and knowledge in a range of writing and editing techniques required of the professional writer of short scripts for screen and live performance and to critically engage with concepts and processes of script writing.

Learning Objectives:
After completing this unit of study, students will be expected to understand the processes involved in writing short scripts, and:
1. Demonstrate understanding of techniques, principles, genres and elements of script writing for screen and live performance
2. Research concepts and process of script writing
3. Develop story, characters and dialogue for scripts
3. Review, revise and edit scripts
4. Communicate ideas clearly in scripts.

UNIT I: How to Write a Screenplay: A Primer   (8)

1. How stories work
2. Situation, conflict, and resolution—the flow of the story
3. The lowdown on high concept
4. Story-layering, plot, and genre
5. Ten keys to creating captivating characters
6. Theme
7. Dialogue, subtext, and exposition
8. How to make a scene
9. Suspense, comedy, and television

UNIT II: 7 Steps to a Stunning Script: A Workbook   (8)

1. About this workbook

2. Summon your muse
3. Dream up your movie idea
4. Develop your core story
5. Create your movie people
6. "Step-out" your story
7. Write your first draft
8. Make the necessary revisions

UNIT III: Proper Formatting Technique: A Style Guide (10)

1. How to use this guide to craft a compelling and professional screenplay
2. Sample script (with cross-reference codes)
3. Formatting in a nutshell
4. Overall screenplay appearance
5. Scene headings (slug lines)
6. Narrative description
7. Dialogue
8. How to format TV scripts
9. Glossary of terms not discussed elsewhere

UNIT IV: Writing and Revising Your Breakthrough Script: A Script Consultant's View (3)

1. The spec script—your key to breaking in
2. Key principles and exercises in revising scenes
3. When to break formatting rules
4. The first 10 pages

UNIT V: How to Sell Your Script: A Marketing Plan (11)

1. Five steps to selling your work
2. Protect your work
3. Prepare your script for market
4. Assemble your selling tools
5. Create your strategic marketing plan
6. Implement your plan
7. How to find an agent
8. Crafting the query
9. How to pitch without striking out
10. Synopses, one-sheets, treatments, and outlines
11. How to sell your script without an agent
12. Television markets

13. Jump-start your career now!
14. How to break into Hollywood when you live in Peoria
15. A personal challenge

UNIT-VI Case Study (8)

1. Make a case study on any animated movie.
2. Make a case study on own story(Use Standard References).

References:

- **https://www.keepwriting.com**
- **The Screenwriter's Bible**: A complete guide to Writing, Formattting, and Selling Your Script **Author**:David Trottier. **ISBN**:9781935247029

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To be implemented from Academic Year - 2017-18
Semester III
Subject : - Web Technology Code : AN-3102

Objectives:

To understand web technologies and the issues involved in web designing.

By the end of the course the student will be familiarized with the design of the web page and create an interactive and dynamic web page.

Unit – I: Introduction [4]

    1.1   Concept of WWW

    1.2   Internet and WWW

    1.3   HTTP Protocol: Request and Response

    1.4   Web browser and Web servers

    1.5   Features of Web

Unit – II: HTML5 [12]

    1.1   Structuring an HTML Document - Elements and Attributes, Tags, The DOCTYPE Element

    1.2   Creating and Saving an HTML Document, Validating an HTML Document, Viewing an HTML Document, Hosting Web Pages.

    1.3   Understanding Elements

    1.4   Working with Text

    1.5   Defining the DIV Element and SPAN Element

    1.6   Working with Links The target Attribute, The id Attribute

    1.7   Creating Tables

    1.8   Working with Images, Colors, and Canvas

    1.9   Working with Forms

    1.10 Working with Multimedia

Unit – III: CSS [10]

    1.1   Evolution, Syntax

    1.2   CSS Selectors, Inserting CSS in an HTML Document

    1.3   Backgrounds and Color Gradients in CSS

1.4 Font Properties

1.5 Creating Boxes and Columns Using CSS

1.6 Displaying, Positioning, and Floating an Element

1.7 Effects, Frames, and Controls in CSS

Unit – IV: JavaScript [8]

1.1 Features, Using JavaScript in an HTML Document, Fundamentals of JavaScript

1.2 JavaScript Functions, Events, Image Maps, and Animations

1.3 JavaScript Objects - The Standard/Built-in JavaScript Objects

1.4 Working with Browser Objects – Window Object, History Object, Location Object

1.5 Describing the Document Object

1.6 Understanding DOM Nodes, DOM Levels, DOM Interfaces

Unit – V: Deamweaver [6]

1.1 Introduction

1.2 Adobe Dreamweaver CS3

1.3 Text Styles

1.4 Images and Links

1.5 Symbols and Lines

1.6 Tables

1.7 Forms

Unit – VI: Server Side Technology [8]

1.1 HTTP Transactions

1.2 Multitier Application Architecture

1.3 Client-Side Scripting versus Server-Side Scripting

1.4 Accessing Web Servers

1.5 PHP – Introduction, Basics

Reference Books:

1. Developing Web Applications, Ralph Moseley and M. T. Savaliya, Wiley-India
2. Web Technologies, Black Book, dreamtech Press
3. HTML 5, Black Book, dreamtech Press
4. Web Design, Joel Sklar, Cengage Learning
5. Internet and World Wide Web How to program, P.J. Deitel & H.M. Deitel, Pearson

Reference Links:

1. http://www.w3schools.com
2. **http://www.php.net**

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Semester III
Subject : - Game Design Code : AN-3103

Objectives:

- In this subject student will learn about gaming industry and pipeline for the game production.
- The complete pre production work of any game will be done in this semester.
- Student will also design their own game concept and will work on it throughout the semester.
- A common 3d platform i.e. Blender is also included here for making 3D content which will be required for the game.

Unit 1. Introduction to Gaming (4)

1. Origin and growth of gaming industry
2. Gaming: meaning and defining
3. Gaming as modern entertainment

Unit 2. Introduction to Blender (8)

Introducing Blender 3D – Game Development and Logic Development with Blender 3D

Unit 3. Classification and Pre-production of Gaming (12)

1. Classification of gaming
2. Game production cycle
3. Pre-production – concept and idea
4. Production requirements and planning
5. Modeling and Animations, Interiors - More complex UV mapping, Programmatic Movement.

Unit 4. Production (12)

1. Production – plan implementation,
2. Tracking progress and plan testing
3. Post production – archive and plan for future games

Unit 5. Structure and functioning (12)

1. Structure and functioning of gaming company:
2. Production, art, engineering, designing,
3. Quality assurance testing
4. Game production team members and responsibilities

Reference Books :

1. **The Art of Game Design: A Book of Lenses** by Jesse Schell
   Publisher: CRC Press (12 September 2008)
   ISBN-10: 0123694965 **ISBN-13:** 978-0123694966

2. **Game Mechanics: Advanced Game Design (Voices That Matter)**
   Ernest Adams (Author), Joris Dormans (Author)
   Publisher: New Riders; 1 edition (15 June 2012)
   ISBN-10: 0321820274 **ISBN-13:** 978-0321820273

3. **Game Coding Complete, Fourth Edition Paperback**
    Mike McShaffry (Author), David Graham (Author)
   Publisher: Cengage Learning PTR; 4 edition (March 5, 2012)
   ISBN-10: 1133776574 **ISBN-13:** 978-1133776574

4. **Game Development Essentials: Game Story & Character Development Paperback**
    Marianne Krawczyk (Author), Jeannie Novak (Author)
   Publisher: Cengage Learning; 1 edition (March 23, 2006)
   ISBN-10: 1401878857 **ISBN-13:** 978-1401878856

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Semester III
Subject : Digital Editing Code : AN-3104

Objective:

 The student will study of terminology and concepts. Use digital video capture and output methods; utilize appropriate compression schemes for various output; integrate and composite still graphics and animation into a production; summarize and apply principles of video production; and identify the components of a digital video system.

Unit I: Introduction to Modern Non-Linear Editing [8]

1.1 The Evolution of Modern Non-Linear Editing

1.2 The Evolution of Digital Non-Linear Editing

1.3 Principal of Video Editing

1.4 Analysis of Film sequences from editing point of view

Unit II: Introduction to Principles of Video Editing [8]

2.1 Principles of Video Editing http://lornamediabna.blogspot.in/2011/03/when-editing-these-principles-are.html

2.2 Aspect Ratio

2.3 Various Techniques - Jump Cut, Match Action, Cut Away, Continuity

https://en.wikipedia.org/wiki/Jump_cut

https://en.wikipedia.org/wiki/Match_cut

https://en.wikipedia.org/wiki/Cutaway_(filmmaking)

https://en.wikipedia.org/wiki/Continuity_editing

2.4 Rule of 180 Degree

2.5 Camera Angle and Shots

Unit III - Non-Linear Editing [8]

3.1 Introduction to Adobe Premiere Pro

3.2 Interface

3.3 Importing Videos

3.4 Story Board Techniques

3.5 Tools

3.6 Editing and adding Effects

Unit IV Introduction to Video Transitions [8]

4.1 Video Transitions

4.2 Video Effects
4.3 Incorporating transitions into the editing process
4.4 Recognizing various standard transitions

Unit V Introduction to Audio [8]
5.1 Introduction to Audio
5.2 Synchronizing Audio
5.3 Editing Audio
5.4 Audio Transitions

Unit VI Introduction to Titles [8]
6.1 Titles and still graphics
6.2 Creating titles for video
6.3 Incorporating titles into video production
6.4 Incorporating still graphics into video production
6.5 Templates
6.6 Output
6.7 Various Types of Output

Reference Book:
1. *Premiere Pro CS6 Digital Classroom. **Author**: Jerron Smith, AGI Creative Team.*

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To be implemented from Academic Year - 2017-18
Semester III
Subject : - VFX - I Code : AN-3105

Objectives :

Student will learn the various methods of Visual Special Effects for live action & Animation Films and to create Environments which looks realistic with the help of Different techniques used for VFX. Student will also know the different tools of VFX which are currently used in industry.

Unit I: Introduction to VFX [10]
a) Concept & Terminology
b) Different methods & tools used for VFX
c) Comparative study of various tools used for VFX
d) Interface of node based VFX tool [NATRON]

Unit II: Digital Representation of Visual Information [10]
a) Image Generation
b) Digital image file Formats
c) Digital Video file Formats
d) Geometric Transformation

Unit III: Rotoscopy [10]
a) Introduction to Roto
b) Types of roto
c) Masking
d) Video Tracking & Stabilizing

Unit IV: Compositing [10]
a) Matte Image
b) Multisource Operators (tools)
c) Compositing with Pre-multiplied images

Unit V: Node based Tool [NATRON] [08]
a) Color correction
b) Paint

c) Croma setup
d) Typographical Effects
e) Rendering

Reference Books:-

1. ISBN-10: 1480157090 Digital Stereoscopy Scene to Screen 3D Production Workflows
2. ISBN-10: 111835205X Match moving: The Invisible Art of Camera Tracking
3. ISBN-10: 0240817818 Compositing Visual Effects: Essentials for the Aspiring Artist 2nd Edition
4. ISBN-10: 0415812291 Production Pipeline Fundamentals for Film and Games
5. Natron Documentation Release 3.0 The Natron documentation authors
6. Reference Link :   https://opensource.com/life/15/7/getting-started-with-natron

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Semester III
Subject : - Creative Thinking Code : AN-3106

Objectives:
- Students will experience the value of using effective creative writing skills to expand and enhance their personal intellectual, emotional, psychological, and artistic lives.
- Students will develop the ability to approach consciously their everyday living, listening, reading, and writing as resources and possibilities for effective writing.
- Students will learn the value of working collaboratively with others to improve their writing.
- Students will understand the value of developing creative writing skills and taking responsibility for their own learning in order to function most effectively as students and workers.

Unit 1 – Introduction to creative thinking [8]
1. What is creative thinking
2. Generate creative thinking
3. Ideas and their power
4. Understanding your target audience
5. Understanding TG's psychology
6. Creative thinking techniques based exercise

Unit 2 – Ideas and Animation [8]
1. Creating new ideas
2. Blogging your ideas
3. Brainstorming ideas
4. Mind mapping and animation
5. Animation and power of ideas
6. Plotting your ideas into a concept

Unit 3 – Creative thinking to creative writing [8]
1. Power of thinking
2. Writing skills
3. Introduction to stories
4. From idea to story
5. Types of stories and art of storytelling

6. Storytelling – animation and creative thinking
7. Show reel of animation films and writing for animation

Unit 4 – Creative thinking and animation   [8]
1. Animation character from basic ideas
2. From characters to animation film stories
3. Stories and their elements
4. Communication in animation
5. How is creative writing and writing for animation connected – exercise
6. Application of animation to various media platforms

Unit 5 – More on creative thinking and character development   [8]
1. Character development
2. Plotting your story
3. Bringing characters to life
4. Through your character's eye
5. Getting started with animation fictional writing/thinking
6. Benefits of being creative

Unit 6 – Case studies – animation for kids and understanding your audience   [8]
1. Audience and their love for animation – understanding the basics behind it
2. Reading your audience's mind
3. Understanding case studies and practical application on various films
4. Case study on pre-production of films by Pixar
5. Case study on production and post-production of films by Pixar and Dreamworks
6. Reading and understanding great animation films and the psychology behind it
7. Case study on science-fiction, children's animation, etc. (Creating a children's book)
8. Activity - Understanding the three step process of animation film making and making case study on the same lifecycle of animation film making

Reference Links

1. https://www.thebalance.com/creative-thinking-definition-with-examples-2063744

2. https://www.mindtools.com/brainstm.html

3. http://www.stevedenning.com/Business-Narrative/types-of-story.aspx

4. http://www.scriptmag.com/features/craft-features/what-is-story-story-types-plot-types-themes-genres

5. https://www.google.co.in/search?q=creative+writing&oq=creative+writ&aqs=chrome.1.69i57j0j5j0.4586j0j4&client=ms-unknown&sourceid=chrome-mobile&ie=UTF-8

6. https://www.google.co.in/search?q=best+examples+of+creative+writing&oq=best+examples+of+creative+writing&aqs=chrome..69i57j33l3.11991j0j4&client=ms-unknown&sourceid=chrome-mobile&ie=UTF-8

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Semester IV
Subject : - IPR and Cyber Security Code : AN-3201

Objectives:

1. Animation is a creative field, and every day new ideas innovations, practices can come up. The students while entering the industry must be fully aware about how to protect their work and also what would be the consequences if things are done in a wrong way, which **Intellectual Property Rights** provides them with. It gives them an idea about what they should do and what not to do.

2. The second part of this subject, **Cyber Security** tries to provide the students fundamental knowledge about information security to take on a career in this challenging and ever changing IT world, where data or information which we create/process/store/transmit is at a risk always.

3. Both the topics help to create awareness and teach the students about what to protect and how to protect information/systems and our rights.

Unit 1: Introduction to Intellectual Property Rights   **(Lectures: 5) Book-3**
1. Introduction to IPR
2. Need of Intellectual Property Protection
3. Introduction to Patents & Copyright
4. History of IPR
5. Trade and Investment

Unit 2: Introduction to Copyright, Software and Internet   **(Lectures: 5) Book-3**
1. Introduction
2. Copyright as a Stimulus To Creation
3. Copyright And Access
4. Copyright and Computer Software

Unit 3: The Patent System   **(Lectures: 6)Book-3**
1. Introduction
2. Scope of Patentability

3. Patentability Standards
4. Exceptions to Patent Rights
5. Patenting in India
6. Process of Patenting in India

Unit 4: Basic Security Concepts   **(Lectures: 14)Book-2, Book 3**
  1. Overview of Networking Concepts: **Book 3**
      1. Basics of Communication Systems
      2. Transmission Media
      3. ISO/OSI and TCP/IP Protocol Stacks
      4. Local Area Networks
      5. Wide Area Networks
      6. Internetworking
      7. Packet Formats
      8. Wireless Networks
      9. Internet

  2. Basics of Information Security: **Book-2, Book 3**
      1. Information Security Overview
      2. Information Security Services
      3. Types of Attacks
      4. Goals for Security
      5. E-commerce Security
      6. Computer Forensics
      7. Security Engineering

  3. Steganography: **Book 3**
      1. Introduction to Steganography
      2. Steganography types, Image Steganography.

  4. Watermarking: Book 3
      1. Introduction to watermarking
      2. Watermarking types
      3. Digital watermarking
      4. Applications.

  5. Security Threats and vulnerabilities   **Book-2, Book 3**
      1. Overview of Security threats
      2. Hacking Techniques
      3. Password Cracking

4. Insecure Network connections
5. Malicious Code
6. Programming Bugs
7. Cybercrime and Cyber terrorism
8. Information Warfare and Surveillance

6. Basics of Cryptography   **Book-2, Book 3**
1. Introduction to Cryptography
2. Symmetric key Cryptography
3. Asymmetric key Cryptography
4. Mechanisms of cryptography
5. Message Authentication and Hash functions
6. Digital Signatures
7. Public Key infrastructure
8. Applications of Cryptography

Unit 5: Security Management (Lectures: 14)   **Book 3**

1. Security Management Practices
1. Overview of Security Management
2. Information Classification Process
3. Security Policy
4. Risk Management
5. Security Procedures and Guidelines
6. Business Continuity Planning(BCP), Disaster Recovery Planning.

2. Security Laws and Standards   **Book 3**
1. Security Assurance
2. Security Laws
3. International Standards
4. Security Audit
5. OCTAVE approach
6. Introduction to SSE-CMM
7. IT Act 2000 – Key Provisions

3. Access Control and Intrusion Detection   **Book 3**
1. Overview of Identification and Authorization
2. Intrusion Detection Systems and Intrusion Prevention Systems

4. Server Management and Firewalls   **Book 3**
1. Introduction and Overview of Firewalls
2. Types of Firewalls
3. DMZ and firewall features

5. Security for VPN   **Book 3**

1. VPN Security
2. Security in Multimedia Networks   **Book 3**
6. **System and Application Security**
    1. Desktop Security
    2. OS security
    3. mobile security
    4. email security
    5. Web Security: web authentication
    6. SSL and SET

Unit 6: Cases of Security Systems (Lectures: 4)   Book 3
    1. Cases of Security Systems in e-Banking
    2. Cases of Security Systems in e-Commerce
    3. Cases of Security Systems in e-business
    4. Cases of Security Systems in ICT devices in Business

References:
    1. **Book-1** Laws Relating to Intellectual Property by Dr. B.L Wadehra, Fourth Edition, Universal Law Publishing Co.
    2. **Book-2** Cyber Security : Understanding Cyber Crimes , Computer Forensics and Legal Perspectives by Sunit Belpure and Nina Godbole,Wiley India Pvt. Ltd
    3. **Book-3** Information Systems Security: Security Management , Metrics , Framework and Best Practices by Nina Godbole,Wiley India Pvt. Ltd

Additional References-

    1. Introduction to Computer Security, Matt Bishop , Pearson Education
    2. Information Security : Principals and Practices, Pearson Education
    3. Intellectual Property Rights by M.M.Karki, Atlantic Publication (2009)
    4. Intellectual Property Rights in India: General Issues and Implications by Prankrishna Pal, Regal Publications
    5. Intellectual Property Issues and Cyberspace, The Indian Perspective, by Rohas Nagpal, Published 2009, Asian School of cyber laws

Important Links-

    1. https://en.wikipedia.org/wiki/Watermark
    2. https://www.cl.cam.ac.uk/teaching/0910/R08/work/essay-ma485-watermarking.pdf
    3. http://www.ijaiem.org/volume3issue2/IJAIEM-2014-02-27-062.pdf
    4. https://en.wikipedia.org/wiki/Steganography

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Semester IV
Subject : - User Interface Design Code : AN-3202

Objectives:-

1. The course covers Students capabilities, Design principles, Prototyping Techniques, Evaluation Techniques, and the Implementation of Graphical User Interfaces. Deliverables include short programming assignments and a semester-long group project. Students taking the graduate version also have readings from current literature and Additional Assignments.

1
Overview of UXI Design [10]

1.1 Design: Good User Interface, covering important Design principals and the Human capabilities

How to design good user interfaces, covering important design principles (learn ability, visibility, error prevention, efficiency, and graphic design) and the human capabilities that motivate them (including perception, motor skills, color vision, attention, and human error).

1.2 Implementation : Techniques for building user interfaces

Techniques for building user interfaces, including low-fidelity prototypes, Wizard of Oz, and other prototyping tools; input models, output models, model-view-controller, layout, constraints, and toolkits.

1.3 Evaluation : Techniques for evaluating and measuring interface usability

We will learn techniques for evaluating and measuring interface usability, including heuristic evaluation, predictive evaluation, and user testing.

1.4 Research :Research Involving Novel User Interface

How to conduct empirical research involving novel user interfaces (graduate level only).

1.5 Efficiency and Measurements

1.5.1 User interface Design and implementation

1.5.2 Human information Processing

1.5.3 Point Efficiency
- Fitts's Law & steering Law

1.5.4 Design Principles
- Shortcuts
- Defaults, history, and anticipation
- Anticipation

1.5.5 Predicating efficiency
- Keystroke –level model(KLM)
- Heuristics Rules

2	**2.1 Errors and User Controls**	**[08]**

2.1 Errors and User Controls
2.1.1 Human Error
2.1.2 Error Prevention
2.1.3 Error Messages
2.1.4 User Control & Freedom
2.2 Task Analysis
2.2.1 User Analysis
2.2.2 Task Analysis
2.2.3 Domain Analysis
2.2.4 Requirements Analysis
2.3 Creating Designs
2.3.1 Sketching
2.3.2 Scenarios
2.3.3 Storyboards
2.3.4 Design Patterns
2.3.5 Simplicity

3   UI Software Architecture   [06]
3.1 Design Patterns for GUIs
   - View Tree
   - Listener
   - Widgets
   -Model-View-Controller
3.2 Approaches to GUI Programming
   - Procedural
   -Declarative
   -Direct manipulation
3.3 Web UI at Lightning Speed
   - HTML
   - JavaScript
3.4 Layout
   - CSS
   - Automatic Layout
   - Constraints
3.5 Input
   - Input Events
   - State Machines
   - Event Dispatch and Propagation

4   4.1 Prototyping & user Interface   [10]
4.1.1 Paper Prototypes
4.1.2 Computer Prototypes
4.1.3 Wizard of OZ Prototypes
4.2 Graphics Design
4.2.1 Human Perception
     -Chunking
     -Visual variables
     -Gestalt Principles

4.2.2 Graphic Design Guideline
- Simplicity
- Contrast
- White Space
- Balance
- Alignment

4.3 Information Visualization
4.3.1 Motivation
4.3.2 Using space well
4.3.3 Interactivity
4.3.4 Toolkits for Visualization
4.4 Color Design and Typography
4.4.1 Color
- Human Vision
- Color Models
- Design guidelines
4.4.2   Typography
- Readability
- Font metrics
- Spacing
- Typefaces

5   **Heuristic Evaluation**   **[04]**

In this individual assignment, you will do heuristic evaluation on a computer prototype developed by your classmates.

You should look at the web page for the project you were assigned, which will give you instructions for running the prototype and background information about the project. This is not an anonymous evaluation, so feel free to contact the project group directly if you need more information than their web page provides.

As soon as you receive your prototype assignment, try to download and run the prototype. You don't have to do your heuristic evaluation right away, but poke around a bit and make sure the prototype appears to work for you.

Follow the heuristic evaluation procedure we discussed in class to evaluate the interface carefully. Make a numbered list of usability problems and successes you find. For each problem or positive comment, you should:
● describe the problem or positive feature, using screenshots;
● identify the relevant usability heuristics (from Nielsen's Ten Usability Heuristics, or any other guidelines we've discussed in class);
● estimate its severity (for problems, use cosmetic, minor, major, or catastrophic;

For positive comments, just say well). You aren't required to recommend solutions for the problems, but any ideas you have would no doubt be appreciated.

Heuristic Evaluation Be thorough. You should have at least 15 useful comments (positive or negative) about the interface that you evaluate. Write your report in a readable style. The usability of your report to its recipients will matter in your grade. In particular, don't bury the problems you found in reams of free-flowing prose. Where possible, include screenshots to illustrate the problems you found. In general, make your report easy to read and understand.

What To Hand
In Your report must be submitted in PDF format, not plain text or Microsoft Word. If your word processor can't generate PDF, there is free software for printing documents out to PDF. Your report will be graded by the teaching staff, and will also be forwarded (without our grading feedback) to the group whose project you evaluated.

6	**6.1 Animation**	**[10]**

6.1 Animation
6.1.1 Design principles
6.1.2 Frame Animation
6.1.3 Property Animation
6.1.4 Pacing and Path
6.2 Input and output Technology
6.2.1 Display
6.2.2 Pointing Devices
6.2.3 Touch Panel
6.3 Mobile user interfaces
6.3.1 Symbian
6.3.2 Android

Reference Link http://web.mit.edu/6.813/www/sp17/

Reference Books
- Designing with the Mind in Mind (By Jeff Johnson).
- Evil by Design (By Chris Nodder).
- Simple and Usable Web, Mobile, and Interaction Design (By Giles Colborne).
- Designing Interfaces (By Jenifer Tidwell).
- The Best Interface Is No Interface (By Golden Krishna).
- About Face: The Essentials of Interaction Design (By Alan Cooper, Robert Reimann, David Cronin, Christopher Noessel).

- The UX Book **(By Rex Hartson and Pardha Pyla)**
- Smashing UX Design **(By Jesmond Allen and James Chudley)**
- Lean UX: Applying Lean Principles to Improve User Experience **(By Jeff Gothelf and Josh Seiden)**
- The Elements of User Experience **(By Jesse James Garrett)**
- Sketching User Experiences: The Workbook **(By Saul Greenberg, Sheelagh Carpendale, Nicolai Marquardt and Bill Buxton)**

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Semester IV
Subject : - Game Production Code : AN-3203

Objectives:

- In this semester students will learn the game engine Unity.
- Unity is software which is widely used in gaming industry for developing various games. We can use this software for creating art as well as developing codes for games.
- Student will also complete their game project which they have started in semester III. Production & post production of the game will conclude in this semester.

Unit 1.0 Introduction to UNITY (5)

    1.1 Introduction to gaming and game development process
    1.2 Unity Basics
    1.3 Interface
    1.4 Inspector
    1.5 Project and Hierarchy

Unit 2.0 Project management and Importing assets (4)

    2.1 Working with projects
    2.2 Creating projects
    2.3 Importing Geometry
    2.4 Importing Textures

Unit 3.0 Materials (4)

    3.1 Working with materials
    3.2 Creating materials
    3.3 Adding materials to game objects

Unit 4.0 Level creation (7)

    4.1 Creating a level using the imported game assets
    4.2 Adding and managing collisions
    4.3 Character controller

Unit 5.0 Lighting (6)

    5.1 Creating lights

Reference Books :
1. **The Art of Game Design: A Book of Lenses**
   Jesse Schell
   Publisher: CRC Press (12 September 2008)
   ISBN-10: 0123694965 **ISBN-13:** 978-0123694966

2. **Game Mechanics: Advanced Game Design (Voices That Matter)**
   Ernest Adams (Author), Joris Dormans (Author)
   Publisher: New Riders; 1 edition (15 June 2012)
   ISBN-10: 0321820274 **ISBN-13:** 978-0321820273

3. **Game Coding Complete, Fourth Edition Paperback**
   Mike McShaffry (Author), David Graham (Author)
   Publisher: Cengage Learning PTR; 4 edition (March 5, 2012)
   ISBN-10: 1133776574   **ISBN-13:** 978-1133776574

4. **Game Development Essentials: Game Story & Character Development Paperback**
   Marianne Krawczyk (Author), Jeannie Novak (Author)
   Publisher: Cengage Learning; 1 edition (March 23, 2006)
   ISBN-10: 1401878857   **ISBN-13:** 978-1401878856

Savitribai Phule Pune University
(Formerly University of Pune)
Proposed Draft of T.Y.B.Sc (Animation) Syllabus
To be implemented from Academic Year - 2017-18
Semester IV
Subject : - Motion Graphics Code : AN-3204

Objectives :

Upon completion of the motion graphics track will be able to:
- Employ the terminology of motion graphic design when presenting, critiquing, or discussing motion graphic design ideas and solutions.
- Analyze motion graphics in contemporary and historical contexts.
- Apply graphic design principles to time-based works.
- Produce motion graphics in a range of professionally-recognized forms.
- Utilize appropriate content and techniques to tell a story.
- Compile a portfolio of motion graphic design.

Unit I: Motion Graphics: A Perspective   (10)

1.1 History of Motion Graphics

1.2 Motion Graphics in Film and Television

1.3 The Pictorial Composition

1.4 Space and Composition: An Overview

1.5 Principles of Composition

1.6 Constructing Space

Unit II The Sequential Composition   (8)

The Sequential Composition

2.1 Overview

2.2 Forms of continuity

2.3 Forms of Discontinuity

2.4 Montage

Unit III Conceptualization   (10)

3.1 Assessment

3.2 Formulation

3.3 Cultivation

3.4 Storyboards

3.5 Animatics

Unit IV Animation Processes   (10)

4.1 Frame-by-frame Animation

4.2 Interpolation

4.3 Spatial Interpolation

4.4 Visual Interpolation

4.5 Temporal Interpolation

4.6 Coordinating Movement

Unit V Motion Graphics Compositing (10)

5.1 Compositing: An Overview

5.2 Blend Operations

5.3 Keying

5.4 Alpha Channels

5.5 Mattes

5.6 Masks

5.7 Nesting

5.8 Color Correction

Reference Book:

1. Motion Graphic Design: Applied History and Aesthetics. **Author**: Jon Krasner.**ISBN**: 9780240809892. **Publisher**: Focal Press.

2. Design for Motion : Fundamentals and techniques of motion design. Author : Austin Shaw, Focus Press, 2015, ISBN 10-1138812099

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Proposed Draft of T.Y.B.Sc (Animation) Syllabus
To be implemented from Academic Year - 2017-18
Semester IV
Subject : - VFX – II Code : AN-3205

Objective:

Student will learn in this Semester to composing 3d objects in video footage. Match Moving process and various methods of Visual Special Effects for live action & Animation Films and to create Environments which looks realistic with the help of Different techniques used for VFX. Student will also know the different tools of VFX which are currently used in industry.

1. **Stereoscopic 3d Conversion and VFX**   **[10]**
   - Stereoscopy and psychological aspect of 3D
   - Stereoscopic Shooting (Using 3Ds Max or Maya Camera tool)
   - Narrative Grammar
   - 2D to 3D Conversion

2. **3D Objects and Match moving**   **[10]**
   - Exploring a typical Match movie
   - Moving From 2D to 3D and Back again
   - Understanding the match moving process
   - Adding Rough Geometry and Refining the Camera
   - Creating a Camera Rig

3. **VFX Compositing**   **[10]**
   - Digital Compositing with CGI
   - Compositing Visual Effects
   - 3D Compositing
   - Stereo Compositing

4. **VFX pipeline and project report**   **[10]**

- What is a pipeline?
- An overview of film production
- The Economics of film production
- Pre-production in the film pipeline
- Production in the film pipeline
- Post production in the film pipeline

5. VFX Show Reel [08]
- Artist Profile
- Work presentation
- Interview Skill
- Show reel

Reference Books:
1. ISBN-10: 1480157090 Digital Stereoscopy Scene to Screen 3D Production Workflows
2. ISBN-10: 111835205X Match moving: The Invisible Art of Camera Tracking
3. ISBN-10: 0240817818 Compositing Visual Effects: Essentials for the Aspiring Artist 2nd Edition
4. ISBN-10: 0415812291 Production Pipeline Fundamentals for Film and Games

Savitribai Phule Pune University
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Proposed Draft of T.Y.B.Sc (Animation) Syllabus
To be implemented from Academic Year - 2017-18
Semester IV
Subject : - New Media Code : AN-3206

Objectives :

1. Introduce the notion of globalization and understand how it impacts multilingual and multicultural communication in new media
2. Introduce the purpose, nature and language specific to avariety of new media communication in different corporateand professional environment.
3. Examine the intersection of new media and professionalcommunication practice to enhance the success of corporateand professional communication and the quality of human life.

Unit 1- Introduction to Internet [10]

Spread of Internet: What is internet?, Salient features and advantage over traditional media;

History and spread of internet in India, reach and problem of access;

Internet and Knowledge Society;

Convergence and Multi-media: Print, radio, TV, internet and mobile

Unit 2- Online Journalism [10]

What is online journalism? : Earlier websites of newspapers, E-books and E-publishing

Introduction to content management system

Hyper-textuality, Multi-mediality and interactivity

Use of various online tools to manage text, links, photos, maps, audio, video, etc.

Status of online journalism today

Unit 3- New Media I [14]

Digital storytelling: Tools of multimedia journalists;

Learn to report, write and produce in a manner that is appropriate for online media

Feature writing for online media: Story idea, development and news updates

Podcast and Webcast

Unit 4- New Media II [10]

Open source journalism:

Responding to the audience, Annotative reporting

Citizen Journalists

Problem of verification, accuracy and fairness

Use of blogs, tweets, etc. for story generation and development

Protecting copyright

Exploring Cyberspace:

Internal Assessment: [04]

Individual Blog: News stories, features, opinion pieces, pictures and video;

Group weblog: Working on different themes and issues and posting it on a team's blog;

Contribution to a Group or Community on any of the Social Network Sites;

Bring out a web edition ofthe experimental journal

Reference Books :

1. Nath, Shyam. Assessing the State of Web Journalism. Authors Press, New Delhi, 2002

2. Chakravarthy, Jagdish. Net, Media and the Mass Communication. Authors press, New Delhi, 2004

3. Bhargava, Gopal. Mass Media and Information Revolution. Isha Books, New Delhi, 2004

4. Menon, Narayana. The Communication Revolution. National Book Trust.

5. Pavlik J.V. Media in the Digital Age. Columbia University Press.

6. Newspaper and magazine articles about New Media.

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Proposed Draft of T.Y.B.Sc (Animation) Syllabus
To be implemented from Academic Year - 2017-18
Subject : - Lab I (Web Design, UI Design and Game Design, Game Production)
Code : AN-3207

Practical Sessions:
- 10 assignments based on Web Design including UI Design and Game Design (Semester III)
- 10 assignments based on Game Production (Semester IV)

Slip Pattern:
- 1 question on Web Design : 30 marks
- 1 question on Game Design : 25 marks
- 1 question on Game Production : 25 marks
- Internal Evaluation 20 marks (10 marks for jou rnal and 10 for viva and overall performance)

Subject : - Lab II (Digital Editing, Motion Graphics and VFX – I and II)
Code : AN-3208

Practical sessions:
- 10 assignments based on Digital editing and VFX – I (Semester III)
- 10 assignments based on Motion Graphics and VFX – II (Semester IV)

Slip pattern:
- 1 question on Digital Editing : 20 marks
- 1 question on Motion Graphics : 20 marks
- 1 question on VFX – I : 20 marks
- 1 question on VFX – II : 20 marks
- Internal Evaluation 20 marks (10 marks for journal and 10 for viva and overall performance)

Subject : - Lab III (Project)
Code : AN-3209

A) Animation Show reel Guideline

1. Show reel Should be short - maximum 5 minutes.
2. Best work throughout the academic year should be included.
3. Students should showcase their Involvement.
4. Process should be Highlighted.
5. Copyrighted Music should not be used.
6. Proper transition should be added.
7. No repetition of Footage.
8. Quality Control should be maintained.
9. Student should Show their Own Style.
10. show reel should contain credit line at the end.

B) Animation Project Guideline

1. Two Students in One group for group project.
2. Pre-Production work should include story, script, story board, concept art, character bible, props design & background design Etc. Hard copy of pre-production should be submitted before starting actual production work in Sem III.
3. There should be a Originality in Concept & Content.
4. Duration of project minimum 2 minutes.
5. Project should be a core Animation project including VFX & Compositing with Audio Effect .
6. project may not contain unnecessary violence, obscenity, nudity or racially disparaging material.
7. project may not contain trademarks, logos or trade dress owned by others without their permission; or any commercial content that promotes any product or service.
8. project should not promote smoking or drinking habits in any forms.
9. project may not content copyrighted material owned by others including photographs, sculptures, paintings and other works of arts or images published on internet.
10. project should not promote any political activity.

C) Internal Evaluation on case study of any animated movie

1. The student should prepare a case study on any animated movie based on the contents of syllabus.
2. A detailed report is to be submitted to the practical in-charge by the student.
3. The report should contain : plot of the story, research of preproduction, historical/ scientific research color, scheme used , treatment given to the script, formula used for the script, special effects used, perceptions of the student about the movie, technical observations, message from the movie