REVA UNIVERSITY
Bengaluru, India

SCHOOL OF COMPUTER SCIENCE

Bachelor of Science(Honors) in Computer Science with specialization in Multimedia and Animation

HANDBOOK 2022-2025

RUKMINI EDUCATIONAL
Charitable Trust

www.reva.edu.in

CONTENTS

Chancellor's Message

"Education is the most powerful weapon which you can use to change the world."
- Nelson Mandela.

There was a time when survival depended on just the realization of physiological needs. We are indeed privileged to exist in a time when 'intellectual gratification' has become indispensable. Information is easily attainable for the soul that is curious enough to go look for it. Technological boons enable information availability anywhere anytime. The difference, however, lies between those who look for information and those who look for knowledge.

It is deemed virtuous to serve seekers of knowledge and as educators it is in the ethos at REVA University to empower every learner who chooses to enter our portals. Driven by our founding philosophy of 'Knowledge is Power', we believe in building a community of perpetual learners by enabling them to look beyond their abilities and achieve what they assumed impossible. India has always been beheld as a brewing pot of unbelievable talent, acute intellect and immense potential. All it takes to turn those qualities into power is a spark of opportunity. Being at a University is an exciting and rewarding experience with opportunities to nurture abilities, challenge cognizance and gain competence.

For any University, the structure of excellence lies in the transitional abilities of its faculty and its facility. I'm always in awe of the efforts that our academic board puts in to develop the team of subject matter experts at REVA. My faculty colleagues understand our core vision of empowering our future generation to be ethically, morally and intellectually elite. They practice the art of teaching with a student-centered and transformational approach. The excellent infrastructure at the University, both educational and extra-curricular, magnificently demonstrates the importance of ambience in facilitating focused learning for our students.

A famous British politician and author from the 19th century - Benjamin Disraeli, once said 'A University should be a place of light, of liberty and of learning'. Centuries later this dictum still inspires me and I believe, it takes team-work to build successful institutions. I welcome you to REVA University to join hands in laying the foundation of your future with values, wisdom and knowledge

Dr. P. Shyama Raju

The Founder and Hon'ble Chancellor,
REVA University

Vice Chancellor's Message

The last two decades have seen a remarkable growth in higher education in India and across the globe. The move towards inter-disciplinary studies and interactive learning have opened up several options as well as created multiple challenges. India is at a juncture where a huge population of young crowd is opting for higher education. With the tremendous growth of privatization of education in India, the major focus is on creating a platform for quality in knowledge enhancement and bridging the gap between academia and industry. A strong believer and practitioner of the dictum "Knowledge is Power", REVA University has been on the path of delivering quality education by developing the young human resources on the foundation of ethical and moral values, while boosting their leadership qualities, research culture and innovative skills. Built on a sprawling 45 acres of green campus, this 'temple of learning' has excellent and state-of-the-art infrastructure facilities conducive to higher teaching-learning environment and research. The main objective of the University is to provide higher education of global standards and hence, all the programs are designed to meet international standards. Highly experienced and qualified faculty members, continuously engaged in the maintenance and enhancement of student-centric learning environment through innovative pedagogy, form the backbone of the University.

All the programs offered by REVA University follow the Choice Based Credit System (CBCS) with Outcome Based Approach. The flexibility in the curriculum has been designed with industry-specific goals in mind and the educator enjoys complete freedom to appropriate the syllabus by incorporating the latest knowledge and stimulating the creative minds of the students. Bench marked with the course of studies of various institutions of repute, our curriculum is extremely contemporary and is a culmination of efforts of great think-tanks - a large number of faculty members, experts from industries and research level organizations. The evaluation mechanism employs continuous assessment with grade point averages. We believe sincerely that it will meet the aspirations of all stakeholders – students, parents and the employers of the graduates and postgraduates of REVA University.

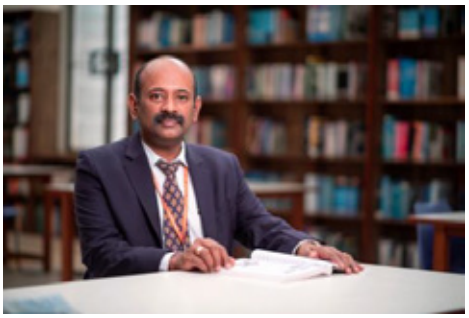
At REVA University, research, consultancy and innovation are regarded as our pillars of success. Most of the faculty members of the University are involved in research by attracting funded projects from various research level organizations like DST, VGST, DBT, DRDO, AICTE and industries. The outcome of the research is passed on to students through live projects from industries. The entrepreneurial zeal of the students is encouraged and nurtured through EDPs and EACs.

REVA University has entered into collaboration with many prominent industries to bridge the gap between Industry and University. Regular visits to industries and mandatory internship with industries have helped our students become skilled with relevant to industry requirements. Structured training programs on soft-skills and preparatory training for competitive exams are offered here to make students more employable. 100% placement of eligible students speaks the effectiveness of these programs. The entrepreneurship development activities and establishment of "Technology Incubation Centers" in the University extend full support to the budding entrepreneurs to nurture their ideas and establish an enterprise.

With firm faith in the saying, "Intelligence plus character –that is the goal of education" (Martin Luther King, Jr.), I strongly believe REVA University is marching ahead in the right direction, providing a holistic education to the future generation and playing a positive role in nation building. We reiterate our endeavor to
provide premium quality education accessible to all and an environment for the growth of over-all personality
development leading to generating

Director –Message

Welcome note to students



It's my pleasure to welcome you to the School of Computer Science and Applications. Computer, being considered as most significant and revolutionary invention of mankind has metamorphosed the planet earth completely. Predominantly School of Computer Science and Applications have acquired the control of the modern life in a myriad way.

The B.Sc in Computer Science with specialization with Multimedia and Animation program is designed keeping in view the current situation and possible future developments, both at national and global levels. This program is designed to give greater emphasis on the current trends of Visual Effects, Graphics and Animation.. The program deals with important topics like UI/UX, 2D and 3D animation along with VFX and introduction to Gaming.

The aim of the program is to create motivated, innovative, creative thinking graduates to fill in the roles of the Animation industry who can play an important role in helping the most happening industry of the current era digital media. The program is designed to develop human resources to meet the challenges of ever-growing technologically advanced IT industry and digital revolution.

A variety of activities such as mini projects, seminars, interaction with industries, cultural activities and social activities are in place to shape the all-round development of students.

The benefits of choosing Multimedia and Animation program are:

- Flexibility to choose Animation, VFX , Game design and development or UI/UX as career upon graduation.
- Opportunity to work on live problems.
- Opportunity to work on current trending related technologies that meet industry.

Students after successful completion of Multimedia and Animation program:

- Can start-up their career in either large film making studios, Media and Entertainment industries or as a freelancer as there are ample employment opportunities in these sectors.
- Students will be skilled in Multimedia and Animation with higher order critical, design, creative problem solving and transferable skills;
- Will acquire ability to think rigorously and independently to meet higher level expectations of ICT industry, academics, research establishments or take up entrepreneurial route.
- Can seek placements in diversified fields like Media, Information and Entertainment and such others.

I am sure the students choosing Multimedia and Animation in REVA University will enjoy the curriculum, teaching and learning environment, the vast infrastructure and the experienced teachers involvement and guidance from both university and industry. We will strive to provide all needed comfort and congenial environment for their studies. I wish all students pleasant stay in REVA and grand success in their career.

Dr. S. Senthil

Director School of Computer Science and Applications

RUKMINI EDUCATIONAL CHARITABLE TRUST

It was the dream of late Smt. Rukmini Shyama Raju to impart education to millions of underprivileged children as she knew the importance of education in the contemporary society. The dream of Smt. Rukmini Shyama Raju came true with the establishment of Rukmini Educational Charitable Trust (RECT), in the year 2002. **Rukmini Educational Charitable Trust** (RECT) is a Public Charitable Trust, set up in 2002 with the objective of promoting, establishing and conducting academic activities in the fields of Arts, Architecture, Commerce, Education, Engineering, Environmental Science, Legal Studies, Management and Science & Technology, among others. In furtherance of these objectives, the Trust has set up the REVA Group of Educational Institutions comprising of REVA Institute of Technology & Management (RITM), REVA Institute of Science and Management (RISM), REVA Institute of Management Studies (RIMS), REVA Institute of Education (RIE), REVA First Grade College (RFGC), REVA Independent PU College at Kattigenahalli, Ganganagar and Sanjaynagar and now REVA University. Through these institutions, the Trust seeks to fulfill its vision of providing world class education and create abundant opportunities for the youth of this nation to excel in the areas of Arts, Architecture, Commerce, Education, Engineering, Environmental Science, Legal Studies, Management and Science & Technology.

Every great human enterprise is powered by the vision of one or more extraordinary individuals and is sustained by the people who derive their motivation from the founders. The Chairman of the Trust is Dr. P. Shyama Raju, a developer and builder of repute, a captain of the industry in his own right and the Chairman and Managing Director of the DivyaSree Group of companies. The idea of creating these top notched educational institutions was born of the philanthropic instincts of Dr. P. Shyama Raju to do public good, quite in keeping with his support to other socially relevant charities such as maintaining the Richmond road park, building and donating a police station, gifting assets to organizations providing accident and trauma care, to name a few.The Rukmini Educational Charitable Trust drives with the main aim to help students who are in pursuit of quality education for life. REVA is today a family of ten institutions providing education from PU to Post Graduation and Research leading to PhD degrees. REVA has well qualified experienced teaching faculty of whom majority are doctorates. The faculty is supported by committed administrative and technical staff. Over 13,000 students study various courses across REVA's three campuses equipped with exemplary state-of-the-art infrastructure and conducive environment for the knowledge driven community.

ABOUT REVA UNIVERSITY

REVA University has been established under the REVA University Act, 2012 of Government of Karnataka and notified in Karnataka State Gazette No. 80 dated 27thFebruary, 2013. The University is empowered by UGC to award degrees any branch of knowledge under Sec.22 of the UGC Act. The University is a Member of Association of Indian Universities, New Delhi. The main objective of the University is to prepare students with knowledge, wisdom and patriotism to face the global challenges and become the top leaders of the country and the globe in different fields.

REVA University located in between Kempegowda International Airport and Bangalore city, has a sprawling green campus spread over 45 acres of land and equipped with state-of-the-art infrastructure that provide conducive environment for higher learning and research. The REVA campus has well equipped laboratories, custom-built teaching facilities, fully air-conditioned library and central computer center, the well-planned sports facility with cricket ground, running track & variety of indoor and outdoor sports activities, facilities for cultural programs. The unique feature of REVA campus is the largest residential facility for students, faculty members and supportive staff.

The University is presently offering 23 Post Graduate Degree programs, 20 Degree and PG Degree programs in various branches of studies and has 12000+ students studying in various branches of knowledge at graduate and post graduate level and 302 Scholars pursuing research leading to PhD in 18 disciplines. It has 800+ well qualified, experienced and committed faculty members of whom majority are doctorates in their respective areas and most of them are guiding students pursuing research leading to PhD.

The programs being offered by the REVA University are well planned and designed after detailed study with emphasis with knowledge assimilation, applications, global job market and their social relevance. Highly qualified, experienced faculty and scholars from reputed universities / institutions, experts from industries and business sectors have contributed in preparing the scheme of instruction and detailed curricula for this program. Greater emphasis on practice in respective areas and skill development to suit to respective job environment has been given while designing the curricula. The Choice Based Credit System and Continuous Assessment Graded Pattern (CBCS – CAGP) of education has been introduced in all programs to facilitate students to opt for subjects of their choice in addition to the core subjects of the study and prepare them with needed skills. The system also allows students to move forward under the fast track for those who have the capabilities to surpass others. These programs are taught by well experienced qualified faculty supported by the experts from industries, business sectors and such other organizations. REVA University has also initiated many supportive measures such as bridge courses, special coaching, remedial classes, etc., for slow learners to give them the needed input and build in them confidence and courage to move forward and accomplish success in their career. The University has also entered MOUs with many industries, business firms and other institutions seeking their help in imparting quality education through practice, internship and also assisting students' placements.

REVA University recognizing the fact that research, development, and innovation are the important functions of any university has established an independent Research and Innovation division headed by a senior professor as Dean of Research and Innovation. This division facilitates all faculty members and research scholars to undertake innovative research projects in engineering, science & technology, and other areas of study. The interdisciplinary-multidisciplinary research is given the topmost priority. The division continuously liaisons between various funding agencies, R&D Institutions, Industries, and faculty members of REVA University to facilitate undertaking innovative projects. It encourages student research projects by forming different research groups under the guidance of senior faculty members. Some of the core areas of research wherein our young faculty members are working include Data Mining, Cloud Computing, Image Processing, Network Security, VLSI and Embedded Systems, Wireless Censor Networks, Computer Networks, IOT, MEMS, Nano- Electronics, Wireless Communications, Bio-fuels, Nano-technology for coatings, Composites, Vibration Energies, Electric Vehicles, Multilevel Inverter Application, Battery Management System, LED Lightings, Renewable Energy Sources and Active Filter, Innovative Concrete Reinforcement, Electro Chemical Synthesis, Energy Conversion Devices, Nano-structural Materials, Photo-electrochemical Hydrogen generation, Pesticide Residue Analysis, Nano materials, Photonics, Nana Tribology, Fuel Mechanics, Operation Research, Graph theory, Strategic Leadership and Innovative Entrepreneurship, Functional Development Management, Resource Management and Sustainable Development, Cyber Security, General Studies, Feminism, Computer Assisted Language Teaching, Culture Studies etc.

The REVA University has also given utmost importance to develop the much-required skills through variety of training programs, industrial practice, case studies and such other activities that induce the said skills among all students. A full-fledged Career Development and Placement (CDC) department with world class infrastructure, headed by a dynamic experienced Professor & Dean, and supported by well experienced Trainers, Counselors and Placement Officers.

The University also has University-Industry Interaction and Skill Development Centre headed by a Senior Professor & Director facilitating skill related training to REVA students and other unemployed students. The University has been recognized as a Centre of Skill Development and Training by NSDC (National Skill Development Corporation) under Pradhan Mantri Kaushal Vikas Yojana. The Centre conducts several add-on courses in challenging areas of development. It is always active in facilitating student's variety of Skill Development Training programs.

The University has collaborations with Industries, universities abroad, research institutions, corporate training organizations, and Government agencies such as Florida International University, Okalahoma State University, Western Connecticut University, University of Alabama, Huntsville, Oracle India Ltd, Texas Instruments, Nokia University Relations, EMC^2, VMware, SAP, Apollo etc, to facilitate student exchange and teacher–scholar exchange programs and conduct training programs. These collaborations with foreign universities also facilitate students to study some of the programs partly in REVA University and partly in foreign university, viz, M.S in Computer Science one year in REVA University and the next year in the University of Alabama, Huntsville, USA.

The University has also given greater importance to quality in education, research, administration, and all activities of the university. Therefore, it has established an independent Internal Quality division headed by a senior professor as Dean of Internal Quality. The division works on planning, designing and developing different quality tools, implementing them and monitoring the implementation of these quality tools. It concentrates on training entire faculty to adopt the new tools and implement their use. The division further works on introducing various examination and administrative reforms.

To motivate the youth and transform them to become innovative entrepreneurs, successful leaders of tomorrow and committed citizens of the country, REVA organizes interaction between students and successful industrialists, entrepreneurs, scientists and such others from time to time. As a part of this exercise great personalities such as Bharat Ratna Prof. C. N. R. Rao, a renowned Scientist, Dr. N R Narayana Murthy, Founder and Chairman and Mentor of Infosys, Dr. K Kasturirangan, Former Chairman ISRO, Member of Planning Commission, Government of India, Dr. Balaram, Former Director IISc., and noted Scientist, Dr. V S Ramamurthy, Former Secretary, DST, Government of India, Dr. V K Aatre, noted Scientist and former head of the DRDO and Scientific Advisor to the Ministry of Defense Dr. Sathish Reddy, Scientific Advisor, Ministry of Defense, New Delhi and many others have accepted our invitation and blessed our students and faculty members by their inspiring addresses and interaction.

As a part of our effort in motivating and inspiring youth of today, REVA University also has instituted awards and prizes to recognize the services of teachers, researchers, scientists, entrepreneurs, social workers and such others who have contributed richly for the development of the society and progress of the country. One of such award instituted by REVA University is 'Life Time Achievement Award' to be awarded to successful personalities who have made mark in their field of work. This award is presented on occasion of the "Founders' Day Celebration" of REVA University in presence of dignitaries, faculty members and students gathering and the first "REVA Life Time Achievement Award" for the year 2015 has been awarded to Shri. Kiran Kumar, Chairman ISRO on the occasion of Founder's Day Celebration, 6th January, 2016 and the second "REVA Life Time Achievement Award" for the year 2016 has been awarded to Shri. Shekhar Gupta, Renowned Journalist on the occasion of Founder's Day Celebration, 6th January, 2017.

REVA organizes various cultural programs to promote culture, tradition, ethical and moral values to our students. During such cultural events the students are given opportunities to unfold their hidden talents and motivate them to contribute innovative ideas for the progress of the society. One of such cultural events is REVOTSVA conducted every year. The event not only gives opportunities to students of REVA but also students of other Universities and Colleges. During three days of this mega event students participate in debates, Quizzes, Group discussion, Seminars, exhibitions and variety of cultural events. Another important event is Graduation Day for the final year students of all the programs, wherein, the outgoing students are felicitated and are addressed by eminent personalities to take their future career in a right spirit, to be the good citizens and dedicate themselves to serve the society and make a mark in their respective spheres of activities. Convocation marks the end of the students journey at REVA, which is celebrated with much pomp and splendor. During this occasion, the students who have achieved top ranks in

academic are felicitated. The founders have also instituted medals and prizes for sports achievers every year. The physical education department conducts regular yoga classes every day to students, faculty members, administrative staff and their family members and organizes yoga camps for villagers around.

Recognizing the fast growth of the university and its quality in imparting higher education, the BERG (Business Excellence and Research Group), Singapore has awarded BERG Education Award 2015 to REVA University under Private Universities category. The University has also been honored with many more such honors and recognitions.

REVA University Vision

''REVA University aspires to become an innovative university by developing excellent human resources with leadership qualities, ethical and moral values, research culture and innovative skills through higher education of global standards".

Mission

- To create excellent infrastructure facilities and state-of-the-art laboratories and incubation centers
- To provide student-centric learning environment through innovative pedagogy and education reforms
- To encourage research and entrepreneurship through collaborations and extension activities
- To promote industry-institute partnerships and share knowledge for innovation and development
- To organize society development programs for knowledge enhancement in thrust areas
- To enhance leadership qualities among the youth and enrich personality traits, promote patriotism and moral values.

Objectives

- Creation, preservation and dissemination of knowledge and attainment of excellence in different disciplines
- Smooth transition from teacher - centric focus to learner - centric processes and activities
- Performing all the functions of interest to its major constituents like faculty, staff, students and the society to reach leadership position
- Developing a sense of ethics in the University and Community, making it conscious of its obligations to the society and the nation
- Accepting the challenges of globalization to offer high quality education and other services in a competitive manner

SCHOOL OF COMPUTER SCIENCE AND APPLICATIONS

The School of Computer Science and Applications is shouldered by well qualified, experienced and highly committed faculty. The state-of-the-art infrastructure digital classrooms, well equipped advanced computer laboratory, conference rooms and the serene academic atmosphere at REVA University will enhance the transfer as well as creation of knowledge. The School offers Under Graduate programs: BCA, B. Sc. (Honors) in Computer Science with specialization in Cloud Computing and Big Data, B. Sc. In Computer Science with specialization in Multimedia and Animation and B. Sc. In Computer Science with specialization in Cyber Security. The School offers two Post Graduate programs: MCA and M.Sc (Data Science) programs. The School also has research program leading to doctoral degree. The curriculum of both graduate and post graduate degree programs have been designed to bridge the gap between industry – academia and hence they are industry oriented. These programs provide ample scope to enter into a wide range of business opportunities, entrepreneurship ventures and as well as job opportunities in different sectors. This is reflected in various core subjects / courses offered within the program. Further the school provides an interactive, collaborative peer tutoring environment that encourages students to break down complex problems and develop strategies for finding solutions across a variety of situations and disciplines. The school aims to develop a learning community of critical thinkers who serve as models of innovative problems solving in the university environment to enrich their academic and professional careers.

VISION

To transform students into responsible citizens with high morale, leadership qualities and competent professionals of global standards emphasizing on Research and Innovation in the domain of Computer Science and Applications.

MISSION

- To impart quality education to meet the needs of profession and society, and achieve excellence in teaching-learning and research in the area of Computer Applications;
- To attract and develop talented and committed human resource, and provide an environment conducive to innovation, creativity, team-spirit and entrepreneurial leadership in Computing field;
- To facilitate effective interactions among faculty and students of the School of Computer Applications, and foster networking with alumni, industries, institutions and other stake-holders; and
- To practice and promote high standards of professional ethics, transparency and accountability.

OBJECTIVES

- To impart programs at graduate, post-graduate and doctoral levels in the field of computer applications;
- To adopt innovative methods of teaching and promote student centric learning process;
- To create infrastructure of international standard and facilitate and create conducive environment for teaching, learning and research;

- To promote faculty development and encourage faculty members and students to organize and participate in national and international level conferences, seminars, symposia and such others;
- To encourage teachers and students to take-up interdisciplinary studies and research;
- To promote students' participation in co-curricular and extension activities and develop their personality traits and team spirit

ADVISORY COMMITTEE

Sl. No	Name and Affiliation
1	Dr. P Nagabhusan Director, IIIT Allahabad.
2	Dr. Arunkumar Thangavelu Professor, School of Computer Science and Engineering VIT University, Vellore, Tamilnadu.
3	Dr. Srikanta Patnaik Professor, Department of Computer Science and Engineering, SOA University, Bhubaneswar.
4	Dr. Pethuru Raj Chief Architect & Vice President Site Reliability Engineering (SRE) Division Reliance Jio Infocomm Limited, Bengaluru
5	Mr. Raja Krishnamoorthy Director, SAP, Cognizant Technology Pvt.Ltd, Bengaluru.
6	Dr. Madan Kumar Srinivasan Associate Vice President, AI Innovation Centre Accenture, Bengaluru.

Programme Overview

Animation, VFX, Game is one of the fastest growing and high paying career options in the world today. The demand for digital animation and media arts has increased multi-fold due to fast-paced developments in the sectors like advertisements, entertainment industry, gaming etc. this programme aims in providing a complete exposure to Animation, Gaming, Multimedia, VFX which is lucrative in todays scenario.

It provides an opportunity to bring out the creativity of the student to spotlight. Animation industry has a growth of 18% annually. There is a proportional increase in demand for professionals skilled in animation.

On completing this course student will develop strong creative and technical abilities in Graphic design, web design, Animation, VFX & Game design.

Right from the fundamentals to the most advanced techniques, the program provides an in-depth understanding of the latest software and tools. This course is designed to make students a fully- equipped as Graphic & web design, Animation, VFX & Game design professional.

The student has multiple exit/entry options where he will earn a certificate in Graphics and Web Design development.

He will earn a Diploma at the end of second year and a degree at the end of 3rd year

The First year is a comprehensive program that trains the student in all aspects of graphic designing and web designing. The curriculum uses industry-endorsed techniques to make the student an in demand new media creative professional with skills in rich multimedia content, visually appealing websites, logos for advertisements, concepts of digital graphics, image editing for print & publishing, UI/UX, and SEO.

At the end of Second Year, the student will be trained in key aspects: Creative Visualization that includes design basics, concepts, sketching and storyboards; 2D animation concepts, graphics and editing; web designing and UI/UX; 3D animation concepts, tools and techniques; audio Video editing and digital compositing

Career Opportunities

The growth rate of the Gaming industry has an annual growth of 40% and digital media being 26%, there are huge demand for skilled multimedia professionals. The various Job roles may be Graphic designer, Web developer, UI/UX designer, 3D modeler, Game Designer etc.

Eligibility

Pass in PUC/10+2 with at least 45% marks (40% in case of candidate belonging to SC/ST category) from any recognized Board/Councilor any other qualification recognized as equivalent there to.

Course Duration: 6 Semesters (3 years)

Program Educational Objectives (PEO's)

The Programme acts as a Foundation Degree that helps to develop Creative Skills, Critical Skills, Analytical Skills and Problem Solving Skills. The Foundation Degree makes the Graduates employable, in Information Media and Entertainment Industries, to assume Administrative Positions in various Organisations. With further acquisition of higher-level degrees, the graduates would become eligible to pursue a Career in Academics or Scientific organisations as a Researcher.

The Programme Educational Objectives are to prepare the students to:

PEO-1	Explore the fundamentals and underlying theories of Multimedia and Animation to Design and Develop 2D/3D Animations, Film-Making, Visual Effects for the Creative Media.
PEO-2	To Innovate Best Practices for elements of Design, Virtual Reality, Gaming and Demonstrate Creative Digital Assets with Social Responsibility.
PEO-3	To provide sustainable solution in Media Industry for the betterment of the Society and contribute to the economic growth of the World by building UI/UX Specialized Digital Environments that meet the Industry Standard in User Interface and User Experience.

PROGRAM OUTCOMES FOR B.Sc (HONS) in MULTIMEDIA AND ANIMATION

After undergoing this Programme, a student will be able to:

- **PO 1: Disciplinary knowledge**: Demonstrate Comprehensive Knowledge and understanding of Sketching, Charter Design, Animation, Graphics, VFX and Gaming.

- **PO 2: Scientific reasoning**: Able to Analyze, and understand concepts in Designs, Textures, Lighting, Principles, and Technique, critically Evaluate Ideas, develop Logical Reasoning and experiences in Ads or Film Making.

- **PO 3: Problem solving**: be capable to extrapolate and apply competencies to solve different kinds of non-familiar problems, such as new Charter Design based on the script, typical User Interface and Experience, specific to the environment of the business., ability to solve logical and meaningful solutions that make the game near to reality and render realistic graphics.

- **PO 4: Environment and Sustainability**: Understand the issues of environmental contexts, build Creative Art in both Graphics and Gaming. Such scenarios that help the viewer or gamers in understanding the environmental factors.

- **PO 5: Research-related skills**: Recognize the impact of the Visuals/Graphics created, in the context of the given Scenario, Define Problems, Formulate Best Possible Outcomes, by analyzing and interpreting, draw conclusions of the best and most effective outcomes of a Graphic, Film or a Game that is fast and entertaining.

- **PO 6: Ethics**: Conduct as a Responsible Citizen by recognizing different Value Systems and understand the **moral dimensions** of decisions and **accept responsibility** for them.
- **PO 7: Cooperation/Team Work**: Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.
- **PO 8: Communication Skills**: Ability to express thoughts and ideas effectively in writing and in oral; Communicate with others using appropriate media; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups
- **PO 9: Self-directed and Life-long Learning**: Acquire the ability to engage in independent and **life-long learning** in the broadest context socio-technological changes.

PROGRAMME SPECIFIC OUTCOMES:

After the successful completion of the Programme, the graduates will be able to:

1. Design a Character, apply Texture, build Dynamics of Movement, and to Animate a Character, along with creating the Environment of the Scene and provide Visual Effects (VFX).

2. Design and Develop Games through Graphics, VFX, Apply Logical Reasoning that can be entertaining to the Gamers. Render high quality Graphics. Training with Industry Relevant and Employment Oriented Competency through trailblazing tools in the industry.

3. Creation of World Class Digital Assets using Modern and Advanced Techniques in 2D and 3D animation, VFX, Digital Image Processing, Digital Film Making, Web Graphics, UI-UX, VR/AR, Audio Production , Broadcasting and Gaming.

.

Mapping of PEOS with Respect POs

Course Code	POS/ COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
B21AHK102	**CO1**	**L**	**L**	**L**	**L**	**M**	**M**	**H**	**H**	**H**	**M**	**H**	**L**
	CO2	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**M**	**H**	**L**	**H**	**L**
	CO3	**L**	**L**	**L**	**L**	**M**	**H**	**H**	**H**	**M**	**L**	**H**	**L**
	CO4	**L**	**L**	**L**	**L**	**L**	**H**	**H**	**H**	**H**	**L**	**H**	**L**
B21AHH102	**CO1**	**L**	**L**	**L**	**L**	**M**	**H**	**M**	**M**	**H**	**M**	**H**	**L**
	CO2	**L**	**L**	**L**	**L**	**M**	**M**	**H**	**M**	**H**	**L**	**H**	**L**
	CO3	**L**	**L**	**L**	**L**	**H**	**H**	**H**	**H**	**M**	**L**	**H**	**L**
	CO4	**L**	**L**	**L**	**L**	**H**	**M**	**H**	**H**	**M**	**L**	**H**	**L**
B21AHA101	**CO1**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**	**H**	**L**
	CO2	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**H**	**L**	**H**
	CO3	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**L**	**H**	**L**
	CO4	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**H**	**H**	**L**	**H**
B21AHE101	**CO1**	L	L	L	H	L	L	M	H	L	H	M	H
	CO2	L	L	L	L	L	L	M	H	L	H	M	H
	CO3	L	L	L	L	L	L	M	H	L	H	M	H
	CO4	L	L	L	L	L	L	M	H	L	H	M	H
B21DD0101	**CO1**	H	M	L	M	L	L	L	M	L	H	L	M
	CO2	H	H	L	M	M	L	M	H	H	H	H	M
	CO3	H	M	L	M	M	L	M	H	M	H	M	H
	CO4	H	M	H	H	L	L	M	M	H	L	M	H
B21DD0102	**CO1**	M	H	L	L	L	L	M	M	M	L	L	M
	CO2	L	M	M	M	M	L	H	H	H	L	M	H
	CO3	L	M	H	M	H	L	H	M	H	L	M	M

	CO4	L	H	M	M	L	L	M	H	M	L	L	M
B21DD0103	**CO1**	**H**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**M**	**L**
	CO2	**L**	**H**	**H**	**L**	**M**	**L**	**L**	**L**	L	**M**	**H**	**L**
	CO3	**M**	**H**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**L**
	CO4	**H**	**H**	**H**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**M**	**L**
B21DD0104	**CO1**	**L**	**H**	**M**	**H**	**M**	**M**	**H**	**H**	**H**	**L**	**M**	**H**
	CO2	**M**	**L**	**H**	**H**	**H**	**L**	**H**	**H**	**M**	**L**	**M**	**M**
	CO3	**L**	**M**	**L**	**L**	**M**	**L**	**H**	**H**	**H**	**L**	**L**	**H**
	CO4	**L**	**M**	**M**	**H**	**M**	**L**	**H**	**M**	**H**	**L**	**H**	**H**
B21DD0105	**CO1**	**L**	**M**	**L**	**M**	**M**	**L**	**H**	**M**	**H**	**L**	**M**	**H**
	CO2	**L**	**M**	**H**	**H**	**L**	**L**	**M**	**H**	**H**	**L**	**L**	**M**
	CO3	**L**	**L**	**L**	**M**	**M**	**L**	**M**	**L**	**M**	**L**	**L**	**M**
	CO4	**H**	**M**	**L**	**M**	**L**	**L**	**H**	**M**	**M**	**L**	**L**	**L**
B21DD0106	**CO1**	**M**	**H**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**L**
	CO2	**H**	**H**	**H**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**M**	**L**
	CO3	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**M**
	CO4	**M**	**M**	**H**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**H**	**M**
B22AS0208	CO1							H		H			
	CO2							H		H			
	CO3							H		H			
	CO4							H		H			
B21AHK202	**CO1**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**	**H**	**L**
	CO2	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**H**	**L**	**H**
	CO3	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**L**	**H**	**L**
	CO4	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**H**	**H**	**L**	**H**
B21AHH202	**CO1**	L	L	L	H	L	L	M	H	L	H	M	H

	CO2	L	L	L	L	L	L	M	H	L	H	M	H
	CO3	L	L	L	L	L	L	M	H	L	H	M	H
	CO4	L	L	L	L	L	L	M	H	L	H	M	H
B21AHA201	**CO1**	**H**	**H**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**H**	**H**	**M**
	CO2	**H**	**M**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**
	CO3	**H**	**M**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**
	CO4	**H**	**L**	**L**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**M**	**H**
B21AHE201	**CO1**	**M**	**M**	**H**	**L**	**M**	**L**	**L**	**L**	**H**	**H**	**M**	**M**
	CO2	**H**	**H**	**L**	**H**	**M**	**l**	**L**	**L**	**H**	**H**	**H**	**H**
	CO3	**H**	**M**	**H**	**H**	**M**	**L**	**L**	**L**	**H**	**H**	**H**	**H**
	CO4	**H**	**H**	**H**	**M**	**M**	**M**	**L**	**L**	**H**	**H**	**H**	**H**
B21DD0201	**CO1**	H	M	L	M	L	L	L	M	L	H	L	M
	CO2	H	H	L	M	M	L	M	H	H	H	H	M
	CO3	H	M	L	M	M	L	M	H	M	H	M	H
	CO4	H	M	H	H	L	L	M	M	H	L	M	H
B21DD0202	**CO1**	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**M**	**L**
	CO2	**L**	**M**	**H**	**L**	**L**	**L**	**L**	**L**	L	**L**	**H**	**L**
	CO3	**M**	**M**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**L**
	CO4	**H**	**M**	**H**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**L**
B21DD0203	**CO1**	**H**	**H**	**H**	**M**	**L**	**L**	**M**	**H**	**H**	**L**	**L**	**H**
	CO2	**M**	**M**	**H**	**M**	**H**	**M**	**L**	**M**	**M**	**L**	**M**	**M**
	CO3	**L**	**M**	**M**	**L**	**H**	**L**	**H**	**H**	**M**	**L**	**M**	**M**
	CO4	**L**	**H**	**L**	**H**	**M**	**L**	**H**	**M**	**H**	**L**	**L**	**M**
B21DD0204	**CO1**	**H**	**L**	**M**	**L**	**M**	**L**	**L**	**L**	**H**	**L**	**L**	**M**
	CO2	**L**	**L**	**H**	**L**	**M**	**L**	**M**	**M**	**H**	**L**	**M**	**H**
	CO3	**H**	**L**	**L**	**L**	**M**	**L**	**L**	**M**	**H**	**L**	**L**	**M**

	CO4	**M**	**M**	**L**	**M**	**M**	**L**	**M**	**H**	**H**	**L**	**L**	**L**
B21DD0205	**CO1**	**M**	**L**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
	CO2	**H**	**M**	**H**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**
	CO3	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**M**
	CO4	**M**	**M**	**H**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**M**
B21DD0206	**CO1**	**L**	**H**	**H**	**L**	**H**	**H**	**H**	**H**	**H**	**L**	**M**	**M**
	CO2	**L**	**H**	**L**	**H**	**H**	**M**	**M**	**H**	**M**	**L**	**L**	**L**
	CO3	**L**	**H**	**H**	**H**	**H**	**M**	**M**	**M**	**H**	**L**	**M**	**L**
	CO4	**M**	**H**	**M**	**H**	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**M**
B21AHK302	**CO1**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**	**H**	**L**
	CO2	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**H**	**L**	**H**
	CO3	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**L**	**H**	**L**
	CO4	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**H**	**H**	**L**	**H**
B21AHH302	**CO1**	L	L	L	H	L	L	M	H	L	H	M	H
	CO2	L	L	L	L	L	L	M	H	L	H	M	H
	CO3	L	L	L	L	L	L	M	H	L	H	M	H
	CO4	L	L	L	L	L	L	M	H	L	H	M	H
B21AHA301	**CO1**	**H**	**H**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**H**	**H**	**M**
	CO2	**H**	**M**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**
	CO3	**H**	**M**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**
	CO4	**H**	**L**	**L**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**M**	**H**
B21DD0301	**CO1**	**H**	**M**	**L**	**L**	**H**	**H**	**M**	**L**	**L**	**H**	**H**	**M**
	CO2	**H**	**H**	**M**	**L**	**M**	**L**	**L**	**L**	**M**	**L**	**L**	**M**
	CO3	**M**	**H**	**H**	**L**	**H**	**L**	**M**	**L**	**M**	**M**	**H**	**L**
	CO4	**L**	**M**	**M**	**L**	**H**	**L**	**M**	**L**	**M**	**H**	**L**	**M**
B21DD0302	**CO1**	**H**	**M**	**M**	**L**	**M**	**L**	**L**	**L**	**M**	**L**	**L**	**M**

	CO2	**M**	**H**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
	CO3	**H**	**H**	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
	CO4	**M**	**M**	**L**	**L**	**L**	**L**	**M**	**L**	**L**	**L**	**L**	**M**
B21DD0303	**CO1**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
	CO2	**M**	**L**	**H**	**M**	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**M**
	CO3	**H**	**H**	**M**	**L**	**M**	**L**	**L**	**L**	**M**	**L**	**L**	**L**
	CO4	**M**	**M**	**L**	**M**	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**L**
B21DD0304	**CO1**	**H**	**M**	**L**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
	CO2	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
	CO3	**H**	**M**	**M**	**H**	**M**	**L**	**M**	**L**	**M**	**L**	**L**	**L**
	CO4	**M**	**H**	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
B21DD0305	**CO1**	**H**	**M**	**L**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**L**
	CO2	**L**	**M**	**M**	**L**	**H**	**L**	**L**	**L**	**L**	**L**	**H**	**L**
	CO3	**M**	**L**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**M**
	CO4	**L**	**L**	**L**	**L**	**H**	**L**	**L**	**L**	**M**	**L**	**H**	**L**
B21DD0306	**CO1**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**L**
	CO2	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**L**	**M**
	CO3	**M**	**M**	**M**	**H**	**L**	**M**	**L**	**L**	**L**	**M**	**H**	**L**
	CO4	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**M**
B21DD0307	**CO1**	**M**	**H**	**L**	**H**	**L**	**L**	**L**	**L**	**L**	**H**	**L**	**L**
	CO2	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**L**
	CO3	**M**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**L**	**L**
	CO4	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**L**	**L**
B21AHK402	**CO1**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**	**H**	**L**
	CO2	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**H**	**L**	**H**
	CO3	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**H**	**L**	**H**	**L**

	CO4	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**H**	**H**	**L**	**H**
B21AHH402	**CO1**	L	L	L	H	L	L	M	H	L	H	M	H
	CO2	L	L	L	L	L	L	M	H	L	H	M	H
	CO3	L	L	L	L	L	L	M	H	L	H	M	H
	CO4	L	L	L	L	L	L	M	H	L	H	M	H
B21AHA401	**CO1**	**H**	**H**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**H**	**H**	**M**
	CO2	**H**	**M**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**
	CO3	**H**	**M**	**M**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**
	CO4	**H**	**L**	**L**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**M**	**H**
B21DD0401	**CO1**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**L**	**H**
	CO2	**M**	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**H**
	CO3	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**L**	**M**	**H**	**M**	**H**
	CO4	**L**	**M**	**M**	**H**	**M**	**L**	**L**	**M**	**M**	**H**	**L**	**M**
B21DD0402	**CO1**	**H**	**L**	**M**	**M**	**L**	**L**	**M**	**L**	**H**	**H**	**M**	**M**
	CO2	**L**	**H**	**L**	**L**	**M**	**L**	**M**	**L**	**M**	**M**	**H**	**M**
	CO3	**L**	**M**	**L**	**H**	**M**	**L**	**L**	**L**	**M**	**M**	**L**	**M**
	CO4	**H**	**L**	**L**	**L**	**M**	**L**	**M**	**L**	**M**	**M**	**L**	**M**
B21DD0403	**CO1**	**H**	**H**	**M**	**M**	**H**	**M**	**M**	**L**	**M**	**L**	**H**	**M**
	CO2	**H**	**H**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**M**
	CO3	**M**	**M**	**H**	**M**	**H**	**M**	**M**	**L**	**L**	**L**	**H**	**M**
	CO4	**M**	**L**	**M**	**M**	**M**	**L**	**M**	**L**	**L**	**M**	**H**	**H**
B21DDS411	**CO1**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**
	CO2	**H**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**M**	**L**	**L**	**M**
	CO3	**L**	**L**	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
	CO4	**M**	**L**	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
B21DDS412	**CO1**	**H**	**L**	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**H**	**L**	**M**

	CO2	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**L**	**M**
	CO3	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**L**	**L**
	CO4	**L**	**H**	**L**	**M**	**M**	**L**	**L**	**L**	**L**	**M**	**H**	**L**
B21DDS421	**CO1**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**
	CO2	**H**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**M**	**L**	**L**	**M**
	CO3	**L**	**L**	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
	CO4	**M**	**L**	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
B21DDS422	**CO1**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**
	CO2	**H**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**M**	**L**	**L**	**M**
	CO3	**L**	**L**	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
	CO4	**M**	**L**	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
B21DD0404	**CO1**	**H**	**M**	**M**	**L**	**M**	**L**	**L**	**L**	**M**	**H**	**L**	**H**
	CO2	**M**	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**L**	**L**
	CO3	**H**	**M**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**H**	**M**	**M**
	CO4	**H**	**M**	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**H**	**M**	**M**
B21DD0405	**CO1**	**H**	**L**	**L**	**M**	**H**	**L**	**L**	**L**	**L**	**H**	**M**	**M**
	CO2	**H**	**L**	**L**	**M**	**H**	**L**	**L**	**L**	**L**	**H**	**H**	**M**
	CO3	**H**	**L**	**M**	**M**	**L**	**L**	**L**	**L**	**M**	**H**	**H**	**M**
	CO4	**M**	**M**	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
B21DD0406	**CO1**	**M**	**L**	**H**	**H**	**H**	**H**	**M**	**H**	**H**	**M**	**L**	**M**
	CO2	**H**	**H**	**H**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**H**	**M**
	CO3	**H**	**H**	**H**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**H**	**M**
	CO4	**L**	**L**	**L**	**M**	**M**	**H**	**H**	**H**	**M**	**L**	**L**	**M**
B21DD0501	**CO1**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**	**L**
	CO2	**M**	**L**	**H**	**H**	**M**	**L**	**L**	**L**	**L**	**M**	**M**	**L**
	CO3	**H**	**L**	**H**	**M**	**M**	**L**	**L**	**L**	**L**	**H**	**M**	**L**

	CO4	**L**	**L**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**H**	**H**	**L**
B21 DD0502	**CO1**	**H**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**H**	**M**	**M**
	CO2	**L**	**L**	**L**	**M**	**M**	**L**	**L**	**L**	**L**	**M**	**L**	**H**
	CO3	**M**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**
	CO4	**L**	**M**	**M**	**H**	**L**	**L**	**L**	**L**	**L**	**L**	**H**	**M**
B21 DD0503	**CO1**	**H**	**L**	**M**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**M**	**M**
	CO2	**H**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**M**	**L**	**M**	**M**
	CO3	**H**	**L**	**M**	**H**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**M**
	CO4	**L**	**L**	**M**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**M**
B21DDS511	**CO1**	**L**	**H**	**M**	**M**	**M**	**M**	**L**	**M**	**L**	**L**	**H**	**M**
	CO2	**H**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**M**	**M**
	CO3	**L**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
	CO4	**L**	**M**	**H**	**M**	**M**	**L**	**H**	**L**	**M**	**M**	**H**	**M**
B21DDS512	**CO1**	**H**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**H**	**H**	**L**
	CO2	**M**	**L**	**M**	**M**	**M**	**L**	**L**	**L**	**M**	**M**	**M**	**L**
	CO3	**L**	**M**	**M**	**M**	**L**	**L**	**M**	**L**	**M**	**M**	**M**	**L**
	CO4	**M**	**L**	**M**	**M**	**H**	**L**	**L**	**L**	**L**	**M**	**L**	**M**
B21DDS521	**CO1**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**L**	**M**	**L**
	CO2	**L**	**L**	**L**	**H**	**M**	**L**	**L**	**L**	**M**	**L**	**M**	**M**
	CO3	**L**	**L**	**L**	**H**	**M**	**L**	**L**	**L**	**M**	**L**	**M**	**M**
	CO4	**H**	**M**	**H**	**M**	**M**	**L**	**L**	**L**	**M**	**L**	**M**	**M**
B21DDS522	**CO1**	**H**	**L**	**L**	**L**	**M**	**L**	**L**	**L**	**M**	**M**	**M**	**L**
	CO2	**L**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**M**	**M**	**L**
	CO3	**L**	**H**	**M**	**M**	**M**	**L**	**L**	**L**	**M**	**M**	**M**	**L**
	CO4	**M**	**M**	**L**	**M**	**M**	**L**	**L**	**L**	**M**	**M**	**H**	**L**
B21 DD0504	**CO1**	**L**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**H**

	CO2	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**H**
	CO3	**H**	**M**	**L**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**H**
	CO4	**H**	**M**	**M**	**H**	**M**	**L**	**L**	**L**	**L**	**H**	**M**	**H**
B21 DD0505	**CO1**	**H**	**L**	**M**	**M**	**M**	**M**	**L**	**L**	**M**	**H**	**M**	**M**
	CO2	**L**	**M**	**L**	**L**	**M**	**M**	**M**	**M**	**M**	**L**	**M**	**M**
	CO3	**H**	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**M**	**L**	**M**	**M**
	CO4	**M**	**L**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**H**
B21DD0601	**CO1**	**H**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**L**	**M**	**M**
	CO2	**M**	**L**	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**M**
	CO3	**L**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**M**
	CO4	**M**	**L**	**M**	**H**	**M**	**L**	**H**	**M**	**M**	**L**	**M**	**H**
B21DDS611	**CO1**	**H**	**L**	**L**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**M**
	CO2	**M**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**
	CO3	**M**	**L**	**L**	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
	CO4	**M**	**L**	**L**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**
B21DDS612	**CO1**	**H**	**L**	**L**	**L**	**M**	**M**	**M**	**L**	**L**	**L**	**L**	**M**
	CO2	**M**	**L**	**M**	**H**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**
	CO3	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**M**
	CO4	**M**	**L**	**L**	**M**	**M**	**L**	**L**	**L**	**M**	**L**	**L**	**H**
B21DD0602	**CO1**	**M**	**L**	**M**	**M**	**H**	**L**	**M**	**M**	**M**	**L**	**H**	**M**
	CO2	**H**	**L**	**M**	**M**	**M**	**H**	**M**	**M**	**M**	**L**	**H**	**M**
	CO3	**H**	**L**	**H**	**M**	**M**	**L**	**H**	**M**	**M**	**L**	**H**	**M**
	CO4	**M**	**L**	**M**	**M**	**M**	**H**	**M**	**M**	**M**	**L**	**H**	**H**
B21DD0603	**CO1**	**M**	**L**	**H**	**H**	**H**	**H**	**M**	**H**	**H**	**M**	**L**	**M**
	CO2	**H**	**H**	**H**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**H**	**M**
	CO3	**H**	**H**	**H**	**H**	**H**	**M**	**M**	**M**	**M**	**M**	**H**	**M**

	CO4	L	L	L	M	M	H	H	H	M	L	L	M

Mapping of PEOS with Respect POs and PSO's

	PO1	PO2	PO3	PO4	PO5	PO6	P7	PO8	PO9	PSO1	PSO2	PSO3
PEO1	H	H	H	M	H	M	M	L	L	H	H	H
PEO2	H	H	H	L	M	L	M	M	M	H	M	M
PEO3	M	M	M	L	H	L	M	M	M	M	H	H
PEO4	M	M	M	H	L	H	H	H	H	M	H	M

School of Computer Science & Applications

Scheme 2022-2025

Bachelor of Science in Computer Science with specialization in Multimedia and Animation

FIRST SEMESTER

SL. NO	Code	Title	HC/ SC/ FC	Credit Pattern			Credits	Working Hrs.
				L	T	P		
1	B21AHK102	Language –I Kannada	FC	1	1	0	2	3
	B21AHH102	Language –I Hindi	FC					
	B21AHA101	Language –I Additional English	FC					
2	B21AHE101	Communicative English- I	FC	1	1	0	2	3
3	B21DD0101	Art & 2D Animation-I	HC	2	0	2	4	6
4	B21DD0102	Graphic Design Fundamentals	HC	2	0	0	2	2
5	B21DD0103	Introduction to Python Programming	HC	2	0	0	2	2
6	B21DD0104	UI/UX-I	HC	2	0	1	3	4
Practical Courses								
7	B21DD0105	Graphic Design Fundamentals Lab	HC	0	0	2	2	4
8	B21DD0106	Python Programming lab	HC	0	0	2	2	4
***Mandatory - (Non Creditable Courses)**								
9	B21ASM101	Environmental Studies	-	0	0	0	0	**2**
10	B21DDM102	Skill Development Program						
Total Credits				**10**	**2**	**7**	**19**	**30**

SECOND SEMESTER

SL. NO	Code	Title	HC/ SC/ FC	Credit Pattern			Credits	Working Hrs.
				L	T	P		
1	B21AHK202	Language –II Kannada	FC	1	1	0	2	3
	B21AHH202	Language –II Hindi	FC					
	B21AHA201	Language –II Additional English	FC					
2	B21AHE201	Communicative English-II	FC	1	1	0	2	3
3	B22AS0208	Tree Plantation in Tropical Region: Benefits and Strategic Planning	FC	1	0	0	1	1
4	B21DD0201	Art & 2D Animation-II	HC	2	0	2	4	6
5	B21DD0202	Web Designing	HC	2	0	0	2	2
6	B21DD0203	UI/UX-II	HC	2	0	0	2	2
7	B21DD0204	SEO & Analytics	HC	3	0	0	3	3
Practical Courses								
8	B21DD0205	Web Designing Lab	HC	0	0	2	2	4
9	B21DD0206	UI/UX-II lab	HC	0	0	2	2	4
10	B21DD0207	Mini Project-I	HC	0	0	4	4	8
***Mandatory - (Non Creditable Courses)**								
11	B21LSM201	Constitution of India & Professional Ethics	-	0	0	0	0	2
12	B21DDM202	Skill Development Program						
Total Credits				**12**	**2**	**10**	**24**	**38**

THIRD SEMESTER

SL. NO	Code	Title	HC/ SC /FC	Credit Pattern			Credits	Working Hrs
				L	T	P		
1	B21AHK302	Language –III Kannada	FC	1	1	0	2	3
	B21AHH302	Language –III Hindi	FC					
	B21AHA301	Language –IIII Additional English	FC					
2	B21DD0301	Digital Modeling	HC	2	0	0	2	2
3	B21DD0302	Texturing and Rendering	HC	2	0	2	4	6
4	B21DD0303	Character Rigging	HC	2	0	2	4	6
5	B21DD0304	Audio Video Editing	HC	2	0	0	2	2
6	B21DD0305	Virtual Reality & Augmented Reality	HC	2	0	0	2	2
Practical Courses								
7	B21DD0306	Digital Modeling Lab	HC	0	0	2	2	4
8	B21DD0307	Audio Video Editing Lab	HC	0	0	2	2	4
***Mandatory - (Non Creditable Courses)**								
9	B21DDM301/ B21PTM301	Soft skills	-	0	0	0	0	2
10	B21DDM302	Skill Development Program						
Total Credits				**11**	**1**	**8**	**20**	**31**

FOURTH SEMESTER

SL. NO	Code	Title	HC /SC /FC	Credit Pattern			Credits	Working Hrs
				L	T	P		
1	B21AHK402	Language –IV Kannada	FC	1	1	0	2	3
	B21AHH402	Language –IV Hindi	FC					
	B21AHA401	Language –IV Additional English	FC					
2	B21DD0401	3D Animation	HC	2	0	0	2	2
3	B21DD0402	VFX - I	HC	2	0	0	2	2
4	B21DD0403	Game Design -I	HC	2	0	2	4	6
5	B21DDS411	Advanced Rendering	SC	1	1	1	3	5
	B21DDS412	Advanced Modeling						
6	B21DDS421	Programing in C#	SC	2	0	1	3	4
	B21DDS422	Programing in C++						
Practical courses								
7	B21DD0404	3D Animation Lab	HC	0	0	2	2	4
8	B21DD0405	VFX -I Lab	HC	0	0	2	2	4
9	B21DD0406	Mini Project-II	HC	0	0	4	4	8
***Mandatory - (Non Creditable Courses)**								
9	B21DDM401/ B21PTM401	Soft skills	-	0	0	0	0	2
10	B21DDM402	Skill Development Program						
Total Credits				**10**	**2**	**12**	**24**	**40**

FIFTH SEMESTER

S.NO	Code	Title	HC/SC/FC	Credit Pattern			Credits	Working Hrs.
				L	T	P		
1	B21DD0501	VFX - II	HC	2	0	0	2	4
2	B21 DD0502	Rotoscopy	HC	1	1	1	3	5
3	B21 DD0503	Game Design-II	HC	2	0	0	2	2
4		Open Elective	OE	3	0	0	3	3
5	B21DDS511	Movie Pre-Visualization	SC	2	0	1	3	4
	B21DDS512	Crowd Simulation						
6	B21 DDS521	Animation – Match Moving and Camera Tracking	SC	2	0	1	3	4
	B21 DDS522	VFX – Dynamics and Simulation						
Practical Courses								
7	B21 DD0504	VFX -II Lab	HC	0	0	2	2	4
8	B21 DD0505	Game design - II Lab	HC	0	0	2	2	4
***Mandatory - (Non-Creditable Courses)**								
9	B21DDM501/B21PTM501	Soft skills						
10	B21DDM502	Skill Development Programme						
		Total Credits		**12**	**1**	**07**	**20**	**30**

Open Elective Courses offered to other Schools

Sl.No	Code	Title	HC/SC/OE	Credit Pattern			Credits	Working Hrs
				L	T	P		
1	B21DDO501	Audio - Video Editing & VFX	OE	2	0	1	3	4

SIXTH SEMESTER

S.NO	Code	Title	HC/ SC /FC	Credit Pattern			Credits	Working Hrs
				L	T	P		
1	B21DD0601	Game Design-III	HC	2	0	0	2	2
2	B21DDS611	Game Testing	SC	2	0	1	3	4
	B21DDS612	Game Development						
Practical Courses								
3	B21DD0602	Game Design-III Lab	HC	0	0	2	2	4
4	B21DD0603	**Major Project**	HC	0	0	8	8	16
***Mandatory - (Non Creditable Courses)**								
4	B21DDM601/ B21PTM601	Soft skills -	**0**	**0**		**0**	**0**	**2**
5	B21DDM602	Skill Development Program						
Total Credits				**4**	**0**	**11**	**15**	**28**

CREDIT SUMMARY

S.NO	SEMESTER DETAILS	CREDIT TOTALS
1	SEMESTER-I	19
2	SEMESTER-II	24
3	SEMESTER-III	20
4	SEMESTER-IV	24
5	SEMESTER-V	20
6	SEMESTER-VI	15
	TOTAL CREDITS	**122**

CREDIT DISTRIBUTION

Semester	Hard Core (HC)	Fundamental Core (FC)	Soft Core (SC)	Open Elective (OE)	Mini/Major Project (HC)	Total Credits
I	15	04	--	--	--	**19**
II	15	05	--	--	04	**24**
III	18	02	--	--	--	**20**
IV	12	02	06	--	04	**24**
V	11	--	06	03	--	**20**
VI	04	--	03	--	8	**15**
Total	**74**	**12**	**15**	**03**	**16**	**122**

** **Note:** Non _Creditable course: -> Skill Development Programme in all semester

FIRST SEMESTER

SL.NO	Code	Title	HC/ SC/ FC	Credit Pattern			Credits	Working Hrs.
				L	T	P		
1	B21AHK102	Language –I Kannada	FC	1	1	0	2	3
	B21AHH102	Language –I Hindi	FC					
	B21AHA101	Language –I Additional English	FC					
2	B21AHE101	Communicative English- I	FC	1	1	0	2	3
3	B21DD0101	Art & 2D Animation-I	HC	2	0	2	4	6
4	B21DD0102	Graphic Design Fundamentals	HC	2	0	0	2	2
5	B21DD0103	Introduction to Python Programming	HC	2	0	0	2	2
6	B21DD0104	UI/UX-I	HC	2	0	1	3	4
Practical Courses								
7	B21DD0105	Graphic Design Fundamentals Lab	HC	0	0	2	2	4
8	B21DD0106	Python Programming lab	HC	0	0	2	2	4
***Mandatory - (Non Creditable Courses)**								
9	B21ASM101	Environmental Studies	-	0	0	0	0	**2**
10	B21DDM102	Skill Development Program						
Total Credits				**10**	**2**	**7**	**19**	**30**

FIRST SEMESTER

SUBJECT_CODE	Language – I: Kannada	L	T	P	C
B21AHK102		1	1	0	2
	COURSE DESCRIPTION ¨sÁµÉAiÀÄ£ÀÄß ªÀiÁvÀ£ÁqÀÄªÀ §gÉAiÀÄÄªÀ PË±À®å, ¸Á»vÀåzÀ §UÉÎ ¸ÀÆÜ®ªÁV ¥ÀjZÀ¬Ä¸ÀÄªÀ ªÀÄÆ®PÀ «zÁåyðUÀ¼À ªÀåQÛvÀé «PÁ¸À ºÁUÀÄ ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ¼À£ÀÄß UÀªÀÄ£ÀzÀ°èlÄÖPÉÆAqÀÄ, ¥Àæ¸ÀÄÛvÀ ¸ÀAzÀ¨sÀðPÉÌ «zÁåyðUÀ¼À£ÀÄß ¸ÀdÄÓUÉÆ½¸À®Ä ¥ÀoÀåªÀ£ÀÄß gÀÆ¦¸À¯ÁVzÉ. ¸Á»vÀå, PÀ¯É, ªÁtÂdå, DqÀ½vÁvÀäPÀ ªÀÄvÀÄÛ «eÁÕ£ÀzÀ «ZÁgÀUÀ½UÉ MvÀÛ£ÀÄß ¤ÃqÀ¯ÁVzÉ. EzÀÄ ªÉÆzÀ® JgÀqÀÄ ¸É«Ä¸ÀÖgï ªÀÄÆgÀÄ PÉærmïUÀ¼À£ÀÄß; ªÀÄÆgÀÄ ªÀÄvÀÄÛ £Á®Ì£ÉÃ ¸É«Ä¸ÀÖgï JgÀqÀÄ PÉærmïUÀ¼À£ÀÄß ºÉÆA¢zÉ.				
	PRE-REQUISITES • PÀ£ÀßqÀ ¨sÁµÉAiÀÄ §UÉUÉ ¥ÁæxÀ«ÄPÀ w¼ÀÄªÀ½PÉ CUÀvÀå.. • ¨sÁµÉAiÀÄ£ÀÄß NzÀ®Ä ªÀÄvÀÄÛ §gÉAiÀÄ®Ä w½¢gÀ¨ÉÃPÀÄ. • ¥ÀzÀ« ¥ÀÆªÀð ²PÀëtzÀ°è PÀ£ÀßqÀ ¨sÁµÉAiÀÄ£ÀÄß N¢gÀ¨ÉÃPÀÄ.				
	COURSE OBJECTIVES				
	£Á®Ä¸É«Ä¸ÀÖgïUÀ¼À°è ¸ÀªÀÄUÀæ PÀ£ÀßqÀ ¸Á»vÀåªÀ£ÀÄß ¥ÀjZÀ¬Ä¸ÀÄªÀ GzÉÝÃ±ÀªÀ£ÀÄß ºÉÆA¢zÉ. CzÀgÀAvÉ ªÉÆzÀ®£ÉAiÀÄ ¸É«Ä¸ÀÖgï£À°è d£À¥ÀzÀ, ¥ÁæaÃ£À, ªÀÄzsÀåPÁ°Ã£À PÁªÀåUÀ¼ÀÄ, ºÉÆ¸ÀUÀ£ÀßqÀzÀ ¸ÀtÚPÀxÉUÀ¼ÀÄ ºÁUÀÄ £ÁlPÀ ¸Á»vÀåªÀ£ÀÄß ¥ÀoÀåªÀ£ÁßV DAiÉÄÌ ªÀiÁrPÉÆAqÀÄ, «zÁåyðUÀ¼À°è ¸Á»vÀåzÀ §UÉÎ ¸ÀzÀ©ügÀÄaAiÀÄ£ÀÄß ªÀÄÆr¸À¯ÁUÀÄvÀÛzÉ. ¸ÁA¸ÀÌøwPÀ w¼ÀÄªÀ½PÉAiÀÄ eÉÆvÉUÉ ªÀåQÛvÀé «PÀ¸À£ÀzÀ PÀqÉUÉ UÀªÀÄ£À ¤ÃqÀ¯ÁUÀÄvÀÛzÉ. • ¨sÁµÉ, ¸Á»vÀå, EwºÁ¸À ªÀÄvÀÄÛ ¸ÀA¸ÀÌøwUÀ¼À£ÀÄß PÀ£ÀßqÀ, PÀ£ÁðlPÀPÉÌ ¸ÀA§A¢ü¹zÀAvÉ ¥ÀjZÀ¬Ä¸À¯ÁUÀÄvÀÛzÉ. • «zÁåyðUÀ¼À ¸ÀªÀðvÉÆÃªÀÄÄR ¨É¼ÀªÀtÂUÉUÉ C£ÀÄªÁUÀÄªÀAvÉ ºÁUÀÆ CªÀgÀ°è ªÀiÁ£ÀªÀ ¸ÀA§AzsÀUÀ¼À §UÉÎ UËgÀªÀ, ¸ÀªÀiÁ£ÀvÉ ªÀÄÆr¹, ¨É¼É¸ÀÄªÀ ¤nÖ£À°è ¥ÀoÀåUÀ¼À DAiÉÄÌAiÀiÁVzÉ. • CªÀgÀ°è ¸ÀÈd£À²Ã®vÉ, ±ÀÄzÀÞ ¨sÁµÉ, GvÀÛªÀÄ «ªÀÄ±ÁðUÀÄt, ¤gÀUÀð¼À ¸ÀA¨sÁµÀuÉ, ¨sÁµÀt PÀ¯É ºÁUÀÆ §gÀºÀ PË±À®åUÀ¼À£ÀÄß ¨É¼É¸ÀÄªÀÅzÀÄ UÀÄjAiÀiÁVzÉ • ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ½UÉ C£ÀÄPÀÆ®ªÁUÀÄªÀAvÀºÀ «µÀAiÀÄUÀ¼À£ÀÄß UÀªÀÄ£ÀzÀ°èèlÄÖPÉÆAqÀÄ ¸ÀÆPÀÛ ¥ÀoÀåUÀ¼À£ÀÄß DAiÉÄÌ ªÀiÁrPÉÆ¼Àî¯ÁVzÉ.				
	COURSE OUTCOMES				
	d£À¥ÀzÀ, ¥ÁæaÃ£À, ªÀÄzsÀåPÁ°Ã£ÀzÀ ««zsÀ ¥ÀæPÁgÀzÀ PÁªÀåUÀ¼ÀÄ, ºÉÆ¸ÀUÀ£ÀßqÀzÀ ¸ÀtÚPÀxÉUÀ¼ÀÄ ºÁUÀÄ £ÁlPÀ ¸Á»vÀå PÀ°PÉAiÀÄ ªÀÄÆ®PÀ PÁ®zÀ ¹ÜvÀåAvÀgÀUÀ¼À£ÀÄß CzÀgÀ M¼À£ÉÆÃlUÀ¼À£ÀÄß ¨É¼É¸ÀÄvÀÛzÉ.				

	• ¸ÁªÀiÁfPÀ, gÁdQÃAiÀÄ, zsÁ«ÄðPÀ, ¸ÁA¸ÀÌøwPÀ, ¥Àj¸ÀgÀ ºÁUÀÆ °AUÀ¸ÀA§A¢ü «ZÁgÀUÀ¼ÉqÉ UÀªÀÄ£À ºÀj¸ÀÄªÀÅzÀgÉÆA¢UÉ «zÁåyðUÀ¼À°è ZÀZÁð ªÀÄ£ÉÆÃ¨sÁªÀªÀÅ ¨É¼ÉAiÀÄÄvÀÛzÉ. • fÃªÀ£ÀzÀ°è §gÀÄªÀ C©ü¥ÁæAiÀÄ ¨ÉÃzsÀUÀ¼ÀÄ, ¸ÀªÀÄ¸ÉåUÀ¼À£ÀÄß DzsÀÄ¤PÀ ¸ÀAzÀ¨sÀðzÀ°è ªÀiÁ£À«ÃAiÀÄvÉAiÉÆA¢UÉ ¤ªÀð»¸ÀÄªÀAvÉ ¥ÉæÃgÉÃ¦¸ÀÄvÀÛzÉ. • GvÀÛªÀÄ ¸ÀAªÀºÀ£À PÀ¯ÉAiÀÄ£ÀÄß ¨É¼É¸ÀÄªÀ GzÉÝÃ±ªÀ£ÀÄß FqÉÃj¸ÀÄvÀÛzÉ. • ¸ÀA±ÉÆÃzÀ£Á ªÀÄ£ÉÆÃ¨sÁªÀ ªÀÄvÀÄÛ ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ½UÉ «zÁåyðUÀ¼À£ÀÄß ¸ÀdÄÓUÉÆ½¸ÀÄvÀÛzÉ.		
	COURSE CONTENTS		
UNIT I			**[7 HOURS]**
	1. d£À¥ÀzÀ: PÉgÉUÉ ºÁgÀ 2. ¥ÀA¥À: ¸ÁªÀiÁ£Àå ªÉÄ §UÉAiÉÄ ¨sÀªÀvÉÌÃ±À¥Á±À ¥Àæ¥ÀAZÀA? 3. d£Àß: ¥ÉÆ®èªÉÄAiÉÄ ¯ÉÃ¸ÀÄ £À®ègÀ ªÉÄAiÉÆå¼ï		
UNIT II			**[7 HOURS]**
	1. £ÁUÀZÀAzÀæ: £À¼ÀPÀÆ§gÀ£À ¥Àæ¸ÀAUÀ 2. DAiÀÄÝ ªÀZÀ£ÀUÀ¼ÀÄ 3. ºÀjºÀgÀ: E¼ÉAiÀiÁAqÀ UÀÄrªÀiÁgÀ£À gÀUÀ¼É		
UNIT III			**[6 HOURS]**
	1. ¤gÀAd£À: PÉÆ£ÉAiÀÄ VgÁQ 2. ¨É¸ÀUÀgÀºÀ½î gÁªÀÄtÚ: ¥ÀæeÁ¥Àæ¨sÀÄvÀé ªÀÄvÀÄÛ ªÀÄÆgÀÄ ªÀÄAUÀUÀ¼ÀÄ 3. «dAiÀÄ ºÀÆUÁgÀ: ¨ÉAzÀPÁ¼ÀÆgÀÄ		
UNIT IV			**[6 HOURS]**
	1. d®UÁgÀ : PÀÄªÉA¥ÀÄ		
	TEXT BOOKS		
1.	1. ªÀÄÄUÀ½ gÀA.²æÃ., PÀ£ÀßqÀ ¸Á»vÅå ZÀjvÉæ, ¥ÀæPÁ±ÀPÀgÀÄ VÃvÁ §ÄPï ºË¸ï, ªÉÄÊ¸ÀÆgÀÄ. 2014 2. ¸ÀAUÀæºÀ. £ÁUÉÃUËqÀ JZï.J¯ï., ZÁjwæPÀ d£À¥ÀzÀ PÀxÀ£À PÁªÀåUÀ¼ÀÄ, ¥ÀæPÁ±ÀPÀgÀÄ PÀ£ÁðlPÀ eÁ£À¥ÀzÀ ¥ÀjµÀvÀÄÛ, ¨ÉAUÀ¼ÀÆgÀÄ. 2008 3. ¹Ãª ÀiÁwÃvÀ PÀ£ÀßqÀ ¸Á»vÅå ZÀjvÉæ ¸ÀA¥ÀÄl 1,2,3,4,5 ªÀÄvÀÄÛ 6, PÀÄªÉA¥ÀÄ PÀ£ÀßqÀ CzsÀåAiÀÄ£À ¸ÀA¸ÉÜ, ªÉÄÊ¸ÀÆgÀÄ «±Àé«zÁå¤®AiÀÄ, ªÉÄÊ¸ÀÆgÀÄ. 2014 4. ¸ÀAUÀæºÀ. £ÁUÉÃUËqÀ JZï.J¯ï., PÀ£ÀßqÀ d£À¥ÀzÀ PÀxÀ£À PÁªÀåUÀ¼ÀÄ, ¥ÀæPÁ±ÀPÀgÀÄ PÀ£ÁðlPÀ eÁ£À¥ÀzÀ ¥ÀjµÀvÀÄÛ, ¨ÉAUÀ¼ÀÆgÀÄ. 2007 5. £ÁgÁAiÀÄt ¦.«, ZÀA¥ÀÆ PÀ«UÀ¼ÀÄ, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2010 6. PÁ¼ÉÃUËqÀ £ÁUÀªÁgÀ, wæ¥À¢, gÀUÀ¼É ªÀÄvÀÄÛ eÁ£À¥ÀzÀ ¸Á»vÅå, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2010 7. ¸ÀA. ¨É£ÀUÀ¯ï gÁªÀÄ gÁªï ªÀÄvÀÄÛ ¥Á£ÀåA ¸ÀÄAzÀgÀ ±Á¹ÛçÃ, ¥ÀÄgÁt £Áªª ÀÄ ZÀÆqÁªÀÄtÂ, ¥ÀæPÁ±ÀPÀgÀÄ ¥Àæ¸ÁgÁAUÀ, ªÉÄÊ¸ÀÆgÀÄ «±Àé«zÁå¤®AiÀÄ. 2010		

8. qÁ. azÁ£ÀAzÀ ªÀÄÆwð, ªÀZÀ£À ¸Á»vÀå, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2013
9. ¸ÀA ªÀÄgÀÄ¼À¹zÀÝ¥Àà PÉ, £ÁUÀgÁd Q.gÀA. ªÀZÀ£À PÀªÀÄäl, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2016
10. ªÀÄgÀÄ¼À¹zÀÝ¥Àà PÉ, µÀlà¢ ¸Á»vÀå, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2010
11. ¸ÀA. ¸ÉÃvÀÄgÁªÀÄ gÁªï C.gÁ., ²æÃ ®Qëöä±À£À eÉÊ«Ä¤ ¨sÁgÀvÀ(ªÀÄÆ®-vÁvÀàAiÀÄð-¸ÀavÀæ), ¥ÀæPÁ±ÀPÀgÀÄ PÁªÀÄzsÉÃ£ÀÄ ¥ÀÄ¸ÀÛPÀ ¨sÀªÀ£À, ¨ÉAUÀ¼ÀÆgÀÄ. 2010
12. ¸ÀA. ¸ÉÃvÀÄgÁªÀÄ gÁªï C.gÁ., ²±ÀÄ£Á¼À ±ÀjÃ¥sÀgÀ £ÀÆgÁgÀÄ vÀvÀé¥ÀzÀUÀ¼ÀÄ, ¥ÀæPÁ±ÀPÀgÀÄ PÁªÀÄzsÉÃ£ÀÄ ¥ÀÄ¸ÀÛPÀ ¨sÀªÀ£À, ¨ÉAUÀ¼ÀÆgÀÄ. 2007
13. ¸ÀA. f.J¸ï.¨sÀmï., PÀÄªÀiÁgÀªÁå¸À£À PÀuÁðl ¨sÁgÀvÀ PÀxÁªÀÄAdj ¥ÀæªÉÃ±À, ¥ÀæPÁ±ÀPÀgÀÄ CPÀëgÀ ¥ÀæPÁ±À£À, ºÉUÉÆÎÃqÀÄ, ¸ÁUÀgÀ. 2006
14. gÀAeÁ£ï zÀUÁð, ±ÀgÀtgÀ ¸ÀªÀÄUÀæ PÁæAw, ¥ÀæPÁ±ÀPÀgÀÄ. ¯ÉÆÃ»AiÀiÁ ¥ÀæPÁ±À£À, §¼Áîj. 2015
15. QÃvÀð£ÁxÀ PÀÄvÀðPÉÆÃn, PÀ£ÀßqÀ ¸Á»vÀå ¸ÀAUÁw, ¥ÀæPÁ±ÀPÀgÀÄ PÀÄvÀðPÉÆÃn ªÉÄªÉÆÃjAiÀÄ¯ï læ¸ïÖ, zsÁgÀªÁqÀ. 2009
16. ±ÁªÀÄgÁAiÀÄ vÀ.¸ÀÄ., PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ, ¥ÀæPÁ±ÀPÀgÀÄ vÀ¼ÀÄQ£À ªÉAPÀtÚAiÀÄå ¸ÁägÀPÀ UÀæAxÀªÀiÁ¯É, ªÉÄÊ¸ÀÆgÀÄ -2014
17. ²ªÀgÀÄzÀæ¥Àà f.J¸ï. PÀ£ÀßqÀ ¸Á»vÀå ¸À«ÄÃPÉë, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2013
18. ¸ÀA.f.J¸ï.CªÀÄÆgÀ, PÀ£ÀßqÀ ¸ÀtÚ PÀxÉUÀ¼ÀÄ, £ÁµÀ£À¯ï §ÄPï læ¸ïÖ, £ÀªÀzÉºÀ°, 2000
19. ¸ÀA. qÁ. ¨ÉÊgÀªÀÄAUÀ® gÁªÉÃÃUËqÀ, ªÀvÀðªÀiÁ£ÀzÀ PÀxÉUÀ¼ÀÄ, PÀ£ÀßqÀ ¸Á»vÀå ¥ÀjµÀvÀÄÛ, ¨ÉAUÀ¼ÀÆgÀÄ 2011
20. ¸ÀA. qÁ. gÁªÀÄ°AUÀ¥Àà n. ¨ÉÃUÀÆgÀÄ, ªÀvÀðªÀiÁ£ÀzÀ PÀxÉUÀ¼ÀÄ, PÀté ¥ÀæPÁ±À£À, ¨ÉAUÀ¼ÀÆgÀÄ, 2013

SUBJECT_CODE	Language I: Hindi	L	T	P	C
B21AHH102		1	1	0	2

Course Description

यह पाठ्यक्रम नौसिखिया अपनी भाषा ,की क्षमता का विकास करने हेतु तथा विभिन्न साहित्यिक प्रक्रियाओं द्वारा समाज संस्कृति एवं जीवन के मूल्यों को समझने हेतु अभिकल्पित है ,

Prerequisites:

- अध्येता, पी.यु.सी के स्तर पर द्वितीय भाषा के रूप में हिन्दी का अध्ययन करना चाहिए |
- हिन्दी साहित्य के इतिहास का संक्षिप्त ज्ञान की आवश्यकता है |

- हिन्दी व्याकरण का अवबोधन आवश्यक है |
- अंग्रेज़ी – हिन्दी अनुवाद से संबंधित जानकारी जरुरी है |

Course Objectives:

1. संदर्भानुसार उचित भाषा का प्रयोग करने की दक्षता को छात्रों में उत्पन्न करना |
2. साहित्य के माध्यम से समाज एवं मानवीय मूल्यों को समझाकर, उन मूल्यों की रक्षा हेतु प्रेरित करना
3. छात्रों में पुस्तक पठन एवं लेखन की अकृतिम प्रवृत्ति स्थापित करना |
4. अध्येताओं में साहित्य के माध्यम से प्रभावी एवं कुशल संचार का विकास करना

Course Outcomes:

अध्ययन की समाप्ति पर अध्येता –

- सामाजिक मूल्य एवं नैतिक जवाबदेही को स्वीकार कर सकता है |
- साहित्य की प्रासंगिकता को जीवन में समझने की दक्षता रखता है |
- समाज में अंतर्निहित पद्दतियाँ एवं विचारधाराओं का व्याख्यान करने में सक्षम बन सकता है |
- साहित्य के माध्यम से प्रभावी एवं कुशल संचार का विकास करसकता है |

Course Content:

UNIT I **[7 Hours]**

1 कहानी – तावान – प्रेमचंद

2 कहानी – उसकी रोटी – मोहन राकेश

3 व्यंग्य रचना – वैष्णव की फिसलन – हरीशंकर परसाई

UNIT II **[7 Hours]**

1. कहानी – वापसी - उषा प्रियंवदा
2. कहानी – तीसरी बेटी के नाम - सुधा अरोड़ा
3. निबंध – अच्छी हिन्दी – रवीन्द्रनाथ त्यागी

UNIT III **[6 Hours]**

1. कहानी – जल्लाद – पांडेय बेचन शर्मा 'उग्र'
2. रेखाचित्र – बुधिया कब आएगा – ज्ञानचंद मर्मज्ञ
3. एकांकी – अंधेर नगरी – भारतेन्दु हरिश्चंद्र

UNIT IV **[6 Hours]**

अनुवाद अनुच्छेद (अंग्रेजी से हिन्दी में)

संक्षेपण

सूचना : प्रत्येक इकाई 25 अंक के लिए निर्धारित है |

Text books:

1. हिन्दी पाठ्य पुस्तक – रेवा विश्वविद्यालय |

References:

1. सुबोध व्यवहारिक हिन्दी – डॉ. कुलदीप गुप्त
2. अभिनव व्यवहारिक हिन्दी – डॉ.परमानन्द गुप्त
3. हिन्दी साहित्य का इतिहास - डॉ. नागेन्द्र
4. आधुनिक हिन्दी साहित्य का इतिहास - डॉ. बच्चन सिंह
5. हिन्दी साहित्य का नवीन इतिहास - डॉ. लाल साहब सिंह
6. शुद्ध हिन्दी कैसे बोले कैसे लिखे- पृथ्वीनाथ पाण्डे
7. कार्यालय अनुवाद निदेशिका
8. संक्षेपण और पल्लवन - के.सी.भाटिया&तुमन सिंग
9. हिन्दी निबंध लेखन – प्रो. विराज
10. निबंध माला – योगेशचंद जैन

SUBJECT_CODE	Language I: Additional English	L	T	P	C
B21AHA101		1	1	0	2

Course Description

This is a 2-credit course designed to help the learner gain competency in language through the introduction of various genres of literature. The course aims to inculcate a critical view among learners while sensitizing them to the contemporary issues around. It facilitates creative learning and helps to appreciate, assimilate and research on the various dimensions of society, culture and life.

Prerequisites:

The student must possess fundamentals of language skills and be aware of social issues.

Course Objectives:

The objectives of this course are:

- To develop linguistic prowess of the students.
- To appraise different genres of literature.
- To illustrate the fundamentals of creative language.
- To enhance consistent reading habits.

Course Outcomes:

- Demonstrate a thorough understanding of sensitive and critical social issues
- Develop reading skills and a wide range of vocabulary
- Critically analyze a piece of prose or poetry.
- Explain their opinion in a coherent and communicable manner.

Course Content:

UNIT I **[7 Hours]**

Values & Ethics

Literature: Rabindranath Tagore - Where the Mind is Without Fear

Saki – The Lumber-room

William Shakespeare – Extract from Julius Caesar (Mark Antony's Speech)

Language: Vocabulary Building.

UNIT II **[6 Hours]**

Natural & Supernatural

Literature: John Keats – La Belle Dame Sans Merci

Charles Dickens – The Signal Man

Hans Christian Anderson - The Fir Tree

Language: Collective Nouns

UNIT III **[7 Hours]**

Travel & Adventure

Literature: R.L. Stevenson – Travel

H.G. Wells – The Magic Shop

Jonathan Swift – Excerpt from Gulliver's Travels Book – I

Writing Skills: Travelogue

UNIT IV **[6 Hours]**

Success Stories

Literature: Emily Dickinson – Success is Counted Sweetest

Dr. Martin Luther King - I Have a Dream

Helen Keller – Excerpt from The Story of My Life

Writing Skills: Brochure & Leaflet

Reference Books:

1. Tagore, Rabindranath. Gitanjali. Rupa Publications, 2002.
2. Wordsworth, William. The Complete Works of William Wordsworth. Andesite Press, 2017.
3. Munro, Hector Hugh. The Complete Works of Saki. Rupa Publications, 2000.
4. Shakespeare, William. The Complete Works of William Shakespeare. Sagwan Press, 2015.
5. Chindhade, Shirish. Five Indian English Poets: Nissim Ezekiel, A.K. Ramanujan, Arun Kolatkar, Dilip Chitre, R. Parthasarathy. Atlantic Publications, 2011
6. Dickens, Charles. The Signalman and Other Horrors: The Best Victorian Ghost Stories of Charles Dickens: Volume 2. Createspace Independent Publications, 2015.
7. Anderson, Hans Christian. The Fir Tree. Dreamland Publications, 2011.
8. Colvin, Sidney (ed). The Works of R. L. Stevenson. (Edinburgh Edition). British Library, Historical Prints Edition, 2011.
9. Bishop, Elizabeth. Poems. Farrar, Straus and Giroux, 2011.
10. Swift, Jonathan. Gulliver's Travels. Penguin, 2003.
11. Dickinson, Emily. The Complete Poems of Emily Dickinson. Createspace Independent Publications, 2016.
12. Brooke, Rupert. The Complete Poems of Rupert Brooke. Andesite Press, 2017.
13. King, Martin Luther Jr. &James M. Washington. I Have a Dream: Writings And Speeches That Changed The World. Harper Collins, 1992.
14. Keller, Helen. The Story of My Life. Fingerprint Publishing, 2016.
15. Green, David. Contemporary English Grammar Structures and Composition. New Delhi: MacMillan Publishers, 2010.
16. Thorpe, Edgar and Showick Thorpe. Basic Vocabulary. Pearson Education India, 2012.
17. Leech, Geoffrey and Jan Svartvik. A Communicative Grammar of English. Longman, 2003.
18. Murphy, Raymond. Murphy's English Grammar with CD. Cambridge University Press, 2004.

SUBJECT_CODE	Communicative English – I	L	T	P	C
B21AHE101		1	1	0	2

Course Description

This 2-credit course focuses on improving the spoken and written communication of the learners. The course develops personal, inter-personal and group skills among learners. It also addresses the functional aspects of language usage while providing specific linguistic tools through professional language learning software. The widespread reach of this course makes it highly practical and applicable.

Prerequisites:

The student must have knowledge of intermediate English Grammar and LSRW skills.

Course Objectives:

The objectives of this course are to:

- To enhance functional communication skills.
- To develop functional use of language in professional contexts.
- To utilize oral presentations in multiple contexts.
- To apply effective written skills in formal communication.

Course Outcomes:

After the completion of the course, students will be able to:

- Identify pressing issues relating to society, environment and media.
- Develop a process-oriented approach to writing.
- Apply the grammatical skills developed during the course aptly.
- Demonstrate a good command over language usage and refined interpersonal skills.

Course Contents:

UNIT I **[7 Hours]**

Functional English

Remedial Grammar: Past Simple; Past Continuous; Irregular Verbs

Writing Skills: Paragraph Writing

Activities: Conversations; Leaving Phone Messages

Literature: Chief Seattle – The End of Leaving and Beginning of Survival

UNIT II **[6 Hours]**

Interpersonal Skills

Remedial Grammar: Past Simple; Past Continuous; Irregular Verbs

Writing Skills: Paragraph Writing

Activities: Conversations; Leaving Phone Messages

Literature: Chief Seattle – The End of Leaving and Beginning of Survival

UNIT III **[7 Hours]**

Multitasking Skills

Remedial Grammar: Present Perfect; For, Since & How Long; -ed & -ing adjectives; Prefix & Opposites of Adjectives

Writing Skills: Note Making

Activities: Agreeing & Disagreeing with Opinions

Literature: Jesse Owens - My Greatest Olympic Prize

UNIT IV **[6 Hours]**

Communication Skills

Remedial Grammar: Collocations; Prepositions

Writing Skills: Precise Writing

Activities: Offers, Suggestions & Requests

Literature: Avijit Pathak – Onscreen Magic

Reference Books:

1. Green, David. *Contemporary English Grammar Structures and Composition*. New Delhi: MacMillan Publishers, 2010.
2. Thorpe, Edgar and Showick Thorpe. *Basic Vocabulary*. Pearson Education India, 2012.
3. Leech, Geoffrey and Jan Svartvik. *A Communicative Grammar of English*. Longman, 2003.
4. Murphy, Raymond. *Murphy's English Grammar with CD*. Cambridge University Press, 2004.
5. Rizvi, M. Ashraf. *Effective Technical Communication*. New Delhi: Tata McGraw-Hill,2005
6. Riordan, Daniel. Technical Communication. New Delhi: Cengage Publications, 2011.
7. Sen et al. Communication and Language Skills. Cambridge University Press, 2015.

SUBJECT_CODE	Art & 2D Animation-1	L	T	P	C
B21DD0101		2	0	2	4

Course Description

Drawing's part of the process of planning. With modern technology, communicating with a visual representation has been made possible, and **art** is the backbone to this fact. The course starts with basic drawing and then moves to Perspective drawings. It introduces color wheel and color concepts. Then moves to History of animation and explain how Animations are widely used in the art industry in the creation of modern games, movies and also advertisements. Also explain principles behind animation.

Prerequisites:

Should have interest towards drawing & creativity.

Course Objectives:

The objectives of this course are:

- To explain the elements and composition of drawing.
- To show how colors are organized on a color wheel.
- Discuss the history and need for animation and 12 Principles of animation.

Course Outcomes:

Upon Completion of the course, the students will be able to:

- Demonstrate an understanding of perspective drawing and identify different types of art.
- Relate how light & shadow color choices affect the entire mood, tone and composition of design.
- Understand various animation techniques and discover the three stages of developing an animation.
- Develop observational skills, learn the 12 principles of animation.

Course Content:

UNIT I **[13 Hours]**

Drawing: Introduction, Elements of Drawing, using basic shapes, Creating Drawings, Types of Drawing, Drawing Composition, understanding linear perspective, one-point Perspective, two-point Perspective, three-point Perspective, Horizons and vanishing points, arches and roofs, working from reference materials.

UNIT II **[13 Hours]**

Color Theory: Introduction to Color Wheel, Color Concepts, color schemes, Hue, Saturation, Value, Transparent and Opaque Colors, Color Models, Indexed Color, True Color.

UNIT III **[13 Hours]**

Animation: Introduction to Animation, History of Animation, Need for Animation, Animation Techniques. Animation Production Stages, Traditional Animation Process.

UNIT IV **[13 Hours]**

Principles of Animation: Introduction, Stretch and Squash, Timing and Spacing, Ease in and Ease Out, Arcs, Follow Through and Overlapping, Staging, Anticipation, Exaggeration, Straight Ahead and Pose to Pose, Solid Drawing, Appeal, Secondary Action

Text Books:

1. Mark Willenbrink , Drawing for the Absolute Beginner: A Clear & Easy Guide to Successful Drawing (Art for the Absolute Beginner) Paperback – Illustrated, 2 November 2006.
2. Hannes Rall, Animation: From Concept to Production, Dec 21, 2017.
3. Patti Mollica , Color Theory: An essential guide to color-from basic principles to practical applications (Artist's Library) Paperback – 1 January 2013

Reference Books

1. Rita Tekippe , Introduction to Art- Design, Context, and Meaning , 2016.
2. Gilles Beloeil, Andrei Riabovitchev, Roberto F Castro, Art Fundamentals: Color, Light, Composition, Anatomy, Perspective, and Depth, 3dtotal Publishing, September 3, 2013.
3. Robin Williams, The Non-Designer's Design Book, 4th Edition, Peachpit Press, Nov 29, 2014.

SUBJECT CODE	Graphic Design Fundamentals	L	T	P	C
B21DD0102		2	0	0	2

Course Description

Graphic design is a craft where professionals create visual content to communicate messages. **Designers** use typography and pictures to meet users' specific needs. The course starts with the basic concepts of graphic designing. Then it focuses on designing a logo, designing a brochure, image editing, digital painting and creating graphics for print and web media using the industry standard software tools.

Prerequisites:

Should have a basic knowledge of using Computer and should have interest towards drawing & creativity.

Course Objectives:

The objectives of this course are to:

- To show exporting, creating, and printing Web graphics.
- To discuss the fundamentals of canvas and brushes of a standard image editing software.
- List the various tools and techniques of painting styles.

Course Outcomes:

Upon Completion of the course, the students will be able to:

- Illustrate graphic design skills by learning paint tools and different effects available in standard digital illustration software.
- Learn to combine text and graphics to create digital graphics, illustrations, logo design and typography for all kinds of media.
- Understand the relevance of Adobe Photoshop in advertising industry both in print & digital media.
- Identify the use of different brushes used for digital painting and also understand the importance of vector and layer masks in Adobe Photoshop.

Course Contents:

UNIT I **[7 Hours]**

Becoming a Graphic Designer: Organizational Structure in an Ad Agency, Vector, Raster, CMYK, RGB, Use of Vectors in Creative Services, Illustrator Window, Working with Documents, Creating New Documents, Using Artwork Space, Tools, Swatches Panel, Correcting Mistakes, Saving Documents.

UNIT II **[6 Hours]**

Creating Art works: Designing logos, creating vector illustrations, turning photographs into vector artwork, Vectorizing and colorizing traced hand drawings, preparing graphics for web and print, designing infographics, Working with type in creative ways.

UNIT III **[7 Hours]**

Interface & Features of standard Image editing software, Tools used, relevance of a standard software in advertising – Print and Digital Media, working with the tools, layers & images, Typography and its relevance in advertising, create typographies using type tools, relevance of choosing the right font and color.

UNIT IV **[7 Hours]**

Digital Painting and Masking: Different types of brushes used for digital painting, steps to create and save custom brushes for digital painting, Recognize the relevance of choosing and mixing the right color for print and digital media, importance of vector and layer masks, steps to create a vector and layer masks for print and digital media designs..

Text Books:

1. Joel Lardner, Digital Art Techniques for Illustrators & Artists: The Essential Guide to Creating Digital Illustration and Artworks Using Photoshop, Illustrator, and Other Software, Barrons Educational Series Inc, Apr 1, 2012.
2. Andrew Faulkner, Conrad Chavez, Adobe Photoshop CC Classroom in a Book, First edition, Pearson

3. Education, 15 June 2018.

Reference Books:

1. Joel Lardner, Paul Roberts, Digital Art Technique Manual for Illustrators and Artists: The Essential Guide to Creating Digital Illustration and Artworks Using Photoshop, Illustrator, and Other Software, Barrons Educational Series Inc, March 1, 2012.

2. Carlyn Beccia, The Digital Renaissance: Classic Painting Techniques in Photoshop and Painter, Edition 1, Focal Press, Apr 18, 2014.

SUBJECT_CODE	Introduction to Python Programming	L	T	P	C
B21DD0103		2	0	0	2

Course Description:

This course is intended to introduce the basics and features of Python Language and functions, classes and objects . The Students are suggested to install Python and also install any of the IDEs-Anaconda ,a Scientific environment for Python. Students are get acquainted with the syntax of the various constructs in Python.

Course Prerequisites:

NIL

Course Objectives:

- To imbibe the Basics of Python Language Constructs
- To inculcate Modular Programming approach in python
- Solve the given problem using the syntactical structures of python language.

Course Outcomes:

On completion of this course the student will be able to:

- Understand the Basic Terminologies used in python programming.
- Comprehend Branching and Looping statements in Python Programming.
- Apply the concept of Functions in Problem solving.
- Implement the concepts of Classes, Objects & Inheritance

Course Contents:

UNIT I **[7 Hours]**

Introduction to Python:: Python in real world, Why Python, Python 2 vs Python 3, Installing and Running Python, Python Ingredients:Numbers, Strings and Variables: Variables, names and objects, Numbers – Integers, Precedence, Bases, Type conversions, Floats, Math functions, Strings.

UNIT II **[6 Hours]**

Lists, Tuples, Dictionaries and Sets: Lists and Tuples: Lists, Tuples, Dictionaries, Sets, Code Structures: comment with #, Continue line with \, Compare with if, elif, else, Repeat with while, Iterate with for.

UNIT III **[7 Hours]**

Functions, Modules, and Packages: Functions, Specify Default Parameter values, Inner functions, Anonymous functions, name spaces and scope, Standalone Programs, Command-Line Arguments, Modules and the import statement, packages.

UNIT IV **[6 Hours]**

Objects and Classes: Define a class with class, Inheritance, Override a method, Add a method, In Self defense, Get and Set attribute values with properties, Name mangling for privacy, Method types, Special methods and composition.

Text books:

1. Bill Lubanovic, "Introducing Python", O'reilly Publications, 1st Edition, (chapters 1-6). M.G.Venkateshmurthy, "Introduction To Unix & Shell Programming", First Edition, Pearson Education, 2004.
2. Richard Petersen, "The Complete Reference Linux " Sixth Edition Petersen, Tata Mcgraw Hill [Chapter 1].
3. Kernighan B W & Robert B, "The Unix Programming Environment".

Reference Books:

1. Michael Dawson, "Python Programming for absolute beginners", Course Technology-A part of CENGAGE Learning, 3rd Edition.
2. Michael Dawson ,Python Programming, 3rd Edition, Course technology PTR, 2010.
3. Robert Galanakis, Practical Maya Programming With Python, Shroff Publishers & Distributors, 2014.

SUBJECT_CODE	UI/ UX - I	L	T	P	C
B21DD0104		2	0	1	3

Course Descriptions:

User Interface (UI) - User experience (UX) design is the process to create products that provide meaningful and relevant experiences to users. This involves the design of the entire process of acquiring and integrating the product, including aspects of branding, design, usability and function. This course starts with the introduction to UX, explain the difference between good & poor design and the cognitive aspects of the design. Further, it explains understanding and conceptualizing the interaction, creating design strategy, creating profiles & Persona, different methods of data gathering, Tasks & scenarios.

Course Prerequisites:

Should have interest towards designing & creativity.

Course Objectives:

The objectives of this course are to:

- To explain the history & value of UX.
- To discuss the Importance of human centered design.
- To Explain what cognition is and why it is important for interaction design.

Course Outcomes:

Upon Completion of the course, the students will be able to:

- Understand the definition and principles of UI/UX Design in order to design with intention and analyze the difference between good and poor design.
- Understand how the cognitive and physical capabilities of users inform the design of interactive products.
- Understand a conceptual model and outline the core interaction types for the development of a conceptual model.
- Identify the users who will use the product, what they will use it for, and under what conditions they will use it.

Course Contents:

UNIT I Introduction [10 Hours]

Introduction, good and poor design, The User experience, UX Goals, Design principles, Applying Design principles in practice.

UNIT II Cognitive Aspects [10 Hours]

Introduction, Cognitive Aspects- Vision, Intellect, Memory, Mortar. Cognitive frame works, information processing.

Hick-Hyman Law, fits' law in design.

UNIT III Understanding and conceptualizing Interaction [10 Hours]

Introduction, understanding the problem, conceptual models, Interface Metaphors, Interaction types, Design strategy**.**

UNIT IV Data Gathering [9 Hours]

Introduction, identifying participants, creating profiles and personas, Data recording, Interviews, Questionaries, observation, choosing a combining technique, qualitative and quantitative data, summarizing the findings, task description – scenarios and use cases.

Text Books:

1. Helen Sharp, Jennifer Preece , Yvonne Rogers ,Interaction Design: Beyond Human-Computer Interaction – 10 May 2019.

Reference Books:

1. Steve Krug , Don't Make Me Think, Revisited A Common-Sense Approach to Web Usability
2. John Pruitt and Tamara Adlin, The Persona Lifecycle: A Field Guide for Interaction Designers
3. Jakob Nielsen and Robert L. Mack , Usability Inspection Methods
4. Hugh Beyer and Karen Holtzblatt ,Contextual Design: Defining Customer-Centered Systems

Websites:

1. https://www.interaction-design.org/courses/human-computer-interaction
2. https://www.interaction-design.org/literature

SUBJECT_CODE	Graphic Design Fundamentals Lab	L	T	P	C
B21DD0105		0	0	2	2

Course Descriptions:

Graphic design is all around us, both on screen and in print, yet it is always made up of images and words to create a communication goal. This course sequence exposes students to the fundamental skills required to make sophisticated graphic design process and communication through image-making and typography. The skills gained during this course are: Branding, Brochure design, Typography, Creativity, Color Theory, Adobe Illustrator, Image editing, Adobe Photoshop.

Course Prerequisites:

Basic Knowledge of computer and interest towards creativity.

Course Objectives:

The objectives of this course are to:

1. To Illustrate graphic skills by learning paint tools and different effects available in a standard digital illustration software.
2. Learn how to make, manipulate and arrange images to create compositions.
3. To discuss the fundamentals of canvas and brushes of a standard digital painting software.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. learn how to explore and investigate visual representation through a range of image-making techniques.
2. Understand basic principles of working with shape, color and pattern and apply the principles of composition and visual contrast.
3. Communicate through image-making and typography.
4. Gain the fundamental skills needed to be a graphic designer.

LAB PROGRAMS

PART-A

1. Artboards in Adobe Illustrator, Tools- Selection & Direct selection tool, shape tool, grouped vectors, compounding vector shapes & using the shape builder tool
2. Drawing with the Pen tool / Brush tool / Pencil tool, Blob brush tool & Eraser tool
3. Setting up a document. Placing in a drawing / Sketch and Tracing a hand drawn sketch & converting to vector artwork. Coloring a vector drawing in Adobe Illustrator
4. Type tools. Adding type to a poster design in Adobe Illustrator
5. Photoshop workspace. Tools & Layers- Use the selection tools on an existing photo. Select, cut, copy, paste, transform to create a new picture.
6. Use various retouching tools to an old torn photograph image and repair it
7. Type tools. Use appropriate type and colors for given words
8. Apply Smart Filters to a complete object, to a selected section of an object, and to a regular layer. Apply Smart Filters to a complete object, to a selected section of an object, and to a regular layer.

PART-B

1. Design a Logo for a Design studio
2. Take a photograph of any person to create the Vector Portrait of it. Use Illustrator software to create the portrait
3. Design a Visiting card for an interior design studio
4. Create Digital painting in Adobe photoshop using brush tool
5. Design Magazine Cover page
6. Apply Masking techniques to merge two images in such a way that the objects in both the images should appear beside each other in one image.
7. Create Sign In/ Sign Up screen of app.
8. Design Home page Interior design studio website.

SUBJECT_CODE	Python Programing lab	L	T	P	C
B21DD0106		0	0	2	2

Course Description:

This course focuses on developing programming skills to step into the intricacies of world of programming with an aim to develop simple games by the students.

Prerequisites:

To start with Python programming one should have a basic understanding of Computer. Programming terminologies and some knowledge about programming languages.

Course Objectives:

The objective of this course are to

- Provide students with understanding of python code organization and functional hierarchical decomposition.
- To inculcate the Object oriented programming concepts.

Course Outcomes:

On completion of the course, learners will be able to:

- Write, Test and Debug Python Programs
- Implement concept of object oriented programming , Conditionals statements and Loops
- Apply the concept of Functions and Files in Problem solving.
- Implement games in python.

LAB PROGRAMS

PART A

1. Demonstrate runtime reading of Strings.
    i) Illustrate the concept of String Slicing.
    ii) Also demonstrate a minimum of 5 functions defined on Strings.
2. Write a program to find the biggest of three numbers
3. Write a program to generate Fibonacci sequence
4. Write a program to draw graphical primitives (line, circle, ellipse, arc) using library functions
5. Demonstrate the usage of math and cmath module to find the roots of a Quadratic Equation)
6. Program to do different operations on Lists, Tuples and Dictionaries
7. Define a class polygon which has members such as sides and have member functions such as getsides() , display() and calculatearea(). (to read sides, display polygon and calculate the area of the polygon). Derive a class Rectangle from polygon and create an object of Rectangle class to find the area of the rectangle.
8. Illustrate the usage of files with the help of different functions defined on Files(such as write, read(demonstrate all four forms), open, and close(use both the forms of closing a file)
9. Design a menu driven program to draw the following graphical objects using library functions
    i) triangle
    ii) Hexagon
    iii) Concentric circles
10. Write a program to find the factorial of a number using user defined functions

PART B

1. Design Jumble Game. Enjoy Playing it.
2. Design Guess My Number Game. Check if you are able to guess the correct Number

SUBJECT_CODE	Environmental Studies	L	T	P	C
B21ASM101					

Course Descriptions:

Environmental Studies covers a broad scale of earth's environmental issues . It seeks to understand the connection between the environment and human society. Its primary objective is to imbibe the concerns of all environmental aspects in order to create awareness among students.

Course Prerequisites:

Nil

Course Objectives:

The objectives of this course are to:

- To familiarize students with environmental issues as how to conserve, preserve and protect our Environment.

Course Outcomes:

Upon Completion of the course, the students will be able to:

- Analyze the environmental conditions and protect it.
- Observe the role of individual, government and NGO in environmental protection.
- Search for new renewable energy resources with high efficiency through active research.
- Analyze the ecological imbalances and protect it.
- List the causes of environmental pollution & find ways to overcome them.
- Design pollution controlled products.

Course Contents:

UNIT I Introduction **[10 Hours]**

Multidisciplinary nature of environmental studies – Definition -Scope and importance-Need for public awareness.

UNIT II Natural Resources **[10 Hours]**

Renewable and non-renewable -Problems associated - Forest resources-Water resources-Mineral resources-Food resources-Energy resources-Land resources and their conservation.

UNIT III Environmental Pollution **[10 Hours]**

Definition- Causes - Effects and control measures of air - Water-Soil-Marine-Noise-Thermal -Nuclear pollutions - Solid waste management-Prevention of pollution.

UNIT IV Social Issues and the Environment **[9 Hours]**

Unsustainable to sustainable development, Environmental ethics, Climate changes, global warming, Wildlife protection act, Public awareness,- Human Population and the Environment- Population growth - Population explosion - Human rights - Value education - Role of information technology in environment and human health - HIV/Aids -Women and child welfare.

Reference Books:

1. Desai R.G, "Environmental studies", Himalaya Pub. House.
2. Agarwal, K.C, "Environmental Biology", Nidi Publ. Ltd. Bikaner, 2001.
3. BharuchaErach, "The Biodiversity of India", Mapin Publishing Pvt. Ltd.,
4. Jadhav, H &BhosaleV.M.,"Environmental Protection and Laws", Himalaya Pub. House, Delhi. 1995
5. Rao M N. &Datta, A.K.,"Waste Water treatment", Oxford & IBH Publ. 1987

SECOND SEMESTER

SL. NO	Code	Title	HC/ SC/ FC	Credit Pattern			Credits	Working Hrs.
				L	T	P		
1	B21AHK202	Language –II Kannada	FC	1	1	0	2	3
	B21AHH202	Language –II Hindi	FC					
	B21AHA201	Language –II Additional English	FC					
2	B21AHE201	Communicative English-II	FC	1	1	0	2	3
3	B22AS0208	Tree Plantation in Tropical Region: Benefits and Strategic Planning	FC	1	0	0	1	1
4	B21DD0201	Art & 2D Animation-II	HC	2	0	2	4	6
5	B21DD0202	Web Designing	HC	2	0	0	2	2
6	B21DD0203	UI/UX-II	HC	2	0	0	2	2
7	B21DD0204	SEO & Analytics	HC	3	0	0	3	3
Practical Courses								
8	B21DD0205	Web Designing Lab	HC	0	0	2	2	4
9	B21DD0206	UI/UX-II lab	HC	0	0	2	2	4
10	B21DD0207	Mini Project-I	HC	0	0	4	4	8
***Mandatory - (Non Creditable Courses)**								
11	B21LSM201	Constitution of India & Professional Ethics	-	0	0	0	0	2
12	B21DDM202	Skill Development Program						
Total Credits				**12**	**2**	**10**	**24**	**38**

SECOND SEMESTER

SUBJECT_CODE	Language II: Kannada	L	T	P	C
B21AHK202		1	1	0	2

COURSE DESCRIPTION

¨sÁµÉAiÀÄ£ÀÄß ªÀiÁvÀ£ÁqÀÄªÀ §gÉAiÀÄÄªÀ PË±À®å, ¸Á»vÀåzÀ §UÉÎ ¸ÀÆÜ®ªÁV ¥ÀjZÀ¬Ä¸ÀÄªÀ ªÀÄÆ®PÀ «zÁåyðUÀ¼À ªÀåQÛvÀé «PÁ¸À ºÁUÀÄ ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ¼À£ÀÄß UÀªÀÄ£ÀzÀ°èlÄÖPÉÆAqÀÄ, ¥Àæ¸ÀÄÛvÀ ¸ÀAzÀ¨sÀðPÉÌ «zÁåyðUÀ¼À£ÀÄß ¸ÀdÄÓUÉÆ½¸À®Ä ¥ÀoÀåªÀ£ÀÄß gÀÆ¦¸À¯ÁVzÉ. ¸Á»vÀå, PÀ¯É, ªÁtÂdå, DqÀ½vÁvÀäPÀ ªÀÄvÀÄÛ «eÁÕ£ÀzÀ «ZÁgÀUÀ½UÉ MvÀÛ£ÀÄß ¤ÃqÀ¯ÁVzÉ. EzÀÄ ªÉÆzÀ® JgÀqÀÄ ¸É«Ä¸ÀÖgï ªÀÄÆgÀÄ PÉærmïUÀ¼À£ÀÄß; ªÀÄÆgÀÄ ªÀÄvÀÄÛ £Á®Ì£ÉÃ ¸É«Ä¸ÀÖgï JgÀqÀÄ PÉærmïUÀ¼À£ÀÄß ºÉÆA¢zÉ.

PRE-REQUISITES

- PÀ£ÀßqÀ ¨sÁµÉAiÀÄ §UÉUÉ ¥ÁæxÀ«ÄPÀ w¼ÀÄªÀ½PÉ CUÀvÀå..
- ¨sÁµÉAiÀÄ£ÀÄß NzÀ®Ä ªÀÄvÀÄÛ §gÉAiÀÄ®Ä w½¢gÀ¨ÉÃPÀÄ.
- ¥ÀzÀ« ¥ÀÆªÀð ²PÀëtzÀ°è PÀ£ÀßqÀ ¨sÁµÉAiÀÄ£ÀÄß N¢gÀ¨ÉÃPÀÄ.

COURSE OBJECTIVES

£Á®ÄÌ ¸É«Ä¸ÀÖgïUÀ¼À°è ¸ÀªÀÄUÀæ PÀ£ÀßqÀ ¸Á»vÀåªÀ£ÀÄß ¥ÀjZÀ¬Ä¸ÀÄªÀ GzÉÝÃ±ÀªÀ£ÀÄß ºÉÆA¢zÉ. CzÀgÀAvÉ JgÀqÀ£ÉAiÀÄ ¸É«Ä¸ÀÖgï£À°è ªÀÄzsÀåPÁ°Ã£À PÁªÀåUÀ¼ÀÄ, ¯ÉÃR£ÀUÀ¼ÀÄ ºÁUÀÄ ¸ÀAQÃtð ¸Á»vÀåªÀ£ÀÄß ¥ÀoÀåªÀ£ÁßV DAiÉÄÌ ªÀiÁrPÉÆAqÀÄ, «zÁåyðUÀ¼À°è ¸Á»vÀåzÀ §UÉÎ ¸ÀzÀ©ügÀÄaAiÀÄ£ÀÄß ªÀÄÆr¸À¯ÁUÀÄvÀÛzÉ. ¸ÁA¸ÀÌøwPÀ w¼ÀÄªÀ½PÉAiÀÄ eÉÆvÉUÉ ªÀåQÛvÀé «PÀ¸À£ÀzÀ PÀqÉUÉ UÀªÀÄ£À ¤ÃqÀ¯ÁUÀÄvÀÛzÉ.

- ¨sÁµÉ, ¸Á»vÀå, EwºÁ¸À ªÀÄvÀÄÛ ¸ÀA¸ÀÌøwUÀ¼À£ÀÄß PÀ£ÀßqÀ, PÀ£ÁðlPÀPÉÌ ¸ÀA§A¢ü¹zÀAvÉ ¥ÀjZÀ¬Ä¸À¯ÁUÀÄvÀÛzÉ.
- «zÁåyðUÀ¼À ¸ÀªÀðvÉÆÃªÀÄÄR ¨É¼ÀªÀtÂUÉUÉ C£ÀÄªÁUÀÄªÀAvÉ ºÁUÀÆ CªÀgÀ°è ªÀiÁ£ÀªÀ ¸ÀA§AzsÀUÀ¼À §UÉÎ UËgÀªÀ, ¸ÀªÀiÁ£ÀvÉ ªÀÄÆr¹, ¨É¼É¸ÀÄªÀ ¤nÖ£À°è ¥ÀoÀåUÀ¼À DAiÉÄÌAiÀiÁVzÉ.
- CªÀgÀ°è ¸ÀÈd£À²Ã®vÉ, ±ÀÄzÀÞ ¨sÁµÉ, GvÀÛªÀÄ «ªÀÄ±Áð UÀÄt, ¤gÀUÀð¼À ¸ÀA¨sÁµÀuÉ, ¨sÁµÀt PÀ¯É ºÁUÀÆ §gÀºÀ PË±À®åUÀ¼À£ÀÄß ¨É¼É¸ÀÄªÀåzÀÄ UÀÄjAiÀiÁVzÉ
- ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ½UÉ C£ÀÄPÀÆ®ªÁUÀÄªÀAvÀºÀ «µÀAiÀÄUÀ¼À£ÀÄß UÀªÀÄ£ÀzÀ°èèlÄÖPÉÆAqÀÄ ¸ÀÆPÀÛ ¥ÀoÀåUÀ¼À£ÀÄß DAiÉÄÌ ªÀiÁrPÉÆ¼Àî¯ÁVzÉ.

COURSE OUTCOMES

ªÀÄzsÀåPÁ°Ã£ÀzÀ ««zsÀ ¥ÀæPÁgÀzÀ PÁªÀåUÀ¼ÀÄ, ¯ÉÃR£ÀUÀ¼ÀÄ ªÀÄvÀÄÛ ¸ÀAQÃtð §gÀºÀ ¸Á»vÀå PÀ°PÉAiÀÄ ªÀÄÆ®PÀ PÁ®zÀ ¹ÜvÀåAvÀgÀUÀ¼À£ÀÄß CzÀgÀ M¼À£ÉÆÃlUÀ¼À£ÀÄß ¨É¼É¸ÀÄvÀÛzÉ.

- ¸ÁªÀiÁfPÀ, gÁdQÃAiÀÄ, zsÁ«ÄðPÀ, ¸ÁA¸ÀÌøwPÀ, ¥Àj¸ÀgÀ ºÁUÀÆ °AUÀ¸ÀA§A¢ü «ZÁgÀUÀ¼ÉqÉ UÀªÀÄ£À ºÀj¸ÀÄªÀÅzÀgÉÆA¢UÉ «zÁåyðUÀ¼À°è ZÀZÁð ªÀÄ£ÉÆÃ¨sÁªÀªÀÅ ¨É¼ÉAiÀÄÄvÀÛzÉ.
- fÃªÀ£ÀzÀ°è §gÀÄªÀ C©ü¥ÁæAiÀÄ ¨ÉÃzsÀUÀ¼ÀÄ, ¸ÀªÀÄ¸ÉåUÀ¼À£ÀÄß DzsÀÄ¤PÀ ¸ÀAzÀ¨sÀðzÀ°è ªÀiÁ£À«ÃAiÀÄvÉAiÉÆA¢UÉ ¤ªÀð»¸ÀÄªÀAvÉ ¥ÉæÃgÉÃ¦¸ÀÄvÀÛzÉ.
- GvÀÛªÀÄ ¸ÀAªÀºÀ£À PÀ¯ÉAiÀÄ£ÀÄß ¨É¼É¸ÀÄªÀ GzÉÝÃ±ÀªÀ£ÀÄß FqÉÃj¸ÀÄvÀÛzÉ.
- ¸ÀA±ÉÆÃzÀ£Á ªÀÄ£ÉÆÃ¨sÁªÀ ªÀÄvÀÄÛ ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ½UÉ «zÁåyðUÀ¼À£ÀÄß ¸ÀdÄÓUÉÆ½¸ÀÄvÀÛzÉ.

	COURSE CONTENTS		
UNIT I			**[7 HOURS]**
	1. gÁWÀªÁAPÀ: UÁ£ÀgÁtÂAiÀÄgÀ ¸ÀAªÁzÀ 2. PÀÄªÀiÁgÀªÁå¸À: ¹qÀ® ¥ÉÆlÖt PÀnÖ ¸ÉÃRªÀ PÉÆqÀÄªÀgÉ **3.** ¸ÀªÀðdÕ£À ªÀZÀ£ÀUÀ¼ÀÄ		
UNIT II			**[7 HOURS]**
	1. ¥ÀÄgÀAzÀgÀzÁ¸À: V½AiÀÄÄ ¥ÀAdgÀzÉÆ½®è 2. PÀ£ÀPÀzÁ¸À: J¯ÁègÀÄ ªÀiÁqÀÄªÀÅzÀÄ **3.** ²±ÀÄ£Á¼À ±ÀjÃ¥sÀ: J®ègÀAvÀªÀ£À®è £À£ÀUÀAqÀ		
UNIT III			**[6 HOURS]**
	1. J.¦.eÉ.C§ÄÝ¯ï PÀ¯ÁA: ¥ÉÊ¥ÉÆÃnUÉ ¸ÀeÁÓUÀÄwÛgÀÄªÀ zÉÃ±À 2. ©.J.²æÃzsÀgÀ: ¨Á¥ÀÄ aAvÀ£É **3.** zÉÃªÀ£ÀÆgÀÄ ªÀÄºÀzÉÃªÀ: ¨sÁgÀvÀ ¸ÀA«zsÁ£ÀPÉÌ '¨sÀÆvÀ' ZÉÃµÉÖ		
UNIT IV			**[6 HOURS]**
	1. ¥ÀÆtðZÀAzÀæ vÉÃd¹é: ¸ÀºÀd PÀÈ¶ (DAiÀÄÝ ¨sÁUÀ)		
	REFERENCE BOOKS		
	¥ÀgÁªÀÄ±Àð£À UÀæAxÀUÀ¼ÀÄ : 1. ªÀÄÄUÀ½ gÀA.²æÃ., PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ, ¥ÀæPÁ±ÀPÀgÀÄ VÃvÁ §ÄPï ºË¸ï, ªÉÄÊ¸ÀÆgÀÄ. 2014 2. ¸ÀAUÀæºÀ. £ÁUÉÃUËqÀ JZï.J¯ï., ZÁjwæPÀ d£À¥ÀzÀ PÀxÀ£À PÁªÀåUÀ¼ÀÄ, ¥ÀæPÁ±ÀPÀgÀÄ PÀ£ÁðlPÀ eÁ£À¥ÀzÀ ¥ÀjµÀvÀÄÛ, ¨ÉAUÀ¼ÀÆgÀÄ. 2008 3. ¹ÃªÀiÁwÃvÀ PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ ¸ÀA¥ÀÄl 1,2,3,4,5 ªÀÄvÀÄÛ 6, PÀÄªÉA¥ÀÄ PÀ£ÀßqÀ CzsÀåAiÀÄ£À ¸ÀA¸ÉÜ, ªÉÄÊ¸ÀÆgÀÄ «±Àé«zÁå¤®AiÀÄ, ªÉÄÊ¸ÀÆgÀÄ. 2014 4. ¸ÀAUÀæºÀ. £ÁUÉÃUËqÀ JZï.J¯ï., PÀ£ÀßqÀ d£À¥ÀzÀ PÀxÀ£À PÁªÀåUÀ¼ÀÄ, ¥ÀæPÁ±ÀPÀgÀÄ PÀ£ÁðlPÀ eÁ£À¥ÀzÀ ¥ÀjµÀvÀÄÛ, ¨ÉAUÀ¼ÀÆgÀÄ. 2007 5. £ÁgÁAiÀÄt ¦.«, ZÀA¥ÀÆ PÀ«UÀ¼ÀÄ, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2010 6. PÁ¼ÉÃUËqÀ £ÁUÀªÁgÀ, wæ¥Àc, gÀUÀ¼É ªÀÄvÀÄÛ eÁ£À¥ÀzÀ ¸Á»vÀå, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2010 7. ¸ÀA. ¨É£ÀUÀ¯ï gÁªÀÄ gÁªï ªÀÄvÀÄÛ ¥Á£ÀåA ¸ÀÄAzÀgÀ ±Á¹ÛçÃ, ¥ÀÄgÁt £ÁªÀÄ ZÀÆqÁªÀÄtÂ, ¥ÀæPÁ±ÀPÀgÀÄ ¥Àæ¸ÁgÁAUÀ, ªÉÄÊ¸ÀÆgÀÄ «±Àé«zÁå¤®AiÀÄ. 2010 8. qÁ. azÁ£ÀAzÀ ªÀÄÆwð, ªÀZÀ£À ¸Á»vÀå, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2013 9. ¸ÀA ªÀÄgÀÄ¼À¹zÀÝ¥Àà PÉ, £ÁUÀgÁd Q.gÀA. ªÀZÀ£À PÀªÀÄäl, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2016 10. ªÀÄgÀÄ¼À¹zÀÝ¥Àà PÉ, µÀlà¢ ¸Á»vÀå, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2010 11. ¸ÀA. ¸ÉÃvÀÄgÁªÀÄ gÁªï C.gÁ., ²æÃ ®Qëöä±À£À eÉÊ«Ä¤ ¨sÁgÀvÀ(ªÀÄÆ®-vÁvÀàAiÀÄð-¸ÀavÀæ), ¥ÀæPÁ±ÀPÀgÀÄ PÁªÀÄzsÉÃ£ÀÄ ¥ÀÄ¸ÀÛPÀ ¨sÀªÀ£À, ¨ÉAUÀ¼ÀÆgÀÄ. 2010 12. ¸ÀA. ¸ÉÃvÀÄgÁªÀÄ gÁªï C.gÁ., ²±ÀÄ£Á¼À ±ÀjÃ¥sÀgÀ £ÀÆgÁgÀÄ vÀvÀé¥ÀzÀUÀ¼ÀÄ, ¥ÀæPÁ±ÀPÀgÀÄ PÁªÀÄzsÉÃ£ÀÄ ¥ÀÄ¸ÀÛPÀ ¨sÀªÀ£À, ¨ÉAUÀ¼ÀÆgÀÄ. 2007 13. ¸ÀA. f.J¸ï.¨sÀmï., PÀÄªÀiÁgÀªÁå¸À£À PÀuÁðl ¨sÁgÀvÀ PÀxÁªÀÄÄAdj ¥ÀæªÉÃ±À, ¥ÀæPÁ±ÀPÀgÀÄ CPÀëgÀ ¥ÀæPÁ±À£À, ºÉUÉÆÎÃqÀÄ, ¸ÁUÀgÀ. 2006 14. gÀAeÁ£ï zÀUÁð, ±ÀgÀtgÀ ¸ÀªÀÄUÀæ PÁæAw, ¥ÀæPÁ±ÀPÀgÀÄ. ¯ÉÆÃ»AiÀiÁ ¥ÀæPÁ±À£À, §¼Áîj. 2015		

15. QÃvÀð£ÁxÀ PÀÄvÀðPÉÆÃn, PÀ£ÀßqÀ ¸Á»vÀå ¸ÀAUÁw, ¥ÀæPÁ±ÀPÀgÀÄ PÀÄvÀðPÉÆÃn ªÉÄªÉÆÃjAiÀÄ¯ï læ¸ïÖ, zsÁgÀªÁqÀ. 2009
16. ±ÁªÀÄgÁAiÀÄ vÀ.¸ÀÄ., PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ, ¥ÀæPÁ±ÀPÀgÀÄ vÀ¼ÀÄQ£À ªÉAPÀtÚAiÀÄå ¸ÁägÀPÀ UÀæAxÀªÀiÁ¯É, ªÉÄÊ¸ÀÆgÀÄ -2014
17. ²ªÀgÀÄzÀæ¥Àà f.J¸ï. PÀ£ÀßqÀ ¸Á»vÀå ¸À«ÄÃPÉë, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2013

SUBJECT_CODE	Language II: Hindi	L	T	P	C
B21AHH202		1	1	0	2

Course Descriptions:

यह पाठ्यक्रम नौसिखिया ,अपनी भाषा की क्षमता का विकास करने हेतु तथा विभिन्न साहित्यिक प्रक्रियाओं द्वारा समाज , संस्कृति एवं जीवन केमूल्यों को समझने हेतु अभिकल्पित है |

Course Prerequisites:

- अध्येता, पी.यु.सी के स्तर पर द्वितीय भाषा के रूप में हिन्दी का अध्ययन करना चाहिए |
- हिन्दी साहित्य के इतिहास का संक्षिप्त ज्ञान की आवश्यकता है |
- हिन्दी व्याकरण का अवबोधन आवश्यक है |
- अंग्रेज़ी – हिन्दी अनुवाद से संबंधित जानकारी जरुरी है

Course Objectives:

1. संदर्भानुसार उचित भाषा का प्रयोग करने की दक्षता को छात्रों में उत्पन्न करना |
2. साहित्य के माध्यम से समाज एवं मानवीय मूल्यों को समझाकर, उन मूल्यों की रक्षा हेतु प्रेरित करना|
3. छात्रों में पुस्तक पठन एवं लेखन की अकृतिम प्रवृत्ति स्थापित करना |
4. अध्येताओं में साहित्य के माध्यम से प्रभावी एवं कुशल संचार का विकास करना |

Course Outcomes:

अध्ययन की समाप्ति पर अध्येता –

1. सामाजिक मूल्य एवं नैतिक जवाबदेही को स्वीकार कर सकता है |
2. साहित्य की प्रासंगिकता को जीवन में समझने की दक्षता रखता है |
3. समाज में अंतर्निहित पद्दतियाँ एवं विचारधाराओं का व्याख्यान करने में सक्षम बन सकता है |
4. साहित्य के माध्यम से प्रभावी एवं कुशल संचार का विकास करसकता है |

Course Contents:

UNIT I **[7 Hours]**

1 कबीरदास के दोहे – कबीरदास

2 कविता – अर्जुन की प्रतिज्ञा - मैथिलीशरण गुप्त

3 कविता – वीरों का कैसा हो बसंत – सुभद्रकुमारी चौहान

UNIT II **[6 Hours]**

1 तुलसीदास के पद –तुलसीदास

2 कविता – संध्या सुंदरी – सूर्यकांत त्रिपाठी 'निराला'

3 कविता – करमवीर – अयोध्या सिंह उपाध्याय 'हरिऔंध'

UNIT III **[7 Hours]**

1 मीराबाई के पद – मीराबाई

2 कविता – मधुशाला – हरिवंशराय बच्चन

3 कविता – हम झुक नहीं सकते – अतलबिहारी बाजपाई

UNIT IV **[6 Hours]**

अनुवाद अनुछेद (हिन्दी से अंग्रेजी)

सृजनात्मक व्यक्तित्व

अ महादेवी वर्मा, प्रेमचंद

आ महात्मा गांधी, अब्दुल कलाम

सूचना : प्रत्येक इकाई 25 अंक के लिए निर्धारित है |

Text Books:

हिन्दी पाठ्य पुस्तक – रेवा विश्वविद्यालय |

Reference Books:

1. सुबोध व्यवहारिक हिन्दी – डॉ. कुलदीप गुप्त
2. अभिनव व्यवहारिक हिन्दी – डॉ.परमानन्द गुप्त
3. हिन्दी साहित्य का इतिहास - डॉ. नागेन्द्र
4. आधुनिक हिन्दी साहित्य का इतिहास - डॉ. बच्चन सिंह
5. हिन्दी साहित्य का नवीन इतिहास - डॉ. लाल साहब सिंह
6. शुद्ध हिन्दी कैसे बोले कैसे लिखे- पृथ्वीनाथ पाण्डे
7. कार्यालय अनुवाद निदेशिका
8. संक्षेपण और पल्लवन - के.सी.भाटिया&तुमन सिंग

SUBJECT_CODE	Language II: Additional English	L	T	P	C
B21AHA201		1	1	0	2

Course Descriptions:

This is a two credit course designed to help the learner gain competency in language through an exploration to the various genres of literature. The syllabus is designed to encourage critical ability of the learner to guide them towards career opportunities. This course is intended to develop the capacity to appreciate and assess the various dimensions of society, culture and life.

Course Prerequisites:

The student must possess fair knowledge of language and literature.

Course Objectives:

The objectives of this course are to:

- To assess ecological and environmental concerns through literature.
- To identify the inequal structures of power in society.
- To compare and relate the position of men and women in society.
- To interpret the representation of society in popular culture.

Course Outcomes:

Upon Completion of the course, the students will be able to:

- Demonstrate a thorough understanding of sensitive and critical ecological and environmental issues.
- Analyze the rigid structure of center and margin in our society.
- Criticize the subordinate position of women in society.
- Justify the depiction of society in popular culture.

Course Contents:

UNIT I Ecology & Environment **[7 Hours]**

Literature: Toru Dutt - Casuarina Tree

Gordon J.L. Ramen – Daffodils No More

C.V. Raman – Water – The Elixir of Life

Language: Degrees of Comparison

UNIT II Voices from the Margin **[6 Hours]**

Literature: Tadeusz Rozewicz – Pigtail

Jyoti Lanjewar – Mother

Harriet Jacobs – Excerpt from Incidents in the Life of a Slave Girl

Language: Prefix and Suffix

UNIT III Women & Society **[7 Hours]**

Literature: Kamala Das – An Introduction

Rabindranath Tagore – The Exercise Book

Jamaica Kincaid – Girl

Writing Skills: Dialogue Writin

UNIT IV Popular Culture **[6 Hours]**

Literature: Rudyard Kipling – The Absent-minded Beggar

Sir Arthur Conan Doyle – The Adventure of Lion's Mane

Aldous Huxley – The Beauty Industry

Writing Skills: Story Writing

Reference Books:

1. Agrawal, K.A. *Toru Dutt the Pioneer Spirit of Indian English Poetry - A Critical Study*. Atlantic Publications, 2009.
2. Latham, Edward Connery (ed). *The Poetry of Robert Frost*. Holt Paperbacks, 2002.
3. Gale, Cengage Learning. *A Study Guide for Tomas Rivera's The Harvest*. Gale, Study Guides, 2017.
4. Basu, Tejan Kumar. *The Life and Times of C.V. Ram*an. Prabhat Prakashan, 2016.
5. Rozewicz, Tadeusz. *New Poems*. Archipelago, 2007.
6. Manohar, Murli. *Critical Essays on Dalit Literature*. Atlantic Publishers, 2013.
7. Hansda, Sowvendra Shekhar. *The Adivasi Will Not Dance: Stories*. Speaking Tiger Publishing Private Limited, 2017.
8. Jacobs, Harriet. *Incidents in the Life of a Slave Girl*. Createspace Independent Publication, 2014.
9. Das, Kamala. *Selected Poems*. Penguin Books India, 2014.
10. Tagore, Rabindranath. *Selected Short Stories of Rabindranath Tagore*. Maple Press, 2012.
11. Gale, Cengage Learning. *A Study Guide for Jamaica Kincaid's Girl*. Gale, Study Guides, 2017.
12. Kipling, Rudyard. *The Absent-Minded Beggar*. Hardpress Publishing, 2013.
13. Doyle, Arthur Conan. *The Hound of the Baskervilles*. General Press, 2017.
14. Dixson, Robert J. *Everyday Dialogues in English*. Prentice Hall India Pvt Ltd., 1988.
15. Turton, Nigel D. *ABC of Common Errors*. Mac Millan Publishers, 1995.
16. Samson, T. (ed.) *Innovate with English.* Cambridge University Press, 2010.
17. Kumar, E Suresh, J. Savitri and P Sreehari (ed). *Effective English*. Pearson Education, 2009.

SUBJECT_CODE	Communicative English – II	L	T	P	C
B21AHE201		1	1	0	2

Course Descriptions:

This two credit course focuses on enhancing written proficiency required for professional enhancement. It also polishes the spoken skills of the learners to make them effective and confident presenters. It also addresses the functional aspects of language usage while providing specific linguistic tools through professional language learning software. The practical components discussed in this course enable a fruitful transition from academia to the industry of their choice.

Course Prerequisites:

The student must possess functional knowledge of LSRW skills.

Course Objectives:

The objectives of this course are to:

- To build skills essential for corporate communication.
- To enhance context specific language skills.
- To discover the creative linguistic potential through language and literature.
- To develop communication skills necessary for employability.

Course Outcomes:

Upon Completion of the course, the students will be able to:

- Apply acquired skills to communicate effectively in a corporate scenario.
- Demonstrate command over rhetoric of language.
- Develop critical and creative thinking through assimilated language skills.
- Utilize the communication skills learnt to match industry standards.

Course Contents:

UNIT I Language Acquisition **[7 Hours]**

Remedial Grammar: Questions& Negatives; Questions Tags

Writing Skills: Email Writing

Activities: Group Discussions

Literature: Alphonse Daudet - The Last Lesson

UNIT II Persuasive Skills **[6 Hours]**

Remedial Grammar: Past Simple & Past Perfect

Writing Skills: Report Writing

Activities: Book & Movie Reviews

Literature: Lord Alfred Tennyson – Ulysses

UNIT III Cognitive Skills **[7 Hours]**

Remedial Grammar: Present & Past Passive; Conditionals

Writing Skills: Creative Writing

Activities: Role Plays

Literature: O. Henry – The Gift of the Magi

UNIT IV Employability Skills **[6 Hours]**

Remedial Grammar: Reported Speech; Idioms

Writing Skills: Cover Letter & CV

Activities: Exchanging Information

Literature: Saki – The Open Window

Reference Books:

1. Bansal, R.K. and J.B. Harrison. *Spoken English*. Orient Blackswan, 2013.
2. Raman, Meenakshi and Sangeeta Sharma. *Technical Communication*. Oxford University Press, 2015.
3. Thorpe, Edgar and Showick Thorpe. *Objective English*. Pearson Education, 2013.
4. Dixson, Robert J. *Everyday Dialogues in English*. Prentice Hall India Pvt Ltd., 1988.
5. Turton, Nigel D. *ABC of Common Errors*. Mac Millan Publishers, 1995.
6. Samson, T. (ed.) *Innovate with English.* Cambridge University Press, 2010.
7. Kumar, E Suresh, J. Savitri and P Sreehari (ed). *Effective English*. Pearson Education, 2009.
8. Goodale, Malcolm. *Professional Presentation*. Cambridge University Press, 2013.

Course Code	Tree Plantation in Tropical Region: Benefits and Strategic Planning	L	T	P	C
B22AS0208		1	0	0	1

Course Description:

This course introduces significance of trees that provide us with a great many ecosystem services, including air quality improvement, energy conservation, stormwater interception, and atmospheric carbon dioxide reduction. These benefits must be weighed against the costs of maintaining trees, including planting, pruning, irrigation, administration, pest control, liability, cleanup, and removal.

Prerequisites:

NIL

Course Objectives:

The Course objectives are to

1. Develop basic understanding of role of trees in climate change
2. Emphasize on the selection and placing a tree for maximum benefit to environment
3. Involve in planting a tree and nurture till the completion of the degree program
4. Generate experiential report on the tree plantation process involved

Course Outcomes:

On successful completion of this course; the student will be able to:

1. Interpret the possible key benefits of trees arresting climate change and global warming
2. Develop the ability to identify the type of a tree to be planted in urban areas, agricultural fields and forestry areas
3. Make use of reading different literature on climate change and global warming by adopting various reading strategies (Reading Skills)
4. Take part in planting a tree and nurturing it and Generate report on tree plantation process involved

Course Content:

Unit 1: **[7 Hours]**

Introduction: The tropical region, Benefits and costs of urban and community forests

UNIT II **[7 Hours]**

Unit 2: General Guidelines for Selecting and Placing Trees: Guidelines for Energy Savings, Guidelines for Reducing Carbon Dioxide, Guidelines for Reducing Stormwater Runoff, Guidelines for Improving Air Quality Benefits, Guidelines for Avoiding Conflicts with Infrastructure, Guidelines for Maximizing Long-Term Benefits, Trees for Hurricane-Prone Areas

Activity based learning

Every student has to thoroughly understand the significance of planting a tree, identify type of tree and place to be planted, plant a tree and nurture till the completion of the degree.

Text Books:

1. Kelaine E. Vargas, E. Gregory McPherson, James R. Simpson, Paula J. Peper, Shelley L. Gardner, and Qingfu Xiao, “Tropical community tree guide: Benefits, Costs and Strategic Planting”, U.S. Department of Agriculture, Forest Service Pacific Southwest Research Station Albany, California, 2008

Reference Books:

1. Peter Wohlleben, The Heartbeat of Trees, Penguin Books, 2021
2. Daniel Chamovitz, “What a Plant Knows: A Field Guide to the Senses”, 2020

SUBJECT_CODE	Art & 2D Animation-II	L	T	P	C
B21DD0201		2	0	2	4

COURSE DESCRIPTION

The subject teaches character designing, storyboarding, 2D animation which play a very important role in multimedia & animation. The course starts with **character designing**. Character sketching enables plan out the character. How to design using physical characteristics- anatomy, eye color, hair color and non-physical characteristics such as personality, likes/dislikes and background or history for the character. **Storyboard** is a detailed visual elucidation of the content of a story or a script. It explains the benefits of storyboard, how to draw thumbnails, camera angles, perspectives, cleanups, numbering and Animatics. It then moves to Concepts of **2D Animation**, stop-motion Animation and computer animation concepts.

PRE REQUISITES

- Basic drawing skills which are learned in Sem-1

Course Objectives:

1. Learn Human body Proportions and create basic Pose, the line of action, twisting and balance.
2. Discuss techniques and rules of storyboarding, model sheet and character development in films.
3. Discuss the transition from traditional animation processes to computer animation processes.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Acquire the skill to draw anatomy defined by the function of a pose.
2. Understanding concepts like scripting, storyboarding, character and production design, illuminate the pre-production process.
3. Apply concepts of classic and modern literature for animation in different techniques.
4. Identify the production process applied to different animation techniques like 2D animation, 3D computer animation and stop motion.

COURSE CONTENTS:

UNIT I Character Design **[13 Hours]**

Role of a character designer, Designing Characters, Artistic approach, 1creating character drawings, characters based on age, Character design with intention (with ref of character information, reason for design), creating model sheet.

Ex- Game Character, full turnaround sheet (5 views of character)

UNIT II Storyboard **[13 Hours]**

Introduction to storyboard, advantages of storyboard, using arrows in storyboard, Benefits of storyboard in Animation, production & VFX, drawing quick thumbnail storyboards, importance of camera angles & perspectives, Directing shots, cleanup, Numbering.

UNIT III Animatics **[13 Hours]**

Introduction to Animatics, Importance of Animatics, Advantages of Enhancing Storyboards, Application Areas of Animatics.

UNIT IV 2D Animation **[13 Hours]**

Stop- motion Animation, Computer Animation, Computer Animation Process.

TEXT BOOKS:

1. James Fogle (Author), Comps, Storyboards, Animatics, January 1, 1950
2. Hannes Rall, Animation: From Concept to Production, Dec 5, 2017

REFERENCE BOOKS:

1. Richard Williams, The Animator's Survival Kit: A Manual of Methods, Principles and Formulas for Classical, Computer, Games, Stop Motion and Internet Animators, Sep 25, 2012
2. Sergio Paez and Anson Jew, Professional Storyboarding: Rules of Thumb, Oct 15, 2012

SUBJECT_CODE	Web Designing	L	T	P	C
B21DD0202		2	0	0	2

Course Description:

With the rapid expansion of the Internet, the demand for skilled web designers is on the upswing and this number is only set to rise in the coming years. This course teaches with all aspects of website designing. It starts with basic HTML coding. Then proceeds with formatting the text and other elements using CSS. Further, it moves to JavaScript, which adds interactivity, Bootstrap, for responsive design and AngularJS for a single page web application.

Prerequisites:

Should have a basic knowledge of using Computer and internet.

Course Objectives:

The objective of this course are to

- To Explain the page structure used by HTML
- Understand elements of design with regard to the web and discuss the importance of responsive website design
- To Describe what is Angular JS

Course Outcomes:

On completion of the course, learners will be able to:

1. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture
2. Demonstrate the function of JavaScript as a dynamic webpage creating tool
3. Apply bootstrap to create responsive website
4. Implement single page applications in Angular and explain form validation with Angular JS

Course Contents:

UNIT I Building Web Sites **[7 Hours]**

Introduction, Doctype, basic tags, formatting text using tags, background and foreground colors, background images, hyperlinks, cascading style sheet 3, types of style sheets, selectors, formatting using stylesheets.

UNIT II JavaScript [7 Hours]

Introduction, <script > tag, variables in JavaScript, methods, events, operators and their types, regular expression, decision making statements, loops and arrays, functions, objects, document object model

UNIT III Bootstrap [7 Hours]

Introduction, benefits, setting up bootstrap, bootstrap with CSS and JavaScript, templates in bootstrap, components in bootstrap, layout components, programing in bootstrap, demo on bootstrap functionality.

UNIT IV Angular JS [6 Hours]

Introduction, Angular JS lifecycle, controllers, expressions, sharing data, directives, filters , scope, services, form validation.

Text Books:

1. Thomas Powell, HTML & CSS: The Complete Reference, Fifth Edition Paperback – 1 July 2017.
2. Sandeep Kumar Patel ,Responsive Web Design with AngularJS Paperback – Import, 17 December 2014.

Reference Books:

1 Sergey Akopkokhyants and Stephen Radford , Web Development with Bootstrap 4 and Angular 2 -: Bring responsiveness to your Angular web application with Bootstrap | 30 November 2016.

SUBJECT_CODE	UI/ UX-II	L	T	P	C
B21DD0203		2	0	0	2

Course Description:

User Interface (UI) design and User Experience (UX) design are high-demand fields in the media and entertainment industry. The subject starts with Interaction design and the process of interaction design. It then goes to conceptual design, proto-typing, wireframes. Further explains the need for Usability testing, different types & methods of Usability testing.

Prerequisites:

Should have interest towards designing & creativity.

Course Objectives:

- To Explain the User interaction and navigation methods
- To list and discuss different methods of usability testing.

- To Explain mockups- Paper prototyping, wireframes.

Course Outcomes:

After the completion of the course, students will be able to:

- Understand the goal & role of Information Architecture and define appropriate Labeling systems to websites or applications.
- Apply Human-computer interface standards and guidelines specific to each platform and design wireframes for interfaces and websites.
- Demonstrate skills for low-fidelity prototyping and describe the strengths and weaknesses of a variety of prototyping methods.
- State the purpose and benefits of Usability testing and also conduct usability tests on web and mobile.

Course Contents:

UNIT I Information Architecture [7 Hours]

Introduction to Information Architecture, Value of IA, Organizing Content, Types of Organizational structure and when they are best applied, Shallow vs. Deep Information Structures, Labelling systems, Card Sorting, AgileUX.

UNIT II Getting Ready for Design [7 Hours]

Introduction, User-Centered Design, Navigation, Gestalt Principles, Web-Layout, designing for different Devices, Icons, Font, Content Writing, Choosing UI controls for Interaction, Introduction to Screen elements & Wireframes.

UNIT III Wireframes and Prototypes [7 Hours]

Screen Elements consistency, standardized design, Navigation, Design templates, to come up with templates, Low fidelity wireframes, High fidelity wireframes, Strengths & Limitations.

UNIT IV Usability Testing [7 Hours]

Introduction, Purpose & benefits of UT, Types of Usability Test, formative testing, Heuristic evaluation, Summative testing, Designing a UT, Pilot test, Early prototype testing, Advanced Prototype testing, Analysis & reporting, Remote Testing, A-B Testing.

Text Books:

1. Helen Sharp, Jennifer Preece, Yvonne Rogers , Interaction Design: Beyond Human-Computer Interaction.

2. Ben Shneiderman and colleagues , Designing the User Interface: Strategies for Effective Human-Computer Interaction.

Reference Books:

1. Jon Yablonski , Laws of UX: Using Psychology to Design Better Products & Services.
2. Mark Boulton , Designing for the Web.
3. Joseph Dumas and Beth Loring , Moderating Usability Tests: Principles & Practice for Interacting.

SUBJECT_CODE	SEO & Analytics	L	T	P	C
B21DD0204		3	0	0	3

Course Description:

The Internet and all of its evolving technologies have touched almost every person in his daily life. People are spending more and more time online to learn something new, to communicate with each other, and for entertainment. The increase in content has led to rising demand for digital content creators and designers. the course starts from the basics of digital marketing & Search Engine Optimization. It teaches optimizing techniques, how to perform keyword research, create quality content. Then it will proceed with techniques to optimize display ad campaigns, study the performance of Ad campaigns from the metrics available in google analytics..

Prerequisites:

Should have a basic knowledge of using Computer and internet

Course Objectives:

The objectives of this course are to:

- To Explain the importance of SEO
- To show how to set an account in Google analytics
- To discuss the factors that impact SEO and how to use Google Analytics to find and fix issues

Course Outcomes:

Upon completion of this course, students should be able to:

1. Understand the concept of search engines and identify the importance of design and development of an engine friendly site
2. Apply how to perform Keyword Research and understand Off-Page Optimization and implementation method
3. Identify tools for conducting Web analytics.
4. Detail the different aspects of reports and examine the performance of AdWords

Campaigns.

Course Contents:

UNIT I Introduction to SEO **[10 Hours]**

Introduction search engine, Crawling & Indexing, Search techniques & strategies- key words, excluding words, exact phrases, including words, wild card search; On-page optimization, off-page optimization, submitting webpage to search engine.

UNIT II Optimizing techniques **[10 Hours]**

On-page optimizing- title tags, meta tags, SEO friendly URL structures, creating anchor texts, creating meta data & snippets, sitemap, Robotics.txt.

Off-page optimization- Link building strategies, inbound & outbound links, Directory submission, article submission, A blog, benefits of infographics as SEO Tool, Social media marketing.

UNIT III Keywords & Content **[10 Hours]**

How to perform keyword research & analysis, keyword research tools, optimize images and videos, create quality content, importance of UX.

UNIT IV Google Ads & Google Analytics **[10 Hours]**

What is SEM, difference between SEO & SEM, PPC, Google Ads, Introduction to analytics, google analytics, basic terminology used in Analytics, Reports- Audience reports, acquisition Reports, performance of Adwords campaign, performance of web site through organic search.

Text Books:

- Peter Kent , SEO For Dummies Paperback – Import, 10 February 2020.

Reference Books:

1. Eric Enge , The Art of SEO: Mastering Search Engine Optimization
2. Avinash Kaushik Web Analytics: An Hour a Day

Websites Links:

https://analytics.google.com/analytics/academy/

SUBJECT_CODE	Web Designing Lab	L	T	P	C
B21DD0205		0	0	2	2

Course Description:

Web Design is a profession involving planning, building out, and maintaining websites. This course covers how to write syntactically correct HTML5 and CSS3, and how to create interactive web experiences with JavaScript. Mastering this range of technologies will allow to develop high quality web sites that, work seamlessly on mobile, tablet, and large screen browsers accessible. During this course, student will develop a professional-quality web portfolio. The tools and skills gained are: HTML, CSS, JavaScript, Bootstrap(front-end framework), AngularJS, responsive web design, Single page web application.

Prerequisites:

Basic knowledge of computer and internet.

Course Objectives:

To explain HTML5 semantic tags and layouts

- To explain the functions of CSS3
- Understand the uses of AngularJS.

Course Outcomes:

On successful completion of this course, the student is expected to be able to:

- Design, code and develop websites and web pages.
- Understand the use of JavaScript in making web pages more dynamic and functional.
- Apply Bootstrap to achieve responsiveness to web pages
- Learn and develop a simple AngularJS application.

LAB PROGRAMS

PART A

1. Create a layout of the basic structure of the body of the website
2. Mathew wants to develop a web page on his biblical findings. For writing quotes of the Bible verses, he wants a blue bordered text box with red colored text that is vertically center aligned. Use the CSS code to create this web page.
3. Jason works for an advertising agency named ‘Creative Designers’ which is located atParis. He is very fond of learning about the latest technologies that are coming up in the market. He wants to create an HTML5 website for his Ad agency. The website should display the list of products for sale, such as books, computers, vehicles, cameras, laptops, and musical instruments. Only registered users can purchase products from the site. Help him to develop the web site.
4. Write a program to display the text, “THIS IS MY FIRST JAVASCRIPT PAGE” and link it to https://reva.edu.in/
5. A shopkeeper offers a discount of 10% on a total purchase of Rs. 5000 and above. Write a program to display the net amount of the goods purchased.
6. Write a program that accepts more than one argument and displays it along with the data type of each argument. Make use of functions to achieve the desired result.
7. Write a program that displays the following parameters. Users should be able to enter data for the specified parameters in the respective text boxes.
    - Name
    - Roll Number
    - Age
    - Marks obtained in all three subjects
8. Develop a simple AngularJS application that flashes the text message entered by the user in the provided textbox.

PART B

Create a website for a greeting card company named ‘cards 4 you’ The website should have the following details:

1. Home, About Us, Sample Cards, Contact Us
2. Insert requited graphics and do the sizing and padding
3. Add a figure element and hover effect to images
4. Create CSS3 transition on mouse hover
5. Link all four web pages to each other using hyperlinks on all four pages

Amdox is a Web design company based in Jamaika, known for developing web pages using Bootstrap, and wants to implement responsive pages using bootstrap. Assuming that you are the person assigned with the task of developing these pages in Bootstrap, prepare a Proof of Concept(POC) for the client, implementing:

6. Achieving responsiveness in Bootstrap
7. Creation of simple responsiveness pages in Bootstrap
8. Develop an AngularJS application that animates and hides a box upon the click of a button

SUBJECT_CODE		L	T	P	C
B21DD0206	**UI/UX-II Lab**	0	0	2	2

Course Descriptions:

User interface and user experience design is a high-demand field, but the skills and knowledge learned in this Specialization are applicable to a wide variety of careers, from marketing to web design to human-computer interaction.

The course has a practical component that takes you step-by-step through the workflow of a professional app/web designer. From user flow diagrams to wireframing to mockups and prototypes. Create mobile app designs from scratch, Create wireframe designs for any digital project, Create mockups using Sketch and other tools, Start a new career as a UI/UX designer.

Prerequisites:

Should have interest towards design and creativity.

Course Objectives:

The objectives of this course are to:

- To explain site flow and user flow
- To demonstrate an understanding of information architecture
- To discuss the do's and don'ts of prototyping in detail

Course Outcomes:

On completion of this course the students will be able to:

- Identify what information the users need and when they need it and map out the user flow of an application.
- Learn how to create wireframes & prototypes.
- Validate a prototype or a fully-fledged solution with users.

- Understand the basic principles of human-centered design.

LAB PROGRAMS

PART A

1. Document the User-Flow for Gmail in detail.
2. Build a user flow for buying a laptop online. Document primary & secondary navigation from start to end.
3. Compare the information architecture of the following
   1. LinkedIn
   2. Facebook
   3. Wikipedia
4. Sketch a concept for a social media webpage for marathon runners
5. Design a page to collect information from the user who is looking for a job in a job portal.
6. Conduct a web design Heuristic evaluation of any website of your choice or pick from below>
   Purpose: start identifying aspects of designs that fit into the four points of design-Navigation, Presentation, Content, and Interaction. Use the Heuristic checklist table.
   - www.kmart.com
   - www,cnn,com
   - www.coctco.com
7. Usability Test- amazon.com
   Task1: Your parents asked to look for a gift in urbanladder.com for a housewarming gift for relatives. Can you find a home decor for around Rs 3000
   Task 2: Alternatively, you might give them an urban ladder gift card for Rs 3000. How can you order a gift card/voucher?
   Rating: 2=Pass, 1=Difficulty, 0=Fail
8. Write Task scenarios
   - Go to an e-commerce site of your choice.
   - Identify 2 user activities that might be key to the site's success.
   - Complete those activities yourself. Note your steps and any issues in the design
   - Write test tasks or scenarios for these activities

PART B

1. Build a prototype for booking air-tickets, where:
   1. User can login in or sign up
   2. Search for flights on a given route on a given date
   3. Make a booking
   4. Modify/ Cancel a booking
   5. Check status of booking
2. Build a wireframe for a library management system website
3. Build a prototype for a mobile application for booking hotels, where:
   1. User can login or register
   2. Search for rooms with certain features such as number of people, air-conditioning, and so on for a given date
   3. Make booking
   4. Modify/cancel booking
   5. Check status of booking
4. Analyze the user experience for the following sites for non-English speaking with UX honeycomb tool: Myntra,Zomato,UIDAI – Aadhar website
5. Reverse Card Sort
6. Early prototype test for assignment-3

SUBJECT CODE	Constitution of India & Professional Ethics	L	T	P	C
B21LSM201					

Course Description:

The aim of this course is to Create awareness about constitution of India and instill high discipline among students by inculcating Fundamental rights , Duties and ethics social responsibilities.

Prerequisites:

NIL

Course Objectives:

This Course will enable students to

1. To impart knowledge on Constitution of India.

2. To facilitate the understanding of Fundamental Rights, Duties and other Rights which is been given by our law.
3. To facilitate the understanding of Constitution perspective and make them face the world as a bonafide citizen.
4. To attain knowledge about ethics and also know about professional ethics.
5. Explore ethical standards followed by different companies.

Course Outcomes:

Upon completion of the course, the student should be able to:

1. Explain the Indian constitutional provisions and follow them.
2. Demonstrate the fundamental rights and human rights.
3. Explain the duties and more importantly practice them in a right way.
4. Adopt the habit of raising their voice against a unconstitutionality of any laws and upon any legal discrimination as we have session of debates on Constitutional validity.
5. Demonstrate professional ethics and know about etiquettes about it.

Course Contents:

UNIT I **[10 Hours]**

Constitution of India: Making of Indian Constitution, features of Indian Constitution, Preamble to the Constitution of India, Fundamental Rights under Part III, Rights to Equality, Right to Freedom, Right against Exploitation, Rights to Freedom of Religion, Cultural and Educational Rights, Constitutional Remedies. Fundamental Duties of the Citizen, Significance and Characteristics. Elements of National Significance, National Flag, National Anthem, National Emblem.

UNIT II **[10 Hours]**

Legislature and Executive: Organs of the Government; Legislature, Executive and Judiciary. Union and State Executives: President, Vice President, Prime Minister, Cabinet, Governor, Council of Ministers, Electoral process, Election Commission.

UNIT II **[10 Hours]**

Supreme Court of Indian, High Court, Right to Information Act 2005, Consumer Protection- Consumer Rights- Caveat Emptor and Caveat Venditor.

UNIT IV **[10 Hours]**

Professional Ethics: Definition Scope and need of Ethics for professional, Personal Ethics and Business Ethics, Ethical Standards, Duties of Employers and Employees. Due Care theory, Environmental Ethics, Ethical Code of Conduct in ethics. Best Ethical Companies in India and Abroad; Corporate Social Responsibilities, Code of Conduct and Ethical Excellence.

Text Books:

1. 1. M V Pylee, An introduction to Constitution of India
2. M Govindarajan, S Natarajan, V S Senthil Kumar, Engineering Ethics.
3. Dr.Durga Das Basu, Introduction to constitution of India

THIRD SEMESTER

SL. NO	Code	Title	HC/ SC /FC	Credit Pattern			Credits	Working Hrs
				L	T	P		
1	B21AHK302	Language –III Kannada	FC	1	1	0	2	3
	B21AHH302	Language –III Hindi	FC					
	B21AHA301	Language –IIII Additional English	FC					
2	B21DD0301	Digital Modeling	HC	2	0	0	2	2
3	B21DD0302	Texturing and Rendering	HC	2	0	2	4	6
4	B21DD0303	Character Rigging	HC	2	0	2	4	6
5	B21DD0304	Audio Video Editing	HC	2	0	0	2	2
6	B21DD0305	Virtual Reality & Augmented Reality	HC	2	0	0	2	2
Practical Courses								
7	B21DD0306	Digital Modeling Lab	HC	0	0	2	2	4
8	B21DD0307	Audio Video Editing Lab	HC	0	0	2	2	4
***Mandatory - (Non Creditable Courses)**								
9	B21DDM301/ B21PTM301	Soft skills	-	0	0	0	0	2
10	B21DDM302	Skill Development Program						
Total Credits				**11**	**1**	**8**	**20**	**31**

Course Code	Course Title	Course Type	L	T	P	C	Hrs./ Wk.
B21AHK301	Language - II : Kannada - III	FC	1	1	0	2	3

Course Description:

¨sÁµÉAiÀÄ£ÀÄß ªÀiÁvÀ£ÁqÀÄªÀ §gÉAiÀÄÄªÀ PË±À®å, ¸Á»vÀåzÀ §UÉÎ ¸ÀÆÜ®ªÁV ¥ÀjZÀ¬Ä¸ÀÄªÀ ªÀÄÄÆ®PÀ «zÁåyðUÀ¼À ªÀåQÛvÀé «PÁ¸À ºÁUÀÄ ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ¼À£ÀÄß UÀªÀÄ£ÀzÀ°èlÄÖPÉÆAqÀÄ, ¥Àæ¸ÀÄÛvÀ ¸ÀAzÀ¨sÀðPÉÌ «zÁåyðUÀ¼À£ÀÄß ¸ÀdÄÓUÉÆ½¸À®Ä ¥ÀoÀåªÀ£ÀÄß gÀÆ¦¸À¯ÁVzÉ. ¸Á»vÀå, PÀ¯É, ªÁtÂdå, DqÀ½vÁvÀäPÀ ªÀÄvÀÄÛ «eÁÕ£ÀzÀ «ZÁgÀUÀ½UÉ MvÀÛ£ÀÄß ¤ÃqÀ¯ÁVzÉ. EzÀÄ ªÉÆzÀ® JgÀqÀÄ ¸É«Ä¸ÀÖgï ªÀÄÆgÀÄ PÉærmïUÀ¼À£ÀÄß; ªÀÄÆgÀÄ ªÀÄvÀÄÛ £Á®Ì£ÉÃ ¸É«Ä¸ÀÖgï JgÀqÀÄ PÉærmïUÀ¼À£ÀÄß ºÉÆA¢zÉ.

Pre-requisites:

- PÀ£ÀßqÀ ¨sÁµÉAiÀÄ §UÉUÉ ¥ÁæxÀ«ÄPÀ w¼ÀÄªÀ½PÉ CUÀvÀå..
- ¨sÁµÉAiÀÄ£ÀÄß NzÀ®Ä ªÀÄvÀÄÛ §gÉAiÀÄ®Ä w½¢gÀ¨ÉÃPÀÄ.
- ¥ÀzÀ« ¥ÀÆªÀð ²PÀëtzÀ°è PÀ£ÀßqÀ ¨sÁµÉAiÀÄ£ÀÄß N¢gÀ¨ÉÃPÀÄ.

Pedagogy:

ICT/Blended learning/Direct method/Collaborative/Flipped Classroom.

Course Objectives:

£Á®ÄÌ ¸É«Ä¸ÀÖgïUÀ¼À°è ¸ÀªÀÄUÀæ PÀ£ÀßqÀ ¸Á»vÀåªÀ£ÀÄß ¥ÀjZÀ¬Ä¸ÀÄªÀ GzÉÝÃ±ÀªÀ£ÀÄß ºÉÆA¢zÉ. CzÀgÀAvÉ ªÉÆzÀ®£ÉAiÀÄ ¸É«Ä¸ÀÖgï£À°è d£À¥ÀzÀ, ¥ÁæaÃ£À, ªÀÄzsÀåPÁ°Ã£À PÁªÀåUÀ¼ÀÄ, ºÉÆ¸ÀUÀ£ÀßqÀzÀ ¸ÀtÚPÀxÉUÀ¼ÀÄ ºÁUÀÄ £ÁlPÀ ¸Á»vÀåªÀ£ÀÄß ¥ÀoÀåªÀ£ÁßV DAiÉÄÌ ªÀiÁrPÉÆAqÀÄ, «zÁåyðUÀ¼À°è ¸Á»vÀåzÀ §UÉÎ ¸ÀzÀ©ügÀÄaAiÀÄ£ÀÄß ªÀÄÆr¸À¯ÁUÀÄvÀÛzÉ. ¸ÁA¸ÀløwPÀ w¼ÀÄªÀ½PÉAiÀÄ eÉÆvÉUÉ ªÀåQÛvÀé «PÀ¸À£ÀzÀ PÀqÉUÉ UÀªÀÄ£À ¤ÃqÀ¯ÁUÀÄvÀÛzÉ.

- ¨sÁµÉ, ¸Á»vÀå, EwºÁ¸À ªÀÄvÀÄÛ ¸ÀA¸ÀløwUÀ¼À£ÀÄß PÀ£ÀßqÀ, PÀ£ÁðlPÀPÉÌ ¸ÀA§A¢ü¹zÀAvÉ ¥ÀjZÀ¬Ä¸À¯ÁUÀÄvÀÛzÉ.
- «zÁåyðUÀ¼À ¸ÀªÀðvÉÆÃªÀÄÄR ¨É¼ÀªÀtÂUÉUÉ C£ÀÄªÁUÀÄªÀAvÉ ºÁUÀÆ CªÀgÀ°è ªÀiÁ£ÀªÀ ¸ÀA§AzsÀUÀ¼À §UÉÎ UËgÀªÀ, ¸ÀªÀiÁ£ÀvÉ ªÀÄÆr¹, ¨É¼É¸ÀÄªÀ ¤nÖ£À°è ¥ÀoÀåUÀ¼À DAiÉÄÌAiÀiÁVzÉ.
- CªÀgÀ°è ¸ÀÈd£À²Ã®vÉ, ±ÀÄzÀÞ ¨sÁµÉ, GvÀÛªÀÄ «ªÀÄ±Áð UÀÄt, ¤gÀUÀð¼À ¸ÀA¨sÁµÀuÉ, ¨sÁµÀt PÀ¯É ºÁUÀÆ §gÀºÀ PË±À®åUÀ¼À£ÀÄß ¨É¼É¸ÀÄªÀåzÀÄ UÀÄjAiÀiÁVzÉ
- ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ½UÉ C£ÀÄPÀÆ®ªÁUÀÄªÀAvÀºÀ «µÀAiÀÄUÀ¼À£ÀÄß UÀªÀÄ£ÀzÀ°èèlÄÖPÉÆAqÀÄ ¸ÀÆPÀÛ ¥ÀoÀåUÀ¼À£ÀÄß DAiÉÄÌ ªÀiÁrPÉÆ¼Àî¯ÁVzÉ.

Course Outcomes:

d£À¥ÀzÀ, ¥ÁæaÃ£À, ªÀÄzsÀåPÁ°Ã£ÀzÀ ««zsÀ ¥ÀæPÁgÀzÀ PÁªÀåUÀ¼ÀÄ, ºÉÆ¸ÀUÀ£ÀßqÀzÀ ¸ÀtÚPÀxÉUÀ¼ÀÄ ºÁUÀÄ £ÁlPÀ ¸Á»vÀå PÀ°PÉAiÀÄ ªÀÄÆ®PÀ PÁ®zÀ ¹ÜvÀåAvÀgÀUÀ¼À£ÀÄß CzÀgÀ M¼À£ÉÆÃlUÀ¼À£ÀÄß ¨É¼É¸ÀÄvÀÛzÉ.

- ¸ÁªÀiÁfPÀ, gÁdQÃAiÀÄ, zsÁ«ÄðPÀ, ¸ÁA¸Àløwpà, ¥Àj¸ÀgÀ ºÁUÀÆ °AUÀ¸ÀA§A¢ü «ZÁgÀUÀ¼ÉqÉ UÀªÀÄ£À ºÀj¸ÀÄªÀÅzÀgÉÆA¢UÉ «zÁåyðUÀ¼À°è ZÀZÁð ªÀÄ£ÉÆÃ¨sÁªÀªÀÅ ¨É¼ÉAiÀÄÄvÀÛzÉ.
- fÃªÀ£ÀzÀ°è §gÀÄªÀ C©ü¥ÁæAiÀÄ ¨ÉÃzsÀUÀ¼ÀÄ, ¸ÀªÀÄ¸ÉåUÀ¼À£ÀÄß DzsÀÄ¤PÀ ¸ÀAzÀ¨sÀðzÀ°è ªÀiÁ£À«ÃAiÀÄvÉAiÉÆA¢UÉ ¤ªÀð»¸ÀÄªÀAvÉ ¥ÉæÃgÉÃ¦¸ÀÄvÀÛzÉ.
- GvÀÛªÀÄ ¸ÀAªÀºÀ£À PÀ¯ÉAiÀÄ£ÀÄß ¨É¼É¸ÀÄªÀ GzÉÝÃ±ÀªÀ£ÀÄß FqÉÃj¸ÀÄvÀÛzÉ.
- ¸ÀA±ÉÆÃzÀ£Á ªÀÄ£ÉÆÃ¨sÁªÀ ªÀÄvÀÄÛ ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ½UÉ «zÁåyðUÀ¼À£ÀÄß ¸ÀdÄÓUÉÆ½¸ÀÄvÀÛzÉ.

Course Content:

Unit I **£ÀªÉÇÃzÀAiÀÄ PÀ«vÉUÀ¼ÀÄ** [**7 Hours**]

1. ¨É¼ÀUÀÄ zÀ.gÁ. ¨ÉÃAzÉæ
2. PÀ°Ì PÀÄªÉA¥ÀÄ
3. PÀ£Àßqï ¥ÀzÀUÉÆ¼ï f. ¦. gÁdgÀvÀßA

Unit II **£ÀªÉÇÃzÀAiÀÄ ºÁUÀÄ £ÀªÀå PÀ«vÉUÀ¼ÀÄ** **[6 Hours]**

1. CªÀzsÀÆvÀ ¸ÀÄ.gÀA.JPÀÄÌAr
2. ªÀÄ£É¬ÄAzÀ ªÀÄ£ÉUÉ PÉ.J¸ï.£À
3. £À£Àß ºÀtvÉ f.J¸ï.J¸ï.

Unit III **¸ÀtÚ PÀxÉUÀ¼ÀÄ** [**7 Hours**]

1. zÁ½ £ÀqÉzÁªÀ CuÁÚ CªÀÄgÉÃ±À £ÀÄUÀqÉÆÃtÂ
2. PÉÆ£ÉAiÀÄ VgÁQ ¤gÀAd£À
3. ªÀiÁ¤ÃlgÏ vÉÃd¹é

Unit IV **£ÁlPÀ** [**6 Hours**]

1. «ÄÃrAiÀiÁ (¸ÀAUÀæºÀ) AiÀÄÄj¦rÃ¸ï
   C£ÀÄªÁzÀ: PÉ. ªÀÄgÀÄ¼À ¹zÀÞ¥À

References:

- ªÀÄÄUÀ½ gÀA.²æÃ., PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ, ¥ÀæPÁ±ÀPÀgÀÄ VÃvÁ §ÄPï ºË¸ï, ªÉÄÊ¸ÀÆgÀÄ. 2014
- ¹ÃªÀiÁwÃvÀ PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ ¸ÀA¥ÀÄl 1,2,3,4,5 ªÀÄvÀÄÛ 6, PÀÄªÉA¥ÀÄ PÀ£ÀßqÀ CzsÀåAiÀÄ£À ¸ÀA¸ÉÜ, ªÉÄÊ¸ÀÆgÀÄ «±Àé«zÁå¤®AiÀÄ, ªÉÄÊ¸ÀÆgÀÄ. 2014
- qÁ. CgÀ«AzÀ ªÀiÁ®UÀwÛ, ¸Á»vÀå ¸ÀA¸Àløw ªÀÄvÀÄÛ zÀ°vÀ ¥ÀæeÉÕ, ¥ÀæPÁ±ÀPÀgÀÄ PÀ£ÀßqÀ ¸Á»vÀå ¥ÀjµÀvÀÄÛ, ¨ÉAUÀ¼ÀÆgÀÄ. 2014
- qÁ. F.J¸ï. DªÀÄÆgÀ, PÀ£ÀßqÀ PÀxÀ£À ¸Á»vÀå : PÁzÀA§j, ¥ÀæPÁ±ÀPÀgÀÄ ¸Áé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2016
- zÉÃ±À¥ÁAqÉ J¸ï.J¯ï., ¨ÉÃAzÉæ ±ÀjÃ¥sÀgÀ PÁªÁåAiÀiÁ£À, ¥ÀæPÁ±ÀPÀgÀÄ zÉÃ¹ ¥ÀÄ¸ÀÛPÀ, ¨ÉAUÀ¼ÀÆgÀÄ. 2013
- QÃvÀð£ÁxÀ PÀÄvÀðPÉÆÃn, PÀ£ÀßqÀ ¸Á»vÀå ¸ÀAUÁw, ¥ÀæPÁ±ÀPÀgÀÄ PÀÄvÀðPÉÆÃn ªÉÄªÉÆÃjAiÀÄ¯ï læ¸ïÖ, zsÁgÀªÁqÀ. 2009
- ±ÁªÀÄgÁAiÀÄ vÀ.¸ÀÄ., PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ, ¥ÀæPÁ±ÀPÀgÀÄ vÀ¼ÀÄQ£À ªÉAPÀtÚAiÀÄå ¸ÁägÀPÀ UÀæAxÀªÀiÁ¯É, ªÉÄÊ¸ÀÆgÀÄ -2014
- ¸ÀA. qÁ! ¹. Dgï. ZÀAzÀæ±ÉÃRgï, ªÀÄÄAzÁ¼ÀÄvÀ£ÀzÀ ®PÀëtUÀ¼À£ÀÄß ¨É¼É¹PÉÆ¼ÀÄîªÀÅzÀÄ ºÉÃUÉ?, ¥ÀæPÁ±ÀPÀgÀÄ £ÀªÀPÀ£ÁðlPÀ ¥À©èPÉÃµÀ£îì ¥Éæöʪ Émï °«ÄmÉqï. 2010
- DzsÀÄ¤PÀ PÀ£ÀßqÀ PÁªÅå ¨sÁUÀ-2, PÀÄªÉA¥ÀÄ PÀ£ÀßqÀ CzsÀåAiÀÄ£À ¸ÀA¸ÉÜ, ªÉÄÊ¸ÀÆgÀÄ «±Àé«zÁå¤®AiÀÄ, ªÉÄÊ¸ÀÆgÀÄ. 2004

- ²ªÀgÀÄzÀæ¥Àà f.J¸ï. PÀ£ÀßqÀ ¸Á»vÀå ¸À«ÄÃPÉë, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ.

Course Code	Course Title	Course Type	L	T	P	C	H V
B21AHH301	Language - II: Hindi - III	FC	1	1	0	2	

2013.

Course Description:

यह पाठ्यक्रम नौसिखिया, अपनी भाषा की क्षमता का विकास करने हेतु तथा विभिन्न साहित्यिक प्रक्रियाओं द्वारा समाज, संस्कृति एवं जीवन के मूल्यों को समझने हेतु अभिकल्पित है |

Pre-requisites:

- अध्येता को, हिन्दी नाटक साहित्य का संक्षिप्त ज्ञान आवश्यक है |
- हिन्दी साहित्य के इतिहास का संक्षिप्त ज्ञान की आवश्यकता है |
- हिन्दी व्याकरण का अवबोधन आवश्यक है |
- की बुनियादी जानकारी चाहिए |
- अंग्रेज़ी – हिन्दी अनुवाद से संबंधित जानकारी जरुरी है|

Pedagogy:

- Direct method
- ICT and Digital support
- Collaborative and Cooperative learning
- Differentiated Instruction
- Flipped Classroom

Course Objectives:

- संदर्भानुसार उचित भाषा का प्रयोग करने की दक्षता को छात्रों में उत्पन्न करना |
- साहित्य के माध्यम से समाज एवं मानवीय मूल्यों को समझाकर, उन मूल्यों की रक्षा हेतु प्रेरित करना |
- छात्रों में पुस्तक पठन एवं लेखन की अकृतिम प्रवृत्ति स्थापित करना |
- अध्येताओं में साहित्य के माध्यम से प्रभावी एवं कुशल संचार का विकास करना |

Course Outcomes:

- अध्ययन की समाप्ति पर अध्येता –
- सामाजिक मूल्य एवं नैतिक जवाबदेही को स्वीकार कर सकता है |

- साहित्य की प्रासंगिकता को जीवन में समझने की दक्षता रखता है |
- समाज में अंतर्निहित पद्दतियाँ एवं विचारधाराओं का व्याख्यान करने में सक्षम बन सकता है |
- साहित्य के माध्यम से प्रभावी एवं कुशल संचार का विकास करसकता है |

Course Content:

इकाई –1:नाटक : एक और द्रोणाचार्य – डॉ. शंकर शेष **[7 Hours]**
लेखक परिचय
प्रथम दृश्य
द्वितीय दृश्य
इकाई –2 :नाटक : एक और द्रोणाचार्य **[6 Hours]**
तृतीय दृश्य
चतुर्थ दृश्य
इकाई –3:नाटक : एक और द्रोणाचार्य [**7 Hours]**
पंचम दृश्य
छठा दृश्य
इकाई –4: [6 **Hours**]
अनुवाद : अंग्रेजी - हिन्दी-समाचार पत्र संबंध
भारत में हिन्दी मीडिया की समस्याएँ, रिपोर्टिंग, साक्षात्कार

Text book:

एक और द्रोणाचार्य – डॉ. शंकर शेष

References: :

- मीडिया लेखन एवं जनसंचार – डॉ.संजीव कुमार
- .हिन्दी साहित्य का इतिहास - डॉ. नागेन्द्र
- आधुनिक हिन्दी साहित्य का इतिहास - डॉ. बच्चन सिंह
- हिन्दी साहित्य का नवीन इतिहास - डॉ. लाल साहब सिंह
- शुद्ध हिन्दी कैसे बोले कैसे लिखे- पृथ्वीनाथ पाण्डे
- कार्यालय अनुवाद निदेशिका
- मीडिया विमर्श – रामशरण जोशी
- संस्कृति– जनसंचार और बाजार , नन्द भरद्वाज

Course Code	Course Title	Course Type	L	T	P	C	Hrs
B21 HA301	Language - II: Additional English - III	FC	1	1	0	2	

Course Description:

This 2-credit course allows the learners to explore the various socio-political aspects represented in literature. The concepts discussed in the course provide learning exposure to real life scenarios. The course is designed to develop critical thinking ability among learners, through the socio-political aspects discussed in literature. Thus, the aim is to produce responsible and sensitive individuals.

Pre-requisites:

The student must possess fair knowledge of language, literature and society.

Pedagogy:

Direct method / ICT / Collaborative Learning / Flipped Classroom.

Course Objectives:

1. To outline the global and local concerns of gender and identity.
2. To identify the complexities of human emotions through literature.
3. To assess the struggles of human survival throughout history.
4. To compare and contrast between the various dimensions of childhood.

Course Outcomes:

On completion of the course, learners will be able to:

1. Evaluate the pressing gender issues within our society.
2. Criticize human actions through a humane and tolerant approach.
3. Perceive the human conflicts with an empathetic perspective.
4. Disprove the assumption of a privileged childhood.

Course Content:

Unit-I: Gender & Identity [7 Hours]

Anne Sexton – Consorting with Angels
Eugene Field – The Doll's Wooing
Vijay Dan Detha – Double Life
Charlotte Perkins Gilman – The Yellow Wallpaper 12 Hours

Unit-II: Love & Romance [6 Hours]

Alfred Noyes – The Highway Man
William Shakespeare – Sonnet 116

Frank Richard Stockton – The Lady or the Tiger?
Oscar Wilde – The Nightingale and the Rose

Unit-III: War & Trauma **[7 Hours]**
Lord Alfred Tennyson – The Charge of the Light Brigade
TaufiqRafat – The Medal
Guy de Maupassant – Two Friends
Sadaat Hasan Manto – Toba Tek Singh

Unit-IV: Children's Literature **[6 Hours]**
William Blake – The Chimney Sweeper
D.H. Lawrence – Discord in Childhood
Anna Sewell – The Black Beauty (Extract)
Rudyard Kipling – The Jungle Book (Extract)

References:

- Sexton, Anne. *The Complete Poems*. Houghton Mifflin, 1999.
- Namjoshi, Suniti. *Feminist Fables*. Spinifex Press, 1998.
- Vanita, Ruth &Saleem Kidwai (ed.) *Same Sex Love in India*. Penguin India, 2008.
- Gilman, Charlotte Perkins. *The Yellow Wallpaper*. Rockland Press, 2017.
- Gale, Cengage Learning. *A Study Guide for Alfred Noyes's "The Highwayman".* Gale, Study Guides, 2017. (Kindle Edition Available)
- Shakespeare, William. *Poems and Sonnets of William Shakespeare*. Cosimo Classics, 2007.
- Stockton, Frank Richard. *The Lady, or the Tiger?* Create Space Independent Publications, 2017.
- Wilde, Oscar. *The Collected Works of Oscar Wilde*. Wordsworth Editions Ltd., 1997.
- Tennyson, Lord Alfred. *The Complete Works of Alfred Tennyson*. Forgotten Books, 2017.
- Blake, William Erdman, David V. (ed.). *The Complete Poetry and Prose* (Newly revised ed.). Anchor Books, (1988).
- Maupassant, Guy de. *Guy de Maupassant-The Complete Short Stories*. Projapati, 2015.
- Manto, Sadaat Hasan. *Manto: Selected Short Stories*. RHI, 2012.
- Ricks, Christopher. *Metaphysical Poetry*. Penguin, 2006.
- Sewell, Anna. *The Black Beauty*. Maple Press, 2014.
- Kipling, Rudyard. *The Jungle Book*. Amazing Reads, 2018.

SUBJECT_CODE	**Digital Modeling**	**L**	**T**	**P**	**C**
B21DD0301		**2**	**0**	**0**	**2**

Course Description:

Digital Modeling- 3D modeling is a technique in computer graphics for producing a 3D digital representation of any object or surface. 3D models are used for a variety of mediums including video games, movies, architecture, illustration, engineering, and commercial advertising. This course starts with the introduction to a standard 3D Animation software–Maya, Interface and Basic Primitives then it moves to Polygon Primitives & Subdivision Primitives, Poly Tools Modeling. Further s=it starts Character modeling with Basic Construction of the Hand, Modeling Process, Understanding Face Loops, creating a Face, creating complete character, Understanding Topology and Polishing.

Pre-requisites:

Should have medium to high level working knowledge of computer operation, should have learnt any multimedia tools like photoshop, basic drawing and interest towards Animation & creativity.

Course Objectives:

1. Understanding the 3D modeling process and workflows in Maya
2. Work with and navigate the unique features of the digital 3D modeling workspace to create 3D objects.
3. To Explain what cognition is and why it is important for interaction design.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Able to understand basic interface of Maya and work with Nurbs Primitives.
2. Learn to make 3D models using model planning, poly tools, scene, edition, organic poly modeling
3. Understand the important aspects that should be borne in mind while modeling hand, and be able to explain Face Loops.
4. Able to create 3D models- Face elements and create morph targets for facial animation.

Course Contents:

UNIT I: Introduction: **[7 Hours]**

I, Menus, Viewport, Hotbox Controls, Object Component Mode, Channel, Box/Attribute Editor, Layer Editor, Settings/Preferences, Outliner, Hypergraph, Nurbs Primitives, Nurbs Curves,

UNIT II: **[7 Hours]**

Introduction to Poly Tools Modeling Prop Modeling:

Introduction to Polygon Primitives & Subdivision Primitives, Poly Tools Modeling, Polygon Operations, Other Operations, Modeling Workflow, Background Modeling, Props Modeling, Converting SubDiv to Polygon Mesh.

UNIT III **[7 Hours]**

Character Modeling

Detailing/Stylization, Reference Setup, Blocking, Basic Construction of the Hand, Modeling Process, Understanding Face Loops, creating a Face, creating complete character, Understanding Topology and Polishing

UNIT IV: **[7 Hours]**

Creating Morph Targets & Subdivision Modeling

Introduction to Morph Targets, Morphing Procedure, Facial Movements and Muscles, Major Mouth Movements, 3D Mesh for Morph Targets, Morph Target Creation, Unwrapping.

TEXT BOOKS

1. Autodesk Maya 2018: A Comprehensive Guide, Paperback, August 11, 2017

REFERENCE BOOKS

1. Jason Patnode, Character Modeling with Maya and ZBrush: Professional polygonal modeling techniques, Jan 14, 2008
2. Michael McKinley, Maya Studio Projects: Game Environments and Props, Mar 1, 2010

SUBJECT_CODE	Texturing and Rendering	L	T	P	C
B21DD0302		2	0	2	4

Course Description:

Texturing and Rendering- Texturing & Rendering is the act of controlling the appearance of the surface of 3D model by controlling things like color, shininess, transparency, reflectivity, and even make the surface look rougher or smoother and finally taking a 2D image or video output. This course starts with the introduction to hypershade and applying new materials. Then it moves to layering materials, applying shading map, bump map, placing 2D & 3D textures. Further it moves to lighting, shading, rendering and render passes using Arnold.

Pre-requisites:

Should have medium to high level working knowledge of computer operation, should have learnt any multimedia tools like photoshop, basic idea of 3D Model and interest towards Animation & creativity

Course Objectives:

1. Explain the process of texturing a 3D model using the available tools in Maya.
2. Explain the types of lights and shadows available in Maya.
3. To Explain the render settings for rendering the scene using the physical sky and sun lighting parameters.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Able to understand the different materialistic properties and the concept of shading.
2. Learn the concept of 2D and 3D procedural textures in Maya and understand the the functionality of Bump maps.
3. Understand the placement and uses of the three lights, namely, Key light, Fill light and back light.
4. Able to create different render passes using Arnold render in Maya.

Course Contents:

UNIT I **[13 Hours]**

Materials

Introduction to Hypershade, Applying New Materials, Renaming Materials, Applying Existing Materials, Applying Materials to selected Faces, Changing Material Attributes, Moving Between Nodes, Rendering Materials, Learning the Surface materials, Changing the material color, Changing the material Transparency, using material attributes, Layering materials, using the Ramp shaders, Using the shading map

UNIT II: **[13 Hours]**

Textures

Connecting Texture Nodes, Applying Textures as Color, Mapping Textures to Attributes, Using Bump Maps, Loading File Textures, Layering textures, Position Textures Using Default Mapping, Using Projection Mapping, Placing 2D Textures, Placing 3D Textures, Working with 2D Procedural Textures, Working with 3D Procedural Textures, Use Displacement Maps

UNIT III: **[13 Hours]**

Lighting

Modeling with Light, Three Point Lighting, Functions of Light, Using Fill Lights, Use of Rim and Hi Lights for the Background, Character Lighting Setup based on the Background, Pre-Compositing Character and Background, Creating a Moonlight Setup of an Interior Background

UNIT IV:

Shaders and Rendering Algorithms **[13 Hours]**

Shading Surfaces, Anti-Aliasing, Raytracing, Scanline Rendering, GPU Accelerated and Hardware Rendering, Basic Properties of Shaders, Sub Surface Scatter (SSS) Material, Render Passes using Arnold render.

TEXT BOOKS

1. Digital Lighting and Rendering - by Jeremy Birn, 2nd Edition, New Riders

3. Autodesk Maya 2018: A Comprehensive Guide Paperback - by Tickoo Sham, November 1, 2017, BPB Publications

REFERENCE BOOKS

1. Advanced Maya Texturing and Lighting - Lee Lanier, 3rd edition, Sybex

2. Maya Studio Projects Texturing and Lighting - Lee Lanier, May 31, 2011, Sybex

3. Autodesk Maya 2018 Basics Guide - by Kelly Murdock, November 6, 2017, SDC Publications

4. Autodesk Maya 2018: A Comprehensive Guide Paperback - by Tickoo Sham, November 1, 2017, BPB Publications

SUBJECT_CODE	Character Rigging	L	T	P	C
B21DD0303		2	0	2	4

Course Description:

Character Rigging- Rigging in Maya is used to give control points to the animator from which the animation can be done. As the actual polygons are not touched, but the controls are used for animation, and to create these controls, the model is rigged. The course starts with introduction to basic rules of rigging, Props, Pivot Points, and Hierarchies and deformers. Then moves to joints, creating nodes and custom attributes. Further it moves to rig setup for character and skinning.

Pre-requisites:

Should have medium to high level working knowledge of computer operation, should have learnt any multimedia tools like photoshop, basic idea of 3D Model and interest towards Animation & creativity.

Course Objectives:

1. Demonstrate the rigging workflow of a fully functional mechanical model by assigning controllers, constraints, and the Freeze Transformations command.
2. Explain the character rigging process in Maya.
3. To Explain the fundamentals of skinning.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand the concept of rigging, grouping techniques and constraints available in Maya.
2. Create joints while rigging a character and establish connection between multiple objects using child and parent hierarchy.
3. Understand the concept of inverse and forward kinematics and create FK & IK functional rig.
4. Apply skin on functional rig setup and work with various skinning techniques for deriving at finest output.

Course Contents:

UNIT I: **[13 Hours]**

Introduction:

Basic Rules of Rigging, Taking Control of your Outliner/Hypergraph/History, Introduction to Nodes, How to Find the Transform and Shape Node

Props, Pivot Points, and Hierarchies: Zeroing Out, Using Group Nodes to Hold Animation, Making Children, Lock what isn't Going to be Animated, Hide & lock Attributes, Pushing the Concept

Deformers: Non-Linear Deformers, Changing Deformation Color, Lattice, Cluster, Super Toothbrush, Other Deformers

UNIT II: **[13 Hours]**

Joints, Controllers & Nodes:

Joints: Introduction to Joints, Orient Joints, Character with a Skeleton, Joint Rotational Axis, Simple IK/FK

Controllers: One-to-One Controllers, Connection Editor, To Limit the Controllers, Adding More Animator's Controllers, Introduction to Constraints

Utility Nodes and Custom Attributes: Utility Switches, creating a Custom Attribute on an Existing Controller, Set driven key, Expressions.

UNIT III: **[13 Hours]**

Rigging:

Rig Setup for Character, Understanding the different Spines: FK, Spline, SDK (Set Driven key), Understanding rigging of Arms, Elbows, and Clavicles using the concept of Singlechain, RCS, understanding how to Move Main Control and Rotate the Whole Character, understanding how to Scale Main Control to the Whole Character, Scaling Unskinned Geometry (eyes etc.), Problem Solving, testing the Rig

UNIT IV: **[13 Hours]**

Skinning:

Interactive Skinning, Blendshapes, Skinning, Painting Skin Weights, Joint Adjustment in Skinning.

Mirror Skin Weights, Copy Skin Weights Tool, Add Influence Tool, Working with the Add Influence Tool

TEXT BOOKS

1.Rig it Right! – by Tina O'Hailey , Edition 1 edition (March 26, 2013), Focal Press

REFERENCE BOOKS

1. Animation Methods - Rigging Made Easy: Rig your first 3D Character in Maya - David Rodriguez, Apr 18, 2013, CreateSpace Independent Publishing Platform

SUBJECT_CODE	Audio- Video Editing	L	T	P	C
B21DD0304		2	0	0	2

Course Description:

Audio-Video editing- Audio video Editing is usually considered to be one part of the post production process. It is the process of manipulating and rearranging video shots to create a desired outcome. The course starts with introduction to interface, importing audio files, working with tools, removing noise, mixing multiple tracks and saving and exporting audio files. Then it moves to working with video clips, color correction & color grading, exporting video clips. Further it moves to applying audio video effects & transitions.

Pre-requisites:

Should have medium to high level working knowledge of computer operation, should have learnt any multimedia tools like photoshop & should have general idea about editing field.

Course Objectives:

1. Describe the elements available in the interface and list the technical terms used in audio.
2. Explain the new features in video editing software, interface and functions associated with it.
3. Explain how to get started with editing and cross-application workflows.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand the difference between analog and digital audio and work with audio tools.
2. Work with audio files, edit audio clips, save and export audio files.
3. Understand the workspace and functions in a standard video editing software and create and change sequences, add, rearrange, and work with video clips in a sequence.
4. Work with clips, channels, and tracks, edit audio in the timeline panel and use different audio and video effects to edit clips.

CourseContents:

UNIT I: **[7 Hours]**

Introduction to audio editing:

Fundamental of sound, Understanding Interface, importing audio files, recording audio, Adjusting Audio preferences, creating and opening files, Working with tools.

UNIT II: **[7 Hours]**

Working with audio Editing:

Editing Audio clips, Removing Noise, adding audio effects, Saving and exporting files, batch process, converting sample type, adding multiple audio tracks, mixing multiple tracks.

UNIT III: **[7 Hours]**

Introduction to Video Editing:

Understanding interface, Basic workflow, Adding, rearranging and working with Clips in a sequence, Rendering and previewing Sequences, working with tools, overview of Audio and Audio Track Mixer, color correction & color grading, exporting video, changing video speed.

UNIT IV: **[7 Hours]**

Applying Effects:

Working with Clips, Channels, and tracks, About Effects- Applying, Removing, Finding and Organizing Effects, Viewing and Adjusting Effects, Keyframes and Effects Presets, Applying Transitions, Audio Effects and Transitions.

TEXT BOOKS

1. Maxim Jago, Adobe Premiere Pro CC Classroom in a Book, Adobe, 2018 release

2. Maxim Jago, Adobe Audition CC Classroom in a Book, Adobe Creative Team, Jun 28, 2013

REFERENCE BOOKS

1. Michael Frierson, Film and Video Editing Theory: How Editing Creates Meaning, 1st Edition, Routledge, April 2018

2. Gerardus Blokdyk, Adobe Audition: Plan, Program, Extend, Createspace Independent Pub, Jan 13, 2018

B21DD0305	Virtual Reality & Augmented Reality	L	T	P	C
Duration: 28 Hrs		2	0	0	2

Course Description:

This course describe the basic behavior of physiology of human vision, VR/AR terminologies , creating content in virtual environment

Pre-requisites:

Knowledge of General Content development and graphics tools is required.

Course Objectives:

The objectives of this course are to:

1. This course is aimed to enable students to learn the basic and advanced VR& AR Concepts
2. To create new applications with VR/AR

Course Outcomes:

On successful completion of this course; the student will be able to:

1. To define the terminologies in VR/AR
2. To describe the basic physiology of human vision and visual perception
3. To consume and create innovative content in VR/AR
4. To explore VR & AR Use cases

Course Content:

UNIT I: **[7 Hours]**

Getting Started with Virtual Reality and Augmented Reality: Defining Virtual and Augmented Reality, Exploring the current state of virtual reality, Exploring the current state of augmented reality. **Consuming Content in Virtual and Augmented Reality:** Consuming Content in Virtual Reality, Consuming Content in Augmented Reality

UNIT II

[7 Hours]

Creating content in virtual and augmented reality: Evaluating your project , Planning your Virtual Reality Project, Planning Your Augmented Reality Project, Creating content in virtual and augmented reality

UNIT III: [7 Hours]

Virtual and augmented reality in the wild: Exploring the virtual reality use cases, exploring augmented reality use cases.

UNIT IV [7 Hours]

The Future of Virtual and Augmented Reality: Assessing the future of Virtual Reality, Assessing the future of Augmented Reality, Introduction to Metaverse

Text books:

1. Paul Mealy, Virtual and augmented reality for dummies, A Wiley Brand, 2018

References:

1. Steven M Lavelle, Virtual Reality , Cambridge University Press,2019
2. Charlie Fink's Metaverse - An AR Enabled Guide to AR & VR, 2018
3. Erin Pangilinan , Steve Lukas , Vasanth Mohan ,Creating Augmented and Virtual Realities: Theory and Practice for Next-generation Spatial Computing, 2019
4. Tony Parisi, Learning Virtual Reality - Developing Immersive Experiences and Applications for Desktop, Web, and Mobile, 2015
5. Ralf Doerner,Wolfgang Broll,Paul Grimm,Bernhard Jung,Virtual and Augmented Reality (VR/AR), Foundations and Methods of Extended Realities (XR), Springer

Course Code	POS/ COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PSO1	PSO2	PSO3
	CO1	H	L	L	M	H	L	M	M	M	H	L	L
	CO2	M	M	H	M	H	L	H	H	H	M	H	M
	CO3	M	M	H	L	H	L	H	H	H	M	M	H
	CO4	M	M	H	L	H	L	M	H	H	M	M	H

SUBJECT_CODE	Digital Modeling Lab	L	T	P	C
B21DD0306		0	0	2	2

Course Description:

Digital modeling is about understanding foundation of 3D modeling and working with standard primitives, NURBS primitives and polygon primitives. It is used to create game asset modeling, architectural modeling, Vehicle modeling etc.

Pre-requisites:

Should have medium to high level working knowledge of computer operation, should have learnt any multimedia tools like photoshop, basic drawing and interest towards Animation & creativity. Should have interest towards creating 3D modeling.

Course Objectives:

1. Discuss foundation in 3D Modeling.
2. To demonstrate of different ways of modeling.
3. To work with interface, tools, functions, concepts, and design environment.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understanding basic interface of a standard 3D software, and working of standard primitives, Nurbs and Polygon primitives.
2. Learn the importance of stylization while modeling a scene.
3. Learn to create the character modeling based on the reference provided.
4. Understand the basic shapes using subdivision components.

Course Contents:

Part A

1. Create asset modeling. Refer a gun / pistol kind of image.
2. Create an high poly wireframe of a jukebox.
3. Create an chess board using nurbs primitives.
4. Stylized interior modeling. Refer living room / bed room image.
5. Create watch modeling. Refer image of a watch top and side profile view.
6. Hat modeling. Refer hat image front and side profile view.
7. Stylized vehicle modeling. Refer bike / car image front and side profile view.

Part B

7. Construct hand. Use box primitive and modify further to give it the shape of a hand.
8. Water well modeling. Refer a water well image.
9. Robot character modeling. Refer model sheet of robot character.
10. Animal character modeling. Refer model sheet of a dog front and side profile.
11. Bird character modeling. Refer model sheet of any Bird.

SUBJECT_CODE	Audio Video Editing Lab	L	T	P	C
B21DD0307		0	0	2	2

Course Description:

Audio Video Editing is usually considered to be one part of the postproduction process. Here students will know how to edit the audio for better experience like removing background noise, adding multiple tracks. In video editing students will learn different types of cuts to use, working with mask, color corrections, video transitions.

Pre-requisites:

Should know video editing techniques and have interest towards video editing.

Course Objectives:

1. To explain basic difference between analog and digital audio.
2. To demonstrate a workspace of a standard video editing software.
3. To explain the List of audio and video effects.
4.

Course Outcomes:

Upon Completion of the course, the students will be able to:

- Differentiate between analog and digital audio.
- Learn how to Work with audio files, edit audio clips, save and export audio files.
- Describe the workspace and functions in a standard video editing software interface.
- Understand the basic principles of audio and video effects to edit clips.

Course Contents:

Part A

1. Remove background noise from the audio.
2. Make audio sound better with EQ, amplitude and compression.
3. Add delay and eco effect to audio.
4. Remove green screen and add background for video.
5. Import multiple footage of same background and merge them using mask.
6. Edit a footage using J and L cut.
7. Edit multiple footage using match cut.

Part B

1. Import a raw footage and Work with color correction using lumetri color.
2. Import a footage and isolate only one color from it and turn rest into black & white.
3. Import minimum 3 footage and make all footage visible at the same time using split screen.
4. Make a rolling credits text.
5. Make a perfect lip synchronize audio to video.

FOURTH SEMESTER

SL. NO	Code	Title	HC /SC /FC	Credit Pattern			Credits	Working Hrs
				L	T	P		
1	B21AHK402	Language –IV Kannada	FC	1	1	0	2	3
	B21AHH402	Language –IV Hindi	FC					
	B21AHA401	Language –IV Additional English	FC					
2	B21DD0401	3D Animation	HC	2	0	0	2	2
3	B21DD0402	VFX - I	HC	2	0	0	2	2
4	B21DD0403	Game Design -I	HC	2	0	2	4	6
5	B21DDS411	Advanced Rendering	SC	1	1	1	3	5
	B21DDS412	Advanced Modeling						
6	B21DDS421	Programing in C#	SC	2	0	1	3	4
	B21DDS422	Programing in C++						
Practical courses								
7	B21DD0404	3D Animation Lab	HC	0	0	2	2	4
8	B21DD0405	VFX -I Lab	HC	0	0	2	2	4
9	B21DD0406	Mini Project-II	HC	0	0	4	4	8
***Mandatory - (Non Creditable Courses)**								
9	B21DDM401/ B21PTM401	Soft skills	-	0	0	0	0	2
10	B21DDM402	Skill Development Program						
Total Credits				**10**	**2**	**12**	**24**	**40**

FOURTH SEMESTER

Course Code	Course Title	Course Type	L	T	P	C	Hrs./ Wk.
B21AHK401	Language - II : Kannada - IV	FC	1	1	0	2	3

Course Description:

¨sÁµÉAiÀÄ£ÀÄß ªÀiÁvÀ£ÁqÀÄªÀ §gÉAiÀÄÄªÀ PË±À®å, ¸Á»vÀåzÀ §UÉÎ ¸ÀÆÜ®ªÁV ¥ÀjZÀ¬Ä¸ÀÄªÀ ªÀÄÆ®PÀ «zÁåyðUÀ¼À ªÀåQÛvÀé «PÁ¸À ºÁUÀÄ ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ¼À£ÀÄß UÀªÀÄ£ÀzÀ°èlÄÖPÉÆAqÀÄ, ¥Àæ¸ÀÄÛvÀ ¸ÀAzÀ¨sÀðPÉÌ «zÁåyðUÀ¼À£ÀÄß ¸ÀdÄÓUÉÆ½¸À®Ä ¥ÀoÀåªÀ£ÀÄß gÀÆ¦¸À¯ÁVzÉ. ¸Á»vÀå, PÀ¯É, ªÁtÂdå, DqÀ½vÁvÀäPÀ ªÀÄvÀÄÛ «eÁÕ£ÀzÀ «ZÁgÀUÀ½UÉ MvÀÛ£ÀÄß ¤ÃqÀ¯ÁVzÉ. EzÀÄ ªÉÆzÀ® JgÀqÀÄ ¸É«Ä¸ÀÖgï ªÀÄÆgÀÄ PÉærmïUÀ¼À£ÀÄß; ªÀÄÆgÀÄ ªÀÄvÀÄÛ £Á®Ì£ÉÃ ¸É«Ä¸ÀÖgï JgÀqÀÄ PÉærmïUÀ¼À£ÀÄß ºÉÆA¢zÉ.

Pre-requisites:

- PÀ£ÀßqÀ ¨sÁµÉAiÀÄ §UÉUÉ ¥ÁæxÀ«ÄPÀ w¼ÀÄªÀ½PÉ CUÀvÀå..
- ¨sÁµÉAiÀÄ£ÀÄß NzÀ®Ä ªÀÄvÀÄÛ §gÉAiÀÄ®Ä w½¢gÀ¨ÉÃPÀÄ.
- ¥ÀzÀ« ¥ÀÆªÀð ²PÀëtzÀ°è PÀ£ÀßqÀ ¨sÁµÉAiÀÄ£ÀÄß N¢gÀ¨ÉÃPÀÄ.

Pedagogy:
ICT/Blended learning/Direct method/Collaborative/Flipped Classroom.

Course Objectives:

£Á®Ä¸É«Ä¸ÀÖgïUÀ¼À°è ¸ÀªÀÄUÀæ PÀ£ÀßqÀ ¸Á»vÀåªÀ£ÀÄß ¥ÀjZÀ¬Ä¸ÀÄªÀ GzÉÝÃ±ÀªÀ£ÀÄß ºÉÆA¢zÉ. CzÀgÀAvÉ ªÉÆzÀ®£ÉAiÀÄ ¸É«Ä¸ÀÖgï£À°è d£À¥ÀzÀ, ¥ÁæaÃ£À, ªÀÄzsÀåPÁ°Ã£À PÁªÀåUÀ¼ÀÄ, ºÉÆ¸ÀUÀ£ÀßqÀzÀ ¸ÀtÚPÀxÉUÀ¼ÀÄ ºÁUÀÄ £ÁlPÀ ¸Á»vÀåªÀ£ÀÄß ¥ÀoÀåªÀ£ÁßV DAiÉÄÌ ªÀiÁrPÉÆAqÀÄ, «zÁåyðUÀ¼À°è ¸Á»vÀåzÀ §UÉÎ ¸ÀzÀ©ügÀÄaAiÀÄ£ÀÄß ªÀÄÆr¸À¯ÁUÀÄvÀÛzÉ. ¸ÁA¸ÀÌøwPÀ w¼ÀÄªÀ½PÉAiÀÄ eÉÆvÉUÉ ªÀåQÛvÀé «PÀ¸À£ÀzÀ PÀqÉUÉ UÀªÀÄ£À ¤ÃqÀ¯ÁUÀÄvÀÛzÉ.

1. ¨sÁµÉ, ¸Á»vÀå, EwºÁ¸À ªÀÄvÀÄÛ ¸ÀA¸ÀÌøwUÀ¼À£ÀÄß PÀ£ÀßqÀ, PÀ£ÁðlPÀPÉÌ ¸ÀA§A¢ü¹zÀAvÉ ¥ÀjZÀ¬Ä¸À¯ÁUÀÄvÀÛzÉ.
2. «zÁåyðUÀ¼À ¸ÀªÀðvÉÆÃªÀÄÄR ¨É¼ÀªÀtÂUÉUÉ C£ÀÄªÁUÀÄªÀAvÉ ºÁUÀÆ CªÀgÀ°è ªÀiÁ£ÀªÀ ¸ÀA§AzsÀUÀ¼À §UÉÎ UËgÀªÀ, ¸ÀªÀiÁ£ÀvÉ ªÀÄÆr¹, ¨É¼É¸ÀÄªÀ ¤nÖ£À°è ¥ÀoÀåUÀ¼À DAiÉÄÌAiÀiÁVzÉ.
3. CªÀgÀ°è ¸ÀÈd£À²Ã®vÉ, ±ÀÄzÀÞ ¨sÁµÉ, GvÀÛªÀÄ «ªÀÄ±Áð UÀÄt, ¤gÀUÀð¼À ¸ÀA¨sÁµÀuÉ, ¨sÁµÀt PÀ¯É ºÁUÀÆ §gÀºÀ PË±À®åUÀ¼À£ÀÄß ¨É¼É¸ÀÄªÀÅzÀÄ UÀÄjAiÀiÁVzÉ
4. ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ½UÉ C£ÀÄPÀÆ®ªÁUÀÄªÀAvÀºÀ «µÀAiÀÄUÀ¼À£ÀÄß UÀªÀÄ£ÀzÀ°èèlÄÖPÉÆAqÀÄ ¸ÀÆPÀÛ ¥ÀoÀåUÀ¼À£ÀÄß DAiÉÄÌ ªÀiÁrPÉÆ¼Àî¯ÁVzÉ.

Course Outcomes:

d£À¥ÀzÀ, ¥ÁæaÃ£À, ªÀÄzsÀåPÁ°Ã£ÀzÀ ««zsÀ ¥ÀæPÁgÀzÀ PÁªÀåUÀ¼ÀÄ, ºÉÆ¸ÀUÀ£ÀßqÀzÀ ¸ÀtÚPÀxÉUÀ¼ÀÄ ºÁUÀÄ £ÁlPÀ ¸Á»vÀå PÀ°PÉAiÀÄ ªÀÄÆ®PÀ PÁ®zÀ ¹ÜvÀåAvÀgÀUÀ¼À£ÀÄß CzÀgÀ M¼À£É£ÃlUÀ¼À£ÀÄß ¨É¼É¸ÀÄvÀÛzÉ.

1. ¸ÁªÀiÁfPÀ, gÁdQÃAiÀÄ, zsÁ«ÄðPÀ, ¸ÁA¸ÀÌøwPÀ, ¥Àj¸ÀgÀ ºÁUÀÆ °AUÀ¸ÀA§A¢ü «ZÁgÀUÀ¼ÉqÉ UÀªÀÄ£À ºÀj¸ÀÄªÀÅzÀgÉÆA¢UÉ «zÁåyðUÀ¼À°è ZÀZÁð ªÀÄ£ÉÆÃ¨sÁªÀªÀÅ ¨É¼ÉAiÀÄÄvÀÛzÉ.
2. fÃªÀ£ÀzÀ°è §gÀÄªÀ C©ü¥ÁæAiÀÄ ¨ÉÃzsÀUÀ¼ÀÄ, ¸ÀªÀÄ¸ÉåUÀ¼À£ÀÄß DzsÀÄ¤PÀ ¸ÀAzÀ¨sÀðzÀ°è ªÀiÁ£À«ÃAiÀÄvÉAiÉÆA¢UÉ ¤ªÀð»¸ÀÄªÀAvÉ ¥ÉæÃgÉÃ¦¸ÀÄvÀÛzÉ.
3. GvÀÛªÀÄ ¸ÀAªÀºÀ£À PÀ¯ÉAiÀÄ£ÀÄß ¨É¼É¸ÀÄªÀ GzÉÝÃ±ÀªÀ£ÀÄß FqÉÃj¸ÀÄvÀÛzÉ.
4. ¸ÀA±ÉÆÃzÀ£Á ªÀÄ£ÉÆÃ¨sÁªÀ ªÀÄvÀÄÛ ¸ÀàzsÁðvÀäPÀ ¥ÀjÃPÉëUÀ½UÉ «zÁåyðUÀ¼À£ÀÄß ¸ÀdÄÓUÉÆ½¸ÀÄvÀÛzÉ.

Course Contents:

Unit I **£ÀªÀå-¹ÛçªÁ¢ PÀ«vÉUÀ¼À** **[7 Hours]**

1. §Ä¢ÞªÀAvÀjUÉ PÀ£À¸ÀÄ ©zÀÝgÉ J.PÉ.gÁªÀÄ£ÀÄd£ï
2. PÀÄjUÀ¼ÀÄ ¸Ágï PÀÄjUÀ¼ÀÄ PÉ.J¸ï.¤¸Ágï CºÀªÀÄzï
3. CPÀÌ ºÉÃ½zÀÄÝ ¸À. GµÁ

Unit II **zÀ°vÀ-§AqÁAiÀÄ** **[6 Hours]**

1. £À£Àß PÀªÀ£ÀUÀ¼À°è ºÀÄqÀÄPÀ¢gÀÄ £À£Àß ZÀA¥Á
2. zÀ°vÀgÀÄ §gÀÄªÀgÀÄ zÁj©r ¹zÀÞ°AUÀAiÀÄå
3. PÀlÖqÀzÀ PÉ®¸ÀUÁgÀgÀÄ JZï J¸ï ²ªÀ¥ÀæPÁ±À

Unit III **¯ÉÃR£ÀUÀ¼ÀÄ** **[7 Hours]**

1. ºÀ¹gÀÄ ºÉÆ¸ÀPÀÄªÀ UÀtÂUÀ¼ÀÄ AiÀÄ®è¥Àà gÉrØ
2. eÁUÀwÃPÀgÀtzÀ »£Éß¯ÉAiÀÄ°è UÁA¢üÃfAiÀÄ ¥Àæ¸ÀÄÛvÀvÉ ¹. £ÁUÀtÚ
3. ZÁªÁðPÀgÀÄ : MAzÀÄ n¥ÀàtÂ ¦ J£ï gÀAUÀ£ï

Unit IV **PÁzÀA§j** **[6 Hours]**

1. ¸ÀA¸ÁÌgÀ (DAiÀÄÝ¨sÁUÀ) AiÀÄÄ.Dgï. C£ÀAvÀªÀÄÆwð

References:

- ªÀÄÄUÀ½ gÀA.²æÃ., PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ, ¥ÀæPÁ±ÀPÀgÀÄ VÃvÁ §ÄPï ºË¸ï, ªÉÄÊ¸ÀÆgÀÄ. 2014
- ¹ÃªÀiÁwÃvÀ PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ ¸ÀA¥ÀÄl 1,2,3,4,5 ªÀÄvÀÄÛ 6, PÀÄªÉA¥ÀÄ PÀ£ÀßqÀ CzsÀåAiÀÄ£À ¸ÀA¸ÉÜ, ªÉÄÊ¸ÀÆgÀÄ «±Àé«zÁå¤®AiÀÄ, ªÉÄÊ¸ÀÆgÀÄ. 2014

- qÁ. CgÀ«AzÀ ªÀiÁ®UÀwÛ, ¸Á»vÀå ¸ÀA¸Àløw ªÀÄvÀÄÛ zÀ°vÀ ¥ÀæeÉÕ, ¥ÀæPÁ±ÀPÀgÀÄ PÀ£ÀßqÀ ¸Á»vÀå ¥ÀjµÀvÀÄÛ, ¨ÉAUÀ¼ÀÆgÀÄ. 2014
- qÁ. F.J¸ï. DªÀÄÆgÀ, PÀ£ÀßqÀ PÀxÀ£À ¸Á»vÀå : PÁzÀA§j, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2016
- zÉÃ±À¥ÁAqÉ J¸ï.J¯ï., ¨ÉÃAzÉæ ±ÀjÃ¥sÀgÀ PÁªÁåAiÀiÁ£À, ¥ÀæPÁ±ÀPÀgÀÄ zÉÃ¹¥ÀÄ¸ÀÛPÀ, ¨ÉAUÀ¼ÀÆgÀÄ. 2013
- QÃvÀð£ÁxÀ PÀÄvÀðPÉÆÃn, PÀ£ÀßqÀ ¸Á»vÀå ¸ÀAUÁw, ¥ÀæPÁ±ÀPÀgÀÄ PÀÄvÀðPÉÆÃn ªÉÄªÉÆÃjAiÀÄ¯ï læ¸ïÖ, zsÁgÀªÁqÀ. 2009
- ±ÁªÀÄgÁAiÀÄ vÀ.¸ÀÄ., PÀ£ÀßqÀ ¸Á»vÀå ZÀjvÉæ, ¥ÀæPÁ±ÀPÀgÀÄ vÀ¼ÀÄQ£À ªÉAPÀtÚAiÀÄå ¸ÁägÀPÀ UÀæAxÀªÀiÁ¯É, ªÉÄÊ¸ÀÆgÀÄ -2014
- ¸ÀA. qÁ! ¹. Dgï. ZÀAzÀæ±ÉÃRgï, ªÀÄÄAzÁ¼ÀÄvÀ£ÀzÀ ®PÀëtUÀ¼À£ÀÄß ¨É¼É¹PÉÆ¼ÀÄîªÀÅzÀÄ ºÉÃUÉ?, ¥ÀæPÁ±ÀPÀgÀÄ £ÀªÀPÀ£ÁðlPÀ ¥À©èPÉÃµÀ£îì ¥ÉæöÊªÉmï °«ÄmÉqï. 2010
- DzsÀÄ¤PÀ PÀ£ÀßqÀ PÁªÀå ¨sÁUÀ-2, PÀÄªÉA¥ÀÄ PÀ£ÀßqÀ CzsÀåAiÀÄ£À ¸ÀA¸ÉÜ, ªÉÄÊ¸ÀÆgÀÄ «±Àé«zÁå¤®AiÀÄ, ªÉÄÊ¸ÀÆgÀÄ. 2004
- ²ªÀgÀÄzÀæ¥Àà f.J¸ï. PÀ£ÀßqÀ ¸Á»vÀå ¸À«ÄÃPÉë, ¥ÀæPÁ±ÀPÀgÀÄ ¸Àé¥Àß §ÄPï ºË¸ï, ¨ÉAUÀ¼ÀÆgÀÄ. 2013.

Course Description:

यह पाठ्यक्रम नौसिखिया, अपनी भाषा की क्षमता का विकास करने हेतु तथा विभिन्न साहित्यिक प्रक्रियाओं द्वारा समाज, संस्कृति एवं जीवन के मूल्यों को समझने हेतु अभिकल्पित है |

Course Code	Course Title	Course Type	L	T	P	C	Hrs./ Wk.
B21AHH401	Language – II: Hindi - IV	FC	1	1	0	2	3

Course Objectives:

1. संदर्भानुसार उचित भाषा का प्रयोग करने की दक्षता को छात्रों में उत्पन्न करना |
2. साहित्य के माध्यम से समाज एवं मानवीय मूल्यों को समझाकर, उन मूल्यों की रक्षा हेतु प्रेरित करना |
3. छात्रों में पुस्तक पठन एवं लेखन की अकृतिम प्रवृत्ति स्थापित करना |
4. अध्येताओं में साहित्य के माध्यम से प्रभावी एवं कुशल संचार का विकास करना |

Course Outcomes:

अध्ययन की समाप्ति पर अध्येता –

1. सामाजिक मूल्य एवं नैतिक जवाबदेही को स्वीकार कर सकता है |
2. साहित्य की प्रासंगिकता को जीवन में समझने की दक्षता रखता है |
3. समाज में अंतर्निहित पद्दतियाँ एवं विचारधाराओं का व्याख्यान करने में सक्षम बन सकता है |
4. साहित्य के माध्यम से प्रभावी एवं कुशल संचार का विकास करसकता है |

Pedagogy:

Dirt method/ICT and Digital support/Collaborative and Cooperative learning/Flipped Classroom

Pre-requisites:

- अध्येता को, हिन्दी खंडकाव्य का संक्षिप्त ज्ञान आवश्यक है |
- हिन्दी साहित्य के इतिहास का संक्षिप्त ज्ञान की आवश्यकता है |
- हिन्दी व्याकरण का अवबोधन आवश्यक है |

Course Contents:

अध्ययन विषय सूची / पाठ्यक्रम

इकाई –1: खंड-काव्य – नहुष – मैथिलीशरण गुप्त **[7 Hours]**

कवि परिचय

काव्य परिचय

शची सर्ग

नहुष सर्ग

इकाई –2 :खंड-काव्य – नहुष – मैथिलीशरण गुप्त **[6 Hours]**

उर्वशी सर्ग

स्वर्गभोग सर्ग

इकाई –3: खंड-काव्य – नहुष – मैथिलीशरण गुप्त **7 Hours]**

सन्देश सर्ग

मंत्रणा सर्ग

पतन सर्ग

इकाई –4: **[6 Hours]**

अलंकार

सिनिमा रिव्यू :

सूपर 30, मिशन मंगल, थप्पड़,आर्टिकल 15

Text book: पाठ्य पुस्तक:

- खंड-काव्य – नहुष – मैथिलीशरण गुप्त

References: सन्दर्भ ग्रन्थ :

- रस – छंद – अलंकर - कृष्णदेव शर्मा & सुरेश अग्रवाल
- हिन्दी साहित्य का इतिहास - डॉ. नागेन्द्र
- आधुनिक हिन्दी साहित्य का इतिहास - डॉ. बच्चन सिंह
- हिन्दी साहित्य का नवीन इतिहास - डॉ. लाल साहब सिंह
- शुद्ध हिन्दी कैसे बोले कैसे लिखे- पृथ्वीनाथ पाण्डे
- मीडिया विमर्श – रामशरण जोशी.

Course Code	Co rse Title	Course Type	L	T	P	C	Hrs./Wk
B21AHA401	Language - II: Additional English - IV	FC	1	1	0	2	3

Course Description:

This 2-credit course helps the learner explore various socio-cultural issues through literature. The course provides insight on matters like education and culture that are pertinent in the contemporary society. The course also offers multi-dimensional perspective in the genres of literature and contributes for language enrichment.

Pre-requisites:

The student must possess fair knowledge of language, literature, culture and society.

Pedagogy:

Collaborative Method, Flipped Classroom, Blended Learning

Corse Objectives:

1. To infer the myths from the contemporary perspective.
2. To outline the idea of family represented in literature.
3. To interpret horror and suspense as a genre of literature.
4. To assess the impact of education in building a society.

Course Outcomes:

On completion of the course, learners will be able to:

1. Examine the relevance of myths and mythology.
2. Demonstrate family values and ethics essential to live in the society.
3. Analyze horror and suspense as a significant genre of literature.
4. Evaluate the applicability of academic contribution in building a society.

Course Content:

Unit-I: Myths & Mythology **[7 Hours]**

John W. May – Narcissus
W.B. Yeats – The Second Coming
Devdutt Pattanaik - Shikhandi and the Other Stories they Don't Tell you (Extracts)

Unit-II: Family & Relationships **[6 Hours]**
Nissim Ezekiel – Night of the Scorpion
Langston Hughes – Mother to Son
Kate Chopin – The Story of an Hour
Henrik Ibsen – A Doll's House (Extract)

Unit-III: Horror & Suspense **[7 Hours]**
Edgar Allan Poe – The Raven
Bram Stoker – A Dream of Red Hands
Satyajit Ray – Adventures of Feluda (Extract)

Unit-IV: Education **[6 Hours]**
The Dalai Lama – The Paradox of Our Times
Kamala Wijeratne – To a Student
Sudha Murthy – In Sahyadri Hills, a Lesson in Humility
Frigyes Karinthy – Refund

References:

- Finneran, Richard J. *The Collected Works of W.B. Yeats*. Volume I, The Poems, Revised Second Edition. Simon & Schuster, 1996.
- Pattanaik, Devdutt. *Shikhandi: Ánd Other 'Queer' Tales They Don't Tell You*. Penguin Books, 2014.
- Ezekiel, Nissim. *Collected Poems*. OUP, 2005.
- Hughes, Langston. *The Collected Poems of Langston Hughes*. Vintage, 1995.
- Chopin, Kate. *The Awakening and Selected Stories of Kate Chopin*. Simon & Schuster, 2004.
- Ibsen, Henrik. *A Doll's House*. Maple Press, 2011.
- Poe, Edgar Allan. *The Complete Poetry of Edgar Allan Poe*. Penguin USA, 2008.
- Stoker, Bram. *Dracula*. Fingerprint Publishing, 2013.
- Ray, Satyajit. *The Complete Adventures of Feluda*. Vol. 2, Penguin Books Ltd., 2015.
- Lama, Dalai. *Freedom In Exile: The Autobiography of the Dalai Lama of Tibet*. Little, Brown Book Group, 1998.
- Murthy, Sudha. *Wise and Otherwise: A Salute to Life*. Penguin India, 2006.

SUBJECT_CODE	3D Animation	L	T	P	C
B21DD0401		2	0	0	2

Course Description:

3D Animation- 3D Animation course prepares student for a career in animation, VFX, film and video games with an industry. The course starts with introduction to timeline and key frame animation. Then it proceeds to explain the importance of dope sheet, graph editor, principles of animation. Further it proceeds to gravity, stretch & squash, pendulum, bouncing ball animations. Lastly it will conclude with walk-cycle animation of character.

Pre-requisites:

Should have a knowledge of 2D animation. Should have interest towards Animation & creativity.

Corse Objectives:

1. Explain Timeline and keyframe animation.
2. To Explain the importance of weight and balance in bringing out the realism in animated character.
3. Explain the fundamentals of constrains to create basic prop animation

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand the timeline, keyframe animation and the importance of Dope sheet in creating animation.
2. Understand gravity and create animations like bouncing ball, stretch & Squash following the principles of animation.
3. Understand the concept of overlapping and delayed actions and its role in creating wave animation.
4. Animate the walk of a character based on basic poses.

Course Contents:

COURSE CONTENTS

UNIT I: Introduction to Timeline [7 Hours]

Animation Interface – Overview, Principles of animation, Animation Preferences, Understanding Key Frame Animation, Introduction to Dope Sheet, Understanding the Graph Editor & Time Editor, Ghost Editor, Trax Editor

UNIT II: Principles of Animation [7 Hours]

Understanding Gravity, Pendulum Animation Fundamentals, Understanding Tangents, Understanding Bouncing Ball, animating a Bouncing Ball, timing & spacing, squash & stretch.

UNIT III: Animation using Maya [7 Hours]

An Introduction to Wave Animation, Example of Wave Animation, Assignment - Wave Animation, Explain Basics of Weight, Adding Emotions, Flour Sack - Jumping Actions

UNIT IV: Walk Cycle in Maya [7 Hours]

Animating a Walk Cycle, Basic Poses of the Walk Cycle, Animating the Leg, Fine Tuning in the Graph Editor , Creating the Upper Body Animation, Fine Tuning the Animation, Analyzing the Reference, Select the Main Pose, Observing the Movement, Animating the Character Based on the Selected Keys.

TEXT BOOKS

1. Beginner's Guide to Character Creation in Maya - Jahirul Amin, 30 Apr 2015, 3DTotal Publishing

REFERENCE BOOKS

1. Character Animation Fundamentals: Developing Skills for 2D and 3D Character Animation - Steve Roberts, Edition 1, Nov 21, 2011, Routledge

WEBSITES

1. https://cgsociety.org/news/article/3463/maya-character-animation-tips
2. https://knowledge.autodesk.com/support/maya/learnexplore/caas/CloudHelp/cloudhelp/2018/ENU/Maya-CharacterAnimation/files/GUID0D0DCBE5-01BA-4AA2-BC4D-85C3285933AD-htm.html

SUBJECT_CODE	VFX - I	L	T	P	C
B21DD0402		2	0	0	2

Course Description:

VFX- VFX (visual effects) is the process of combining computer-generated imagery (CGI) with live-action video footage to create scenes that does not physically exist in real life. The course starts with introduction to digital composition, workflow in adobe After effects, adding effects, understanding timing & animation. Then it moves to Importing Digital Assets, Interpreting Footages, Arranging and Managing Layers, Previewing the Composition. Further it teaches Color Correction and Image Optimization, Working with Green Screen Footages. Finally, it moves to Tracking a Scene with a 3D Camera Tracker and the process of previewing and rendering the final output.

Pre-requisites:

Should have basic working knowledge of computer operation and editing software and have general idea about compositing & editing field.

Course Objectives:

1. To explain basic concepts of compositing and various types of compositing.
2. To Explain the step-by-step approach in creating animations and adding effects.
3. To describe the process of importing & adding various digital assets.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Demonstrate step by step approach in creating animations and adding effects.
2. Apply concepts for selecting and arranging the layers of a composition.
3. Understand color correction and work with green/blue screen footages.
4. understand the working of a 3D layer and 3D camera and the process of previewing and rendering the final output.

Course Contents:

UNIT I: Introduction Digital Compositing [7 Hours]

Introduction to After Effects, General workflow in After Effects, working with other applications, Projects, Composition, Understanding Settings, Effects in After Effects, Understanding Timing, Keyframes and Graph Editor, Using Shortcuts, Understanding Animation, Applying Accurate Motion Blur, Applying Timing and Retiming

UNIT II: Selections and Compositing [7 Hours]

Importing Digital Assets, Interpreting Footages, Details of Files, Switches and columns, Working on Digital Assets, Arranging and Managing Layers, Previewing the Composition, Region of Interest, Snapshots, Work with Multiple Comps and Projects, Understanding Adjustment and Guide Layers, Working with Image Pipeline, Understanding Global Performance Cache, and Render Speed, Optimizing a Project.

UNIT III: Color Correction & Color Keying [7 Hours]

Color Correction and Image Optimization, Working with Levels, Understanding Curves in After Effects, Applying Hue/Saturation, Understanding Compositors Match Colors, Understanding Procedural Mattes, Working with Linear Keys and Hi-Con Mattes, Understanding Color Keying, Working with Green Screen Footages, Green Screen and Blue Screen, Understanding Key-light, Keying Tool, Fine-tuning and Problem Solving**.**

UNIT IV Effective Motion Tracking [7 Hours]

Tracking a Scene with a 3D Camera Tracker, Understanding Wrap Stabilizer VFX: Smooth Move, Understanding Point Tracker, Working with Camera Integration, Motion Stabilization, Motion Tracking, Face Tracking.

TEXT BOOKS

1. Adobe After Effects CC Visual Effects and Compositing Studio Techniques – by Mark Christiansen – Edition 1, Adobe Press

REFERENCE BOOKS

1. Adobe After Effects CC Classroom in a Book - by Lisa Fridsma (Author), Brie Gyncild (Author), Edition-1 st (2018 release), Publication: Adobe Press

2. Compositing Visual Effects in After Effects: Essential Techniques - by Lee Lanier(Author), Edition -1 st (November 8, 2015), Publication: Routledge

WEBSITE

1. The Power of Compositing: 4 Must-Watch After Effects Tutorials (rocketstock.com)
2. Adobe After Effects A Brief Technical History of Compositing : macProVideo.com

SUBJECT_CODE	Game Design - I	L	T	P	C
B21DD0403		2	0	2	4

Course Description:

Game design is a process to create and refine the interrelated systems that make up a game playing experience, from the mechanics of combat in a fighting game to the complex menu navigation in an online RPG. Good game design happens when you view your game from many different perspectives, or lenses. While touring through the unusual territory that is game design, this course teaches the student about game design industry, digital game design, narrative and story telling in games. Then it moves to game production process. Further, it explains game mechanics and how to write a game design document.

Pre-requisites:

Should have an interest in designing and playing games. Should have basic working knowledge of computer operation and multimedia software.

Course Objectives:

1. To explain the importance of narrative elements in games which helps in designing strong characters, intriguing worlds and compelling stories.
2. To Explain about the roles of conflict, combat systems, game complexity, and depth in game mechanics.
3. Explain to Create a Game Design Document (GDD).

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand the processes and techniques used to create highly playable game content.
2. Learn the various game design roles, responsibilities of designers, production methods and development stages.
3. Explore and understand the theory behind Game Design and the creation of mechanics that are fun to play.
4. Learn to Create a Game Design Document (GDD) using the tools, techniques and practical advice.

Course Contents:

UNIT I: **Introduction Game Design** **[13 Hourse]**

Introduction to game design, History & evolution of games, digital game industry, game technology, Narrative & Story telling in games, game experience, make a board game

UNIT II: **Game Production Process** **[13 Hours]**

Introduction to game production, stages in game production: Pre-production, Game Design, game development, game art, Testing, Pre-launch, Launch, Post-Production.

UNIT III: **Game Mechanics** **[13 Hours]**

Introduction to game mechanics, Game designer's role in game mechanics, Players and game mechanics, space, objects, attributes, states, actions & rules, Game balancing methodologies, balancing game economies.

UNIT IV: **Game design Document** **[13 Hours]**

Introduction to Game Design Document (GDD), GDD importance, how to write GDD.

TEXT BOOKS

1. The Art of Game Design: A Book of Lenses 1st Edition by Jesse Schell

REFERENCE BOOKS

1. The Ultimate Guide to Video Game Writing and Design Paperback – January 8, 2008, by Flint Dille, John Zuur Platten
2. Level Up! The Guide to Great Video Game Design, Apr 28, 2014, by Scott Rogers

WEBSITE

1. https://www.g2.com/articles/stages-of-game-development#2-pre-production
2. https://www.tekrevol.com/blogs/making-a-game-design-document/
3. https://medium.com/@davengdesign/game-mechanics-3f2b338047aa

SUBJECT_CODE	Advance Rendering	L	T	P	C
B21DDS411		1	1	1	3

Course Description:

Advanced rendering goes beyond the basics of assigning material, environment, and light shaders to incorporating more sophisticated techniques. The course starts with installation of Arnold render in Maya, interface of Arnold, working with Bifrost, Xgen etc. Then it moves to fundamentals of lighting, understand different lights, working with cameras. Further it explains the method of applying materials and working with different shaders. Finally, the course shows how to set up render and work with batch render.

Pre-requisites:

Should have basic working knowledge of 3D modeling, texturing and rendering.

Course Objectives:

1. To explain the User Interface of Arnold Renderer
2. To List the various Camera types and the working of Arnold light attributes.
3. To explain the process of rendering a scene using Arnold render.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand the use of Arnold Attributes for Polygons, Curves, Particles, Surfaces Volumes, and XGen and Bifrost.
2. Demonstrate the steps to add Area Light, Point Light, Spot Light, Directional Light, and Light Filters.
3. Understand various attributes of Shaders, Textures and Fog.
4. Render a scene using Arnold renderer from within Maya.

Course Contents:

UNIT I: **Introduction to Arnold** **[10 Hours]**

Arnold for Maya Installation, Activation of Arnold for Maya, User Interface of Arnold Renderer, Polygons, Bifrost, Curves, Particles, Surfaces, Volumes, Xgen, StandIns

UNIT II: **Lights & Cameras** **[10 Hours]**

Fundamentals of Lighting, working with Ai Area Light, working with Ai Photometric Light, Understanding Point Light, Understanding Spot Light, Understanding Directional Light, Understanding Light Filters, Working with Cameras, Understanding Common Attributes, Basics of Cylindrical Camera, Understanding Fisheye Camera, Working with Orthographic Camera, Working with Perspective Camera, Understanding Spherical Camera.

UNIT III: **Shaders** **[10 Hours]**

Method of Applying Materials, Ambient Occlusion Shader, Hair Shader, Working with Skin Shader, Working with Standard Shaders, Understanding Textures, Understanding Volume Shaders, Understanding Displacement, Working with Shading Engine - Surface Shader, Working with Shading Engine - Volume Shader

UNIT IV: **Utilities and Rendering** **[10 Hours]**

Understanding Light Manager, Understanding Tx Manager, Working with Bake Selected Geometry, Rendering Selection to Texture, Arnold Render View Window, File Menu, Window Menu, View Menu, Render Menu, Understanding Render Setup, Working with Batch Rendering.

TEXT BOOKS

1. Arnold 5: First Lessons in Autodesk Maya 2018, by Donna Betancourt

REFERENCE BOOKS

1. How to Render: The Fundamentals of Light, Shadow and Reflectivity - Scott Robertson, Thomas Bertling, 2014, Design Studio Press

2. Real-Time Rendering - Tomas Akenine-Moller, Eric Haines, Third Edition, A K Peters/CRC Press

WEBSITE

1. https://www.youtube.com/watch?v=nkDimvqhb-8
2. https://www.peachpit.com/articles/article.aspx?p=2165641

SUBJECT_CODE	Advance Modeling	L	T	P	C
B21DDS412		1	1	1	3

Course Description:

Advanced rendering- ZBrush tool, is used for creating "high-resolution" models for use in movies, games, and animations. The course starts The course starts introduction to digital sculpting, , Tools, sculpting Brushes, Understanding the SubTool, Working with FiberMesh, Masking & Mesh Extraction. Then it continues to Features of ShadowBox, Materials, Applying Textures using ZBrush. Further, it moves to applying lighting and rendering objects in ZBrush.

Pre-requisites:

Should have basic working knowledge of 3D modeling, texturing and rendering.

Course Objectives:

1. To explain digital sculpting and its scope.
2. Explain to use ZBrush in character creation process.
3. To explain the parameters of lighting and rendering objects in ZBrush.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand the interface and basic tools in ZBrush
2. Understand the retopolizing tools and techniques of sculpting and methods of creating armatures using ZSpheres..
3. Generate texture maps and understand various texturing techniques in ZBrush.
4. Apply lights and backgrounds for effective renderings.

Course Contents:

UNIT I **Introduction to Digital Sculpting** **[10 Hours]**

Introduction to Pixologic, ZBrush 4R8, Palettes, working with shelf, working with the Canvas, Tools, sculpting Brushes, Smoothing Controls, Gravity, Curve Controls, Introduction Digital Sculpting, Opening and Saving a ZTool and ZBrush Document, Hot Keys

UNIT II **SubTools and Mesh** **[10 Hours]**

Introduction to Subtools in ZBrush, Understanding the SubTool Subpalette, Working with FiberMesh in ZBrush, Creating Armatures Using ZSpheres, Zspheres, Adaptive Skinning, Unified Skinning, Topology, DynaMesh, DynaMesh Area, Nanomesh, ZRemesher, Understanding Action Line, Understanding Polymeshes, Masking, Mesh Extraction

UNIT III **Texturing in ZBrush** **[10 Hours]**

Introduction to ShadowBox, Features of ShadowBox, Materials in ZBrush, Material Palette, Polypainting, Working with Materials in ZBrush, Applying Materials to objects, Textures in ZBrush, Understanding Polypainting, Working with Textures, Applying Textures using ZBrush

UNIT IV **Lighting and Rendering in ZBrush** **[10 Hours]**

UV Master

Introduction, UV Master, working with UV Master, Introduction to lighting basics, Light Palette in ZBrush, Parameters of Light Palette, applying light to objects, Introduction to Rendering, Render Palette, Parameters of Light Palette, Rendering Objects in ZBrush

TEXT BOOKS

Pixologic ZBrush 4R8 – Edition 4, Purdue University Northwest, USA

REFERENCE BOOKS

1. Sculpting from the Imagination: ZBrush - 3dtotal Publishing, May 24, 2016, 3dtotal Publishing

2. Character Modeling with Maya and ZBrush: Professional polygonal modeling techniques - Jason Patnode, Edition 1, Mar 13, 2008, Routledge

3. ZBrush Studio Projects: Realistic Game Characters - Ryan Kingslien, Mar 15, 2011, Sybex
WEBSITE

3. https://www.thegnomonworkshop.com/tutorials
4. https://www.educba.com/zbrush-digital-sculpting/

B21DDS421	Programing in C#	L	T	P	C
Duration: 52 Hrs		2	0	1	3

Course Description:

In this course, you will use Visual Studio .NET and ASP .NET to build powerful Web sites. You will also use Access and Microsoft Sql Server 2005 for database connection. You will also be introduced to XML files to create XML. This will

allow you to build sites that access databases and process data using dynamic, server-side programming. Thanks to these newly learned skills, your sites will be accessible to users of any of the popular browsers.

Pre-requisites:

The prerequisites for understanding .Net Framework and Applications are C, C++ and VB

Course Objectives:

The objectives of this course are to:

1. The course primarily focuses on using platform and components of platform.
2. To design and develop user interface and functionality respectively for windows application
3. To design and develop web application using C# language and ASP.Net
4. Ability to compare the .NET platform with the Java technology.

Course Outcomes:

On successful completion of this course; the student will be able to:

1. Able to apply the principles of object-oriented programming
2. Impart knowledge in fundamental concepts of .Net.
3. Use .NET components in a windows and web application.
4. Implement the concepts of Operators, Conditional Logics etc.,

Course Content:

UNIT I **[15 Hours]**

Introduction to .Net Architecture of .Net , Features of .Net, Advantages of .Net, .Net Framework, CLR, CTS, CLS, Assemblies, Metadata and Intermediate Language ,Memory management issues – Garbage Collector and collection process, Exception Handling,

UNIT II **[15 Hours]**

C# Languages Fundamentals: Need of c# ,C# pre-processor Directives , Features of C# , Creating a Simple c# Console Application, Identifiers and keywords , Data Types ,Variables and Constants Value type and reference types ,Boxing and un boxing types , Iterators Constructs ,Control flow constructs Arrays , C# Enumerations.

UNIT III **[15 Hours]**

Object- oriented Programming with C#: Class, objects and Inheritance, Method Overloading, Method Overriding, defining partial Classes, Calling Base Versions of Methods. Abstract Classes and Methods, Sealed Classes and Methods. Access Modifiers. Properties – Read Only, Write Only Properties. Function – Parameter Passing Mechanisms. Interfaces. Operator Overloading, Indexers.

UNIT IV **[15 Hours]**

Graphical User interface with Windows Forms: Event Handling Control properties and layout labels, Textboxes ,buttons, Group boxes and panels , checkboxes and radio button, Tooltips, List Box and Combo Box ,Group boxes Mouse-Even

handling, Keyboard –Event Handling , Accessing data from a database using ADO.NET and Creating Connection string.

Text books:

1. BlackBook,"NET4.0 Programming(6-in-1)", Kogent Learning Solution Inc, Wiely-Dream Tech Press [chapter 1,10,11,12,19]
2. PaulDeitel and Harvey Deitel, "C#2010 for Programmers",4th Edition, Pearson Education.
3. Ado.Net The Complete Reference by (English, Paperback, Michael Otey), 1st edition, Mc Graw Hill publication ((for UNIT 4)

References:

1. The Book of Visual Studio .NET—A Guide for Developers by Robert B. Dunaway, No Starch Press, 2002(for Introduction to .Net
2. Microsoft Ado.Net 4 Step by Step by – Tim Patrick, 2014
3. Programming Microsoft Windows with C# by Charles Petzold , Microsoft Press publication, 2002
4. Windows Forms Programming using C#, A practical guide to windows application development in .NET

Course Code	POS/ COs	PO1	P2	PO3	PO4	PO5	PO6	P7	PO8	PO9	PSO1	PSO2	PSO3
B21DDS421	CO1	**H**	**H**	**H**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**M**	**L**
	CO2	**H**	**H**	**H**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**
	CO3	**H**	**M**	**L**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**
	CO4	**H**	**H**	**H**	**L**	**H**	**L**	**H**	**H**	**H**	**M**	**H**	**M**

B21DDS422	Programing in C++	L	T	P	C
Duration: 4 Hrs		2	0	1	3

Course Description:

This course introduces to computer programming using C++. Emphasis on the fundamentals of object-oriented design with development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices. This course introduces the student to object-oriented programming through a study of the concepts of program specification and design, algorithm development, and coding and testing using a modern software development environment. Students learn how to write programs in an object-oriented high level programming language that include C++ features, Functions, Objects and Classes, Function and Operator overloading, Virtual functions, Templates and Exceptional Handling.

Pre-requisites:

C basic programming knowledge is required. The basic knowledge of tools and different IDE to execute the c programs are prerequisites.

Course Objectives:

The objectives of this course are to:

1. Solve the problem with object-oriented approach.
2. Discuss the advantages of object-oriented programming over procedure-oriented programming.
3. Analyze the problem statement and build object-oriented system model.
4. Describe the characters and behavior of the objects that comprise a system.
5. Explain function overloading, operator overloading and virtual functions.
6. Define Encapsulation, Inheritance and Polymorphism.

Course Outcomes:

On successful completion of this course; the student will be able to:

1. Use the basics of Object Oriented Programming concepts in C++.
2. Apply the object initialization and destroy concept using constructors and destructors.
3. Apply the concept of polymorphism to implement compile time polymorphism in programs by using overloading methods and operators.
4. Use the concept of inheritance to reduce the length of code and run time polymorphism by using virtual functions, overriding functions and abstract class in programs.

Course Content:

UNIT I **[10 Hours]**

Beginning with C++ and its features:

What is C++?, Applications and structure of C++ program, Different Data types, Variables, keywords, constants, Different Operators, expressions, decision statements, looping statements and control structures in C++

UNIT II **[10 Hours]**

Functions, classes and Objects:

Functions, Inline function, function overloading, friend and virtual functions, Specifying a class, C++ program with a class, arrays within a class, memory allocation to objects, array of objects, members, pointers to members and member functions

UNIT III **[10 Hours]**

Constructors, Destructors and Operator overloading:

Constructors, Multiple constructors in a class, Copy constructor, Dynamic constructor, Destructors, Defining operator overloading, Overloading Unary and binary operators, Manipulation of strings using operators

UNIT IV **[10 Hours]**

Inheritance, Pointers, Virtual Functions, Polymorphism:

Derived Classes, Single, multilevel, multiple inheritance, Pointers to objects and derived classes, this pointer, Virtual and pure virtual functions

Text books:

1. Object Oriented Programming with C++, E. Balaguruswamy, TMH, 7th Edition, 2013.
2. Object Oriented Programming using C++, Robert Lafore, and Galgotia publication 2010.

References:

1. HerbertSchildt, "C++: The Complete Reference" Osborne McGraw-Hill, Third edition, 1998.
2. P. B. Kotur, "Object Oriented Programming with C++" Eight Edition.

Course Code	POS/ COs	PO1	PO2	PO3	PO4	PO5	PO6	P7	PO8	PO9	PSO1	PSO2	PSO3
	CO1	2	1	3	1	1	1	1	0	1	1	1	2
	CO2	1	1	2	1	3	1	1	2	1	3	1	2
	CO3	1	2	1	3	1	2	1	3	1	1	1	1
	CO4	2	1	3	1	1	1	0	1	1	1	0	2

SUBJECT_CODE	3D Animation Lab	L	T	P	C
B21DD0404		0	0	2	2

Course Description:

This course introduces students to all the major features Animation and popular workflow. Students will gain proficiency by following class examples as well as creating projects and exercises. The final intention is to leave the student with a general foundation of all aspects of production in Maya as well as deeper coverage of the most important needs of CG production workflow

Pre-requisites:

Should have basic to intermediate working knowledge of computer operation, 3D modeling, Rigging using Maya. Should have an understanding of animation principles and interest towards Acting and Animation

Course Objectives:

1. To create a bouncing ball animation and edit it using the commands available in the graph editor and dope sheet
2. To animate a pendulum using the slow in slow out, arc, and overlapping principles of animation.
3. To explain the fundamentals 12 principles.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand the working of the dope sheet and its importance in creating animations.
2. Animate bouncing ball and edit it using the commands available in the graph editor and dope sheet.
3. Apply slow in slow out, arc, and overlapping principles of animation in creating animation of a pendulum.
4. Understand the 12 principles of Animation and use those principles in animating objects.

Course Contents:

Part A

1. Remove background noise from the audio.
2. Make audio sound better with EQ, amplitude and compression.
3. Add delay and eco effect to audio.
4. Remove green screen and add background for video.
5. Import multiple footage of same background and merge them using mask.
6. Edit a footage using J and L cut.
7. Edit multiple footage using match cut.

Part B

1. Import a raw footage and Work with color correction using lumetri color.
2. Import a footage and isolate only one color from it and turn rest into black & white.
3. Import minimum 3 footage and make all footage visible at the same time using split screen.
4. Make a rolling credits text.
5. Make a perfect lip synchronize audio to video.

SUBJECT_CODE	VFX - I Lab	L	T	P	C
B21DD0405		0	0	2	2

Course Description:

Adobe After Effects allows you to create videos containing animation and special effects for graphics-related projects. You can use After Effects to animate, alter, and composite media using various tools. The program is widely used by motion-graphics professionals, website designers, and visual effect artists for post-production on digital films, DVD, video, and the web.

Pre-requisites:

Should have basic to intermediate working knowledge of computer operation, image editing software, video editing software & interest towards digital Compositing.

Course Objectives:

1. To understand Motion-Graphics and basic concepts of compositing
2. To understanding the step-by-step approach in creating animations and adding effects.
3. To understand some of the popular compositing techniques applied to animation

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand Motion-Graphics, digital compositing and various types of compositing.
2. Ability to demonstrate step by step approach in creating animations and adding effects.
3. Ability to recall popular compositing techniques applied to animation.
4. Describe the process of previewing and rendering the final output

Course Contents:

Part A

1. Remove background noise from the audio.
2. Make audio sound better with EQ, amplitude and compression.
3. Add delay and eco effect to audio.
4. Remove green screen and add background for video.
5. Import multiple footage of same background and merge them using mask.
6. Edit a footage using J and L cut.
7. Edit multiple footage using match cut.

Part B

1. Import a raw footage and Work with color correction using lumetri color.
2. Import a footage and isolate only one color from it and turn rest into black & white.
3. Import minimum 3 footage and make all footage visible at the same time using split screen.
4. Make a rolling credits text.
5. Make a perfect lip synchronize audio to video.

FIFTH SEMESTER

S.NO	Code	Title	HC/ SC/ FC	Credit Pattern			Credits	Working Hrs.
				L	T	P		
1	B21DD0501	VFX - II	HC	2	0	0	2	4
2	B21 DD0502	Rotoscopy	HC	1	1	1	3	5
3	B21 DD0503	Game Design- II	HC	2	0	0	2	2
4		Open Elective	OE	3	0	0	3	3
5	B21DDS511	Movie Pre-Visualization	SC	2	0	1	3	4
	B21DDS512	Crowd Simulation						
6	B21 DDS521	Animation – Match Moving and Camera Tracking	SC	2	0	1	3	4
	B21 DDS522	VFX – Dynamics and Simulation						
Practical Courses								
7	B21 DD0504	VFX -II Lab	HC	0	0	2	2	4
8	B21 DD0505	Game design -II Lab	HC	0	0	2	2	4
***Mandatory - (Non-Creditable Courses)**								
9	B21DDM501/B21PTM501	Soft skills						
10	B21DDM502	Skill Development Programme						
Total Credits				**12**	**1**	**07**	**20**	**30**

FIFTH SEMESTER

SUBJECT_CODE	VFX- II	L	T	P	C
B21DD0501		2	0	0	2

Course Description:

VFX- Nuke is one of the most powerful compositing and visual effects applications. It allows the compositors to achieve high-end, pixel-perfect digital content. In this Nuke course, the student will also learn several compositing workflow techniques such as color correction, wire removal, Chroma Keying, 2D and 3D compositing with Nuke,

Pre-requisites:

Should have interest towards Digital compositing & editing and have working knowledge of image & video editing software like Adobe Photoshop, Adobe Premier Pro.

Course Objectives:

1. To explain the workflow and basic features of Nuke window.
2. To explain the steps for implementing color correction and grading techniques
3. To impart the keying techniques especially green and blue screen used in many fields to remove backgrounds from the subject.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand the functions of the tools available in the Nuke Toolbar.
2. Understand the process of wire removal and the techniques used today for removing wires.
3. Apply various methods, tools and techniques used for color correction and grading.
4. Describe various keying techniques and work with green and blue screen

Course Contents:

UNIT I **Getting Started with Nuke** **[7 Hours]**

Working with Nuke Window, Working with Nuke Tool Bar, Working with Nuke Menu Bar, Understanding the Viewer, Understanding Framecycler, Working with Process Trees, Creating a Simple Process Tree, Merging Images, Animating Parameters, Using Curve Editor, Customizing the Interface, Working with Nodes, Creating Animation with Keyframes.

UNIT II **Wire Removal** **[7 Hours]**

4. Introduction to Wire Removal, Techniques of Wire Removal, Using RotoPaint for Wire Removal, Understanding Nuke's Approach to Color, Color Manipulation Building Blocks, Understanding F_WireRemoval, Tracking in F_WireRemoval, Parameters in F_WireRemoval

UNIT III **Color Grading** **[7 Hours]**

Using an I/O Graph to Visualize Color Operations, Working with Histogram, Creating Curves with ColorLookup, Types of Color Nodes, Working with White and Black Points, Introduction to Basic Corrections, Color Matching with the Grade Node.

UNIT IV **Green/ Blue Screen removal** **[7 Hours]**

The IBK: Image Based Keyer, Keylight, Working with Keylight Node, Working with Screen Matte, Working with View Parameter, Working with Screen Color – Functions and Controls, Working with Clip Black and White Parameters, Understanding Types of Mattes, Understanding Ultimatte Workflow, Sampling the Screen Color, Working with Screen Correct and Overlay Tools, Working with Matte Density Control, Working with Spill Controls, Understanding Retaining Shadows and Removing Noise, Understanding Color and Film Controls and Functions

TEXT BOOKS

1. Nuke 101 Professional Compositing and Visual Effects- by Ron Ganbar, Peachpit Press

REFERENCE BOOKS

1. The Foundry Nuke X 7 for Compositors Paperback-by Prof. Sham Tickoo Purdue Univ. (Author), CADCIM Technologies (Author), Edition – 1st (June 20, 2013), Publication: CADCIM Technologies
2. Digital Compositing for Film and Video: Production Workflows and Techniques- by Steve Wright (Author), Edition -4th, Publication: Routledge

Website:

1. https://www.rocketstock.com/blog/visual-effects-matte-paintingscomposited-film/
2. https://www.shutterstock.com/blog/vfx-basics-compositing-rotoscoping-mattes 3. www.onlinevarsity.com

SUBJECT_CODE	Rotoscopy	L	T	P	C
B21 DD0502		1	1	1	3

Course Descriptions:

Rotoscoping- The technique involves drawing over the live-action footage with a series of still images, which are then placed onto a background track of movement to form a finished animated scene. Rotoscoping is most commonly associated with the early silent film era, when artists would work by hand, creating scenes that were later composited together. The course starts with introducing to the interface. Then moves to Applying Trackers, Exporting & importing Tracking Data, understanding paint Node. Further it proceeds to RotoPaint Toolbar, Drawing Paint Strokes, Bezier and Cusped Tools and finally to keying and rendering objects.

Pre-requisites:

Should have basic to intermediate working knowledge of computer operation and interest towards compositing & editing and VFX.

Course Objectives:

1. To impart basic concepts of Rotoscopy in VFX
2. To explain the general workflow of Nuke and Silhouette.
3. To Understand the process of creating animated mattes.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Able to understand the different materialistic properties and the concept of shading.
2. Learn the concept of 2D and 3D procedural textures in Maya and understand the the functionality of Bump maps.
3. Understand the placement and uses of the three lights, namely, Key light, Fill light and back light.
4. Able to create different render passes using Arnold render in Maya

Course Contents:

UNIT I **Introduction** **[10 Hours]**

Introducing RotoPaint's Interface, Rotoscoping in VFX, SilhouetteFX, Getting to Know the Interface, Creating New Projects, Import, Creating New Sessions, Working with Shapes/Layers/Points, Core Competencies, Rotoscoping Workflow, Power Matte Node, Power Matte Parameters, IK (Inverse Kinematics), Motion Tracking, Types of Trackers

UNIT II **RotoPaint** **[10 Hours]**

Understanding the Curve Editor, Understanding Point Tracker, Working with Tracker Pop-Up Menu, Applying Trackers, Exporting Tracking Data, Importing Tracking Data, Planar Tracking, Mocha Tracker, Understanding Motion Blur, Understanding Shot Stabilization , Working with Occlusion and Spinning, Scene Improvement Techniques, Understanding Paint Node

UNIT III Using Bezier and B-Spline Tools for Rotoscoping **[10 Hours]**

Introduction to Roto and RotoPaint, RotoPaint Node, RotoPaint Toolbar, Drawing Paint Strokes, Bezier and Cusped Tools, B-Spline Tool, Ellipse, Rectangle, and Cusped Rectangle Tools, Selecting the Output Format and Channels, Combining Paint, Roto, and Animation.

UNIT IV Keying and Rendering **[10 Hours]**

Understanding Features of Keying, Working with different types of Keying, Understanding Keyer Node, Working with Deartifact, Working with Primary Matte, Working with Secondary Matte, Rendering objects.

TEXT BOOKS

1. Nuke 101 Professional Compositing and Visual Effects– Edition 1, Ron Ganbar-Peachpit Press

REFERENCE BOOKS

1. The Foundry Nuke X 7 for Compositors Paperback-by Prof. Sham Tickoo Purdue Univ. (Author), CADCIM Technologies (Author), Edition – 1st (June 20, 2013), Publication: CADCIM Technologies

2. Digital Compositing for Film and Video: Production Workflows and Techniquesby Steve Wright (Author), Edition - 4th, Publication: Routledge

1. https://www.pluralsight.com/blog/film-games/understandingrotoscoping-process-every-vfx-artist-know
2. https://www.futurelearn.com/courses/vfx-for-filmmakers/0/steps/13255 4.
3. https://en.wikipedia.org/wiki/Rotoscoping

SUBJECT_CODE	Game Design - II	L	T	P	C
B21 DD0503		2	0	0	2

Course Description:

Unity- The Game Design in Unity course teaches the fundamentals of designing a game using the most widely accessed and preferred editing engine in the world. The intent of this course is to prepare high school students with the industry related skills needed for the workplace and higher learning environments. By the end of this course, they will understand the design planning process, be knowledgeable of industry related careers, and be able to navigate the Unity environment in order to create 2D / 3D games.

Pre-requisites:

Should have the knowledge of operating computers, play games. Should have learnt game design concepts.

Course Objectives:

1. To explain the scope of a game project and define its structure
2. To explain to design gameplay systems which are clear and thorough to understand by others
3. To explain the Level design principles and practices, Worldbuilding, designing narrative and storytelling for games

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Create game Idea into a game concept and a game that can be presented to others
2. Understand the Level design principles and practices, Worldbuilding, designing narrative and storytelling for games
3. Learn to create game menus and other interface elements
4. Create a 3D Game World with terrain, sky, mountains & trees and add characters

COURSE CONTENTS

UNIT I **Introduction to Unity and Level Design** **[7 Hours]**

Introduction to Unity, set up Unity environment and how to navigate its tools, Introduction on level design, Setting the goals for the player, planning the path in a directed level, Explaining Sand Box, camera systems, platform controls-Android, iOS, PC, Console

UNIT II **Laying out Levels**

Designing the building blocks, using modular elements, joining modular elements, setting prefabs, inserting unique areas, populating with props, Adding physics systems objects, Game mechanics, HUD system

UNIT III **Adding Animations to bring world to life**

Creating Animation in Unity, animating materials & lights, changing animation timing, opening door, creating stairs walkable, Particle system, VFX,
AI- Enemy system, BOTS, NPCs (Non playing characters-crowd simulation)

UNIT IV **Building the Game**

Asset/ art optimization, Code optimization, cut scenes for story- cinema machines for story, bug fixes, Multiplayer system- Local multiplayer, online independent server, host and client server based multiplayer, Final demo game.

TEXT BOOKS

1. Introduction to Game Design, Prototyping, and Development- Latest Edition - Third, Jeremy Gibson Bond, Publisher - Addison-Wesley

REFERENCE BOOKS

1.Design Games for Architecture: Creating Digital Design Tools with Unity Paperback – 18 September 2013 by Aaron Westre

Websites

https://www.youtube.com/watch?v=r5NWZoTSjWs&list=PLPV2KyIb3jR53Jce9hP7G5xC4O9AgnOuL&index=12

SUBJECT_CODE	Movie Pre- Visualization	L	T	P	C
B21DDS511		2	0	1	3

Course Description:

Movie Pre-Visualization- Previs is the process of visualizing a scene before creating it. Previs generally takes the form of a 3D animatics, namely a rough version of a scene or scenes. The course starts with fundamentals of pre-visualization, types of previs, medium of previs. Then it moves to Interactive Textures and Lighting Design, Working with Procedural Painting. Further it proceeds to teach Creating Simple Motions and Manipulations, Storyboard Development, Animatics, Conceptual Design and finally integrating audio, editing, color correction and rendering shots.

Pre-requisites:

Should have basic to medium level working knowledge of 3D Modeling and animation. Basic idea of animation movie making process.

COURSE OBJECTIVES

1. To explain the process of movie making.
2. To explain the concept of Previsualization and different types of previsualization.
3. To explain various steps involved in Previsualization Development Process

COURSE OUTCOMES

Upon Completion of the course, the students will be able to:

1. Recall movie making process and understand the purpose of previsualization.
2. Learn to create Skybox, interactive textures.
3. Distinguish between Previsualization and Animatics
4. Understand and apply each step of Previsualization Development Process.

Course Contents:

UNIT I **Fundamentals of Pre- visualization** **[10 Hours]**

Movie making process, pre-visualization, types of previs, medium of previs, previs team, pre-visualization vs. Animatics, the Basic 3D Kit

UNIT II Interactive Textures and Lighting Design [10 Hours]

Introduction, creating a Skybox using Texture Primer, Create Interactive Textures using Bitmaps and Procedural Images, Working with Programmable Shaders, Working with Displacement Maps, Working with Vertex Paintings, Working with Procedural Painting, Examples of Particle Animation, Designing a futuristic City

UNIT III Inverse Kinematics & Interactive Paths [10 Hours]

Introduction, Creating Simple Motions and Manipulations, Mesh Deformations, Complex Moving Structures, Inverse Kinematics, Motion Planning, Interactive Paths Story of a Famous Path, Script Development, Storyboard Development, Animatics, Conceptual Design.

UNIT IV Pre-visualization using Maya [10 Hours]

Setting of scenes and referencing the characters, creating and placing cameras, rendering shots, integrating audio, editing and color correction.

TEXT BOOKS

1. Building Interactive Worlds in 3D: Virtual Sets and Pre-visualization for Games, Film & the Web- Jean-Marc Gauthier-Focul Press

REFERENCE BOOKS

Storyboards, Animatics and PreViz: Visualizing story in film, tv, advertising and games (Nanomaterials and Their Applications) - by Giuseppe Cristiano (Author), Trevor Goring (Author), Joyce Kaskey Goring (Author), Edition- 1st , Publication- Routledge

Websites

1. https://en.wikipedia.org/wiki/Previsualization

4. https://blog.animationmentor.com/what-is-previsualization/

SUBJECT_CODE	Crowd Simulation	L	T	P	C
B21DDS512		2	0	1	3

Course Description:

Crowd Simulation - Crowd simulation is the process of simulating large numbers of people, creatures, or other characters, each interacting in one environment. These actors are expected to move to their goals, interact with their environment, and respond to each other. The course starts with introduction to Golaem, understanding the main concepts of Golaem Crowd Workflow, understanding 3D model representation for navigation meshes. Then proceeds to Understanding Crowd Field, Working with Crowd Manager. Finally teaches the students in designing and authoring functional purposeful human characters in virtual environments.

Pre-requisites:

Should have basic to medium level working knowledge of 3D Modeling and animation. Basic idea of animation movie making process.

Course Objectives:

1. To explain the overall workflow of crowd.
2. To explain the functions of Golaem Crowd environment tools
3. To explain step by step approach to simulate and render crowd

Course Outcomes:

COURSE OUTCOMES

1. Upon Completion of the course, the students will be able to:
2. To understand main concepts in Golaem Crowd such as entities, behaviors, and Crowd characters.
3. To understand the process of skeleton definition and motion conversion and how different parts of Golaem work together.
4. Apply the process of translating animation from one skeleton to another.
5. Demonstrate how to create behaviors for crowd entities.

Course Contents:

UNIT I **Introduction** **[10 Hours]**

Introduction to Golaem , Understanding File Formats, Understanding Main Concepts, Understanding Golaem Crowd Workflow, Understanding Asset conversion, Working with Character Mode.

UNIT II **Navigation** **[10 Hours]**

Overview, Understanding Constraint-Aware Navigation, understanding 3D model representation for navigation meshes, Understanding NavMesh Creator, Understanding Terrain Locator, Understanding Physics Locator, Understanding Cloth Locator, Understanding Flock Locator.

UNIT III **Functional Purposeful Populace** **[10 Hours]**

Understanding Crowd Field, Working with Crowd Manager, Understanding Crowd Archiver Functional crowds and psychological models, Learning heterogeneous behaviors from real world, Designing and authoring functional purposeful human characters in virtual environments, Authoring crowds with crowd patches, Interactive Editing of Crowd Animations.

UNIT IV **Realism, Analysis and Evaluation** **[10 Hours]**

Improving local movement and foot placement for real time crowds, Perceptual Evaluation of crowds, Statistical techniques to enhance and evaluate the realism of the crowd behavior, Quantitative methods to evaluate crowd simulation, Qualitative evaluation of crowds through presence experiments, Data-driven crowd evaluation.

TEXT BOOKS

1. Simulating Heterogeneous Crowds with Interactive Behaviors – Edition 1, CRC Press

REFERENCE BOOKS

1.Crowd Simulation - by Daniel Thalmann (Author), Soraia Raupp Musse (Author), Edition2nd ed. 2013 edition (October 4, 2012), Publisher – Springe.

Websites

1. https://en.wikipedia.org/wiki/Golaem_Crowd
2. https://www.youtube.com/watch?v=7XeYoyeu1cc

SUBJECT_CODE	Animation – Match Moving and Camera Tracking	L	T	P	C
B21DDS521		2	0	1	3

Course Description:

Matchmoving or 3D tracking is a VFx concept that is used for tracking the camera movement information.it is an important aspect in the VFX. Where the collected camera movement information are used by CG artist who combines 3d characters into the live-action footage so the actors can interact with the CG character. The course starts with getting Familiar with MatchMover Interface, how to starting a New MatchMover project. Then it moves to Performing Automatic 2D & 3D Tracking. Further it proceeds to Object-based Tracking and finally Camera Solving.

Pre-requisites:

Should have basic to medium level working knowledge of animation and VFX. Basic idea of animation movie making process.

Course Objectives:

1. To Explain how to create a new project and to set project preferences.
2. To Describe how to use Matchmoving Assistant and how to perform 2D and 3D tracking.
3. To explain steps to run a camera solve.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand match moving and camera tracking with Matchmover.
2. Track 2D Camera motion from video and image sequence.
3. Insert 3D computer graphic elements into a scene.
4. Understand how to perform camera solving and motion capture.

Course Contents:

UNIT I **Getting Familiar with Interface** **[10 Hours]**

Introduction, Components of the Industry Standard software Interface, switching between 2D and 3D modes, Changing and Resizing the Viewport Layout, Match Mover Windows, starting a New MatchMover project, Loading an Image Sequence, browsing through a Footage, Working with Contours, Solving an Image Sequence using Match Mover Assistant.

UNIT II **Painting in 2D** **[10 Hours]**

Introduction, working in 2D Mode, Performing Automatic 2D Tracking, Viewing and Refining Tracking Results, Supervised 2D Tracking.

UNIT III **Painting in 3D** **[10 Hours]**

Working in 3D Mode, Working with 3D Primitives and Objects, Object-based Tracking.

UNIT IV **Camera Solving** **[10 Hours]**

Introduction, Camera Solving, setting up a Camera, Coordinate Systems, Camera Constraints, Camera Solving Process, Customizing and Modifying Image Sequences, Recomputing a Sequence After Troubleshooting, Motion Capture Feature.

TEXT BOOKS

1. Matchmoving: The Invisible Art of Camera Tracking - Tim Dobbert, Cdr edition, Sybex, 2005(**Ch 6)**

REFERENCE BOOKS

1. The Art and Technique of Matchmoving: Solutions for the VFX Artist - Erica Hornung, 1 edition, Routledge, 2010
2. The Filmmaker's Guide to Visual Effects: The Art and Techniques of VFX for Directors, Producers, Editors and Cinematographers - Eran Dinur, 1 edition, Routledge, 2017

Websites

1. http://web.cse.ohio-state.edu/~parent/classes/682/MAYA/2011/matchmovertutorials2011.pdf
2. https://cgi.tutsplus.com/articles/26-tracking-and-matchmoving-tutorials--ae-7394
3. https://support.animationmentor.com/hc/en-us/community/posts/203731498-Match-moving-and-compositing-tutorials

SUBJECT_CODE	VFX – Dynamics and Simulation	L	T	P	C
B21DDS522		2	0	1	3

Course Description:

Dynamics and Simulation- Dynamics are a complex physics engine inside your 3D application; dynamics describes how objects move using rules of physics to simulate real-world forces. The course teaches the different actions you want your object to take, and the software will figure out how to animate that object in the most realistic way. The course introduces to Maya Dynamics and Rendering Paint Effects. It further goes to Dynamic Properties of clothing and hair and finally Simulating Hair and fur to character.

Pre-requisites:

Should have basic to medium level working knowledge of 3D modeling, animation using Maya and understand VFX.

Course Objectives:

1. To describe particles and their tools.
2. To explain the concepts of fluid effects and its types.
3. To describe active body and passive body

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understand how to paint on canvas using various types of brushes and paint strokes.
2. Understand the concept of nCloth system.
3. Create and apply dynamic simulations for clothes
4. Work with Hair and Fur in Maya.

Course Contents:

UNIT I **Paint in 2D and 3D** **[10 Hours]**

Introduction, Paint Effect Canvas, Paint Effect Interface, Painting a Scene, Brushes, Applying Forces, Applying Displacement and Spiral Bend, Animating Strokes, Adding Turbulence, Animating Growth and Modifiers

.

UNIT II **Introduction to Maya Dynamics and Rendering Paint Effects** **[10 Hours]**

Introduction, Illumination, Shading, Shadow, Texturing, Converting Strokes to Geometry, Cartoon Fills and Outlines, Introduction Dynamics, Particles and Their Tools, Fields and Their Types, Fluid, Fluid Effects, and Fluid Types, Active Body and Passive Body, Constraint and Creating Types of Constraints.

UNIT III **Maya Dynamics – Clothing and Hair** **[10 Hours]**

Creating Clothing for Character, Create Passive Collider, Dynamic Properties, Creating nCloth and nParticles Interaction, Hair Overview, Hair Creation, Adding Hair to Character, XGen in Maya, Work with Clump Modifiers, Collisions, Dynamic Properties.

UNIT IV **Hair Simulation and Fur** **[10 Hours]**

Effective Motion Tracking: Simulating Hair, Hair Modifications, Hair Rendering, Introduction to Fur, Fur Creation and Modification, Adding Fur to Character

TEXT BOOKS

1. Autodesk Maya 2018: A Comprehensive Guide Paperback - by Tickoo Sham, November 1, 2017, BPB Publications

REFERENCE BOOKS

1. Maya Studio Projects: Dynamics - Todd Palamar, Nov 2, 2009, Sybex
2. The Art of Fluid Animation - Jos Star, Oct 30, 2015, A K Peters/CRC Press

Websites

1. https://area.autodesk.com/tutorials/mash-dynamics-basics
2. https://www.highend3d.com/maya/dynamics-fx/c/tutorials
3. https://lesterbanks.com/category/maya-dynamics-tutorial/

SUBJECT_CODE	VFX-II Lab	L	T	P	C
B21DD0504		0	0	2	2

Course Description:

Nuke is one of the most powerful compositing and visual effects applications. It allows the compositors to achieve high-end, pixel-perfect digital content. Nuke's toolsets, framework, and flexibility allow users to create stunning visual content using footage, computer-generated graphics, 3D models, text, and images.

Pre-requisites:

Should have interest towards Digital compositing & editing and have working knowledge of image & video editing software like Adobe Photoshop, Adobe Premier Pro.

Course Objectives:

1. To explain basic difference between analog and digital audio.
2. To demonstrate a workspace of a standard video editing software.
3. To explain the List of audio and video effects.

Course Contents:

Upon Completion of the course, the students will be able to:

1. Differentiate between analog and digital audio.
2. Learn how to Work with audio files, edit audio clips, save and export audio files.
3. Describe the workspace and functions in a standard video editing software interface.
4. Understand the basic principles of audio and video effects to edit clips.

Course Contents:

Part A

1. Access the NUKE window. Select the nodes using the toolbar. Use menu bar to access New NUKE/Save Script/Customize Interface Layouts. Access the Properties panel by using any node. From the samples provided, open Ball.png and Base.png files and Animate the ball.
2. Modify the animation of the ball by using Curve Editor.
3. Use the Viewer with Multiple Read node.
4. Use the file browser to save or import your script/footage.
5. Replace the Read node by using Filename Search and Replace.
6. Customize the interface as desired.
7. Reformate Read node. Adjust the Bounding box. Set a ball as foreground and create a plane as background. Generate Contact Sheet of footage. Copy a rectangle from one image to the other.
8. Add multiple nodes. Select all the nodes. Rename the nodes as desired. Edit Color Correction node to get better output with color correction. Disable and delete node to view the result before and after editing the Color Correction node
9. Remove the wire using the RotoPaint node. Use the Clone or the Shape tool to remove the wire.

Part B

1. From the shoot 4 samples provided open jpeg sequence and key the image/video with IBKGizmo. **Hints:**
    - The IBK keyer differs from many other keyers in that, instead of using a single-color picker, it uses an input image (a clean plate with just the color variations of the background) to drive the key. This generally gives you good results when working with uneven blue or green screens.
    - The IBK keyer consists of two nodes: IBKColor and IBKGizmo. IBKColor creates the clean plate from the blue or greenscreen image and IBKGizmo pulls the key.
2. From the shoot 1 samples provided open jpeg sequence and key the image/video with Primatte Keyer.

    Hints:
    - Primatte keys are created incrementally by sampling single pixels or a range of pixels, from a blue or greenscreen image. This controls the polyhedron in colorspace that determines what pixels are in or outside the matte.
    - To use Primatte, click Auto-Compute to automatically sense the backing screen color, eliminate it, and even get rid of some of the foreground and background noise.
3. From the shoot 2 samples provided open jpeg sequence and Key the sequence with Keylight.

    Hints:

Use the Screen Color selector to choose a color from the source input to use as the blue/green screen color and the view drop-down menu to judge the key

SUBJECT_CODE	Game Design-II Lab	L	T	P	C
B21DD0505		0	0	2	2

Course Description:

Unity is a cross-platform game engine developed by Unity Technologies, which is primarily used to develop video games and simulations for computers, consoles and mobile devices. By the end of this course, they will understand the design planning process, be knowledgeable of industry related careers, and be able to navigate the Unity environment in order to create 3D games.

Pre-requisites:

Game Design in Unity is designed with a basic level of technical proficiency or exposure to digital design. Basic knowledge in programming is good but not compulsory.

Course Objectives:

1. To explain Game Industry Insights.
2. To explore legal and ethical issues in the field of game design.
3. To explain how to access necessary game assets.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Learn the very basics of the game industry.
2. Learn different roles involved in the creation of video games.
3. Learn the fundamentals of game design by sharpening their familiarity with the Unity game engine environment.
4. Apply the game design skills they've learned so far to begin planning and designing their first video game with Unity

Course Contents:

Part A

1. Create the terrain
2. Change the Sky and "Sun"
3. Add a Player Controller to the Scene
4. Add environmental assets to your Scene
5. Add 3D models to the Scene
6. Create a complete game environment (i.e. try not to leave parts of your game world feeling empty or incomplete)
7. Try to use terrain texturing, environmental assets, buildings, and other assets that follow a consistent theme (a consistent look & feel)

Part B

1. Design & Animate a 2D Game Character
2. Build & Import Your First 3D Model using Maya & Unity
3. Create a Scene in Unity following the below criteria
    - Scene contains geometry added via the Unity editor
    - Scene contains a camera, and a screenshot of the scene can be captured
    - Scene incorporates at least one texture
    - Scene incorporates at least two different types of light (e.g. a directional light and a point light)
    - Scene includes at least one object imported from another source (e.g. made in Blender, downloaded online, etc. Anything not created in Unity)

SIXTH SEMESTER

S.NO	Code	Title	HC/ SC /FC	Credit Pattern			Credits	Working Hrs
				L	T	P		
1	B21DD0601	Game Design-III	HC	2	0	0	2	2
2	B21DDS611	Game Testing	SC	2	0	1	3	4
	B21DDS612	Game Development						
Practical Courses								
3	B21DD0602	Game Design-III Lab	HC	0	0	2	2	4
4	B21DD0603	**Major Project**	HC	0	0	8	8	16
***Mandatory - (Non Creditable Courses)**								
4	B21DDM601/ B21PTM601	Soft skills -	**0**	**0**		**0**	**0**	**2**
5	B21DDM602	Skill Development Program						
Total Credits				**4**	**0**	**11**	**15**	**28**

SUBJECT_CODE	Game Design- III	L	T	P	C
B21DD0601		2	0	0	2

Course Description:

Unreal Engine - Unreal Engine is one of the most powerful engines on the market, which has enabled the construction of numerous titles in the video game business. With this course teaches students will be able to improve their knowledge of real-time development, design gaming events and build items to place in levels using the Blueprint, and import, configure and prepare a character for action.

Pre-requisites:

Should have basic to intermediate working knowledge of computer operation and interest towards animation and games and should have learnt game design concepts.

Course Objectives:

1. To explain the interface of Unreal Engine.
2. To explain the basics of blueprints, materials & textures.
3. To explain the process of creating a mini game.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Acquire an understanding of the fundamentals of Unreal Engine.
2. Understand the fundamentals of blue print and create assets in Unreal Engine.
3. Will be able to understand character animation, collisions, triggers and collectables.
4. Build a demo game and exporting it to a particular platform and play test.

Course Contents:

UNIT I **Getting Started with Unreal Engine Level Editor** **[7 Hours]**

Introduction to Unreal Engine, set up UE environment and how to navigate its tools, Game Templates, Engine UI, Landscape editor, sculpting landscapes, Water/fluid system, Importing assets-2D/3D models, basic lighting, default props, Basic player mechanics via templates.

UNIT II **Blueprints** **[7 Hours]**

About Blueprint, Coding using blueprints, Placing actors/player character, event systems/UI, player movement, control system, introduction to AI, A* algorithm, skeleton mesh, state machine, painting 3d textures (grass and craters)

UNIT III **Actors, Animations and Interactions** **[7 Hours]**

Importation of our Character and its Animations, Creating Locomotion Logic (BlendSpace 1D), Configuring the Animation Blueprint, Creating the Blueprint for Controlling our Character, Creating Jump Logic (State Machine), Adding a Walk/Run System, collisions, Triggers, collectables

UNIT IV **Packaging & Exporting Demo Game** **[7 Hours]**

Configuring a First-Person Perspective, setting up an Artificial Intelligence - Following Player, Setting up an Artificial Intelligence - Random Patrolling, NPCs, Collectibles, Score, High Score, HUD, Crowd Simulation, VFX, SFX, Visual Feedback, HCI, FPS, racing game, Building the game and exporting it to particular platform and play testing.

TEXT BOOKS

1. Unreal Engine 4 Game Development Essentials Paperback – Illustrated, February 25, 2016, by Satheesh PV

REFERENCE BOOKS

1. Unreal Engine Game Development Blueprints, 29 December 2015, by Nicola Valcasara
2. Blueprints Visual Scripting for Unreal Engine: The faster way to build games using UE4 Blueprints, 2nd Edition, by Marcos Romero and Brenden Sewell

SUBJECT_CODE	Game Testing	L	T	P	C
B21DDS611		1	1	1	3

Course Description:

Game Testing - Game testing, a subset of game development, is a software testing process for quality control of video games. The primary function of game testing is the discovery and documentation of software defects. The course starts with fundamentals of game testing, importance of game testing, responsibility of tester. Then it proceeds to tech students different process of game testing and phases of testing. Further, it explains types and techniques used in game testing, QA testing and finally teaches to write bug report.

Pre-requisites:

Should have basic to intermediate working knowledge of computer operation and interest towards Playing Games.

Course Objectives:

1. To describe the methodology and procedures for collecting, reporting, and closing game bugs
2. To explain the rules of testing
3. Explain the console approval process; and demonstrate writing precise bug database records.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Understanding why testing is important.
2. Identify the stages of project completion; identify the different testing types (i.e., white box, black box, compatibility, minimum specification, etc.)
3. Testing and debugging gaming and simulation applications in the alpha and beta stages of production.
4. Understand the methodology and procedures for collecting, reporting, and closing game bugs.

Course Contents:

UNIT I **Game Testing Fundamentals** **[10 Hours]**

Introduction to game testing, the two rules of game testing, responsibilities of game tester, Testing versus playing, Identifying bugs, Reporting bugs, Handling fixes, importance of testing.

UNIT II **Test Process and Phases** **[10 Hours]**

Testing lifecycle, steps in game testing process, Testing phases, parts of games that undergoes testing, Testing progress, effectiveness and performance.

UNIT III **Types & techniques used in Game Testing** **[10 Hours]**

Black box testing, white box testing, Techniques Used in Game Testing Process, testing progress, Free testing, Directed testing, Gameplay testing, External testing, device testing.

UNIT IV **Factors & levels of Game testing process** **[10 Hours]**

Game bug testing and types of game bugs, Bug Tracking Framework, Test Case, Test Suite, Aptitudes, Experience, and Thoroughness, Alpha Testing, Beta testing, Quality Assurance (QA) Testing, Mobile Game testing & its phases, writing Bug report.

TEXT BOOKS

1. Game Testing all in one, Third Edition by Charles P. Schultz, Robert Denton Bryant

REFERENCE BOOKS

1. The Subtle Art of Game Testing by Dnyanesh Mhasawade

1. Land a Job as a Video Game Tester by Jason W Bay
2. The Game Master's Book of Traps, Puzzles and Dungeons: A punishing collection of bone-crunching contraptions, brain-teasing riddles and ... RPG adventures (The Game Master Series) Hardcover – Import, 21 June 2022, by Jeff Ashworth , Kyle Hilton, Jasmine Bhullar, Three Black Halflings (Contributor)

1. https://www.guru99.com/game-testing-mobile-desktop-apps.html

2. https://www.testbytes.net/blog/game-testing-tutorial/

3. https://www.guru99.com/back-box-vs-white-box-testing.html#:~:text=Black%20Box%20testing%20has%20the,%2C%20conditions%2C%20paths%20and%20branches.

SUBJECT_CODE	Game Development	L	T	P	C
B21DDS612		2	0	0	2

Course Description:

The Game Development curriculum is designed to give you the programming skills and theory needed to excel in the world of game development. First, students will learn the details of a game development cycle from preproduction to finished product and begin to create simple games that will help to develop your programming and design skills.

Pre-requisites:

Should have the basic to medium level knowledge of Unity and prior experience with C# programming is required.

Course Objectives:

1. To explain the scope of a game project and define its structure
2. To explain to design gameplay systems which are clear and thorough to understand by others
3. To explain the Level design principles and practices, Worldbuilding, designing narrative and storytelling for games

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Create game Idea into a game concept and a game that can be presented to others
2. Understand the Level design principles and practices, Worldbuilding, designing narrative and storytelling for games
3. Learn to create game menus and other interface elements
4. Create a 3D Game World with terrain, sky, mountains & trees and add characters

Course Contents:

UNIT I **Introduction to Unity programing** **[7 Hours]**

Introduction to Unity, Introducing Prefabs, Game Design - Obstacle Course, Start() & Update(), Introducing Variables, Using SerializeField, C# Formatting & Input.GetAxis(), Time.deltaTime, Cinemachine Follow Camera, Basic Collision

UNIT II **Introduction To Methods**

Practicing With Methods, Using GetComponent<>(), Incrementing A Score, Using Time.deltatime, If Statements, Caching A Reference, Using Tags, Move An Object, Transform an object, Prepare Our Prefabs, Build An Obstacle Course, Wrap Up - Obstacle Course, Introducing Classes, Basic Input Binding

UNIT III **Game Management**

Load Next Level, Switch statements, Using SceneManager, Particle system, condition statements, Mathf function, game objects, Loops Arrays

UNIT IV **Understanding Collisions & Triggers**

Create Explosion Particle Effect, Trigger Player Explosion, Instantiate At Runtime, Public Methods In Unity C#, Simple User Interface For Score, ToString() To Display Score, Enemy Hit Points, Using FindWithTag(), Control Tracks For Enemy Waves, game economy, A* algorithm and other path finding algorithm, Overloading Methods, Script management and optimization.

TEXT BOOKS

1. Hands-On Unity 2020 Game Development: Build, customize, and optimize professional games using Unity 2020 and C# Paperback – Import, 29 July 2020, by Nicolas Alejandro Borromeo

REFERENCE BOOKS

1. Learning C# by Developing Games with Unity 2020: An enjoyable and intuitive approach to getting started with C# programming and Unity, 5th Edition Paperback – Import, 21 August 2020, by Harrison Ferrone
2. GAME PROGRAMMING PATTERNS Paperback – 2 November 2014, by Robert Nystrom

Websites

1. https://brackeys.com/
2. https://virtushub.com/

SUBJECT_CODE	Game Design-III Lab	L	T	P	C
B21DD0602		0	0	2	2

Course Description:

This course introduces Unreal Engine, a popular platform for Game Development and creating cutting-edge 2D/3D environments. The course is created for absolute beginners and will teach the basics of Unreal Engine. The course starts with how to navigate and use Unreal Engine from scratch. It will cover the basics of landscapes, asset placements, blueprints, lighting and materials, etc.So, by the end of this course, the student will be able to create beautiful 2D/3D worlds and know how to approach design for games and real-time projects.

Pre-requisites:

Should have basic to intermediate working knowledge of computer operation and animation and should have learnt game design concepts.

Course Objectives:

1. To explain the features and constraints of modern devices from the gamer point of view.
2. To evaluate an overall user's satisfaction.
3. To explain development techniques, skills and tools necessary for games development practice.

Course Contents:

Upon Completion of the course, the students will be able to:

1. Integrate various development, ranking, feedback tools in game construction.
2. Understand the professional and ethical responsibility.
3. To design, validate, implement, and maintain games
4. To design a game within realistic constraints such as economics, environmental, social, political, ethical, health and safety.

Course Contents:

Part A

1. Creating and opening projects
2. Exporting and importing game assets
3. Creating master material
4. Creating material instance
5. Manipulating game assets
6. Set dressing the scene

Part B

1. Unreal Engine Essentials
2. 2D Platformer/Side Scroller
3. 3D Platformer/Side Scroller
4. 3D endless Runner

SUBJECT_CODE	Major Project	L	T	P	C
B21DD0603		0	0	8	8

Course Contents:

The purpose of the Major project is to gain first-hand insight into a career in game industry. Through this project, the students learn to work as a team and also learn the entire process of designing a game, create levels, write code, and test the game.

Pre-requisites

Should have basic to intermediate working knowledge of game design process.

Course Objectives:

1. To Explore career alternatives prior to graduation.
2. To Integrate theory and practice.
3. To Assess interests and abilities in their field of study.

Course Outcomes:

Upon Completion of the course, the students will be able to:

1. Build a record of work experience.
2. Develop work habits and attitudes necessary for job success.
3. Assess interests and abilities in their field of study
4. Develop communication, interpersonal and other critical skills in the job interview process

Course Contents:

1. PS Game (First Person Shooter/Camera)
2. TPS Game (Third Person Shooter/Camera)
3. Ground Vehicle Simulation Game/Mechanics
4. Flight Simulation Game/Mechanics
5. Combat Game/System
6. Third Person Action/Adventure
7. RPG Game and Mechanics

CAREER DEVELOPMENT AND PLACEMENT

Having a degree will open doors to the world of opportunities for you. But Employers are looking for much more than just a degree. They want graduates who stand out from the crowd and exhibit real life skills that can be applied to their organizations. Examples of such popular skills employers look for include:

1. Willingness to learn
2. Self motivation
3. Team work
4. Communication skills and application of these skills to real scenarios
5. Requirement of gathering, design and analysis, development and testing skills
6. Analytical and Technical skills
7. Computer skills
8. Internet searching skills
9. Information consolidation and presentation skills
10. Role play
11. Group discussion, and so on

REVA University therefore, has given utmost importance to develop these skills through variety of training programs and such other activities that induce the said skills among all students. A full-fledged Career Counseling and Placement division, namely Career Development Center (CDC) headed by well experienced senior Professor and Dean and supported by dynamic trainers, counselors and placement officers and other efficient supportive team does handle all aspects of Internships and placements for the students of REVA University. The prime objective of the CDC is to liaison between REVA graduating students and industries by providing a common platform where the prospective employer companies can identify suitable candidates for placement in their respective organization. The CDC organizes pre-placement training by professionals and also arranges expert talks to our students. It facilitates students to career guidance and improves their employability. In addition, CDC forms teams to perform mock interviews. It makes you to enjoy working with such teams and learn many things apart from working together in a team. It also makes you to participate in various student clubs which helps in developing team culture, variety of job skills and overall personality.

The need of the hour in the field of Computer Science is not only knowledge in the subject, but also the skill to do the job proficiently, team spirit and a flavour of innovation. This kept in focus, the CDC has designed the training process, which will commence from second semester along with the curriculum. Special coaching in personality development, career building, English proficiency, reasoning, puzzles, and communication skills to every student of REVA University is given with utmost care. The process involves continuous training and monitoring the students to develop their soft skills including interpersonal skills that will fetch them a job of repute in the area of his / her interest and March forward to make better career. The School of Computer Science and Applications also has emphasised subject based skill training through lab practice, internship, project work, industry interaction and many such skilling techniques. The students during their day to day studies are made to practice these skill techniques as

these are inbuilt in the course curriculum. Concerned teachers also continuously guide and monitor the progress of students.

The University has also established University-Industry Interaction and Skill Development Centre headed by a Senior Professor & Director to facilitate skill related training to REVA students and other unemployed students around REVA campus. The center conducts variety of skill development programs to students to suite to their career opportunities. Through this skill development centre the students shall compulsorily complete at least two skill / certification based programs before the completion of their degree. The University has collaborations with Industries, Corporate training organizations, research institutions and Government agencies like NSDC (National Skill Development Corporation) to conduct certification programs. REVA University has been recognised as a Centre of Skill Development and Training by NSDC (National Skill Development Corporation) under Pradhan Mantri Kaushal Vikas Yojana.

The University has also signed MOU's with Multi-National Companies, research institutions, and universities abroad to facilitate greater opportunities of employability, students' exchange programs for higher learning and for conducting certification programs.

Programme Regulations

Summary of REVA University Regulations for Choice Based Credit System (CBCS) and Continuous Assessment Grading Pattern (CAGP) for Three Years Graduate Degree Programs

1. Teaching and Learning Process:

The teaching & learning process under CBCS – CAGP of education in each course of study will have three components, namely**:**

(i) L= Lecture (ii) T= Tutorial (iii) P=Practice; where:

L stands for **Lecture** session consisting of classroom instruction.

T stands for **Tutorial** session consisting participatory discussion / self study/ desk work/ brief seminar presentations by students and such other novel methods that make a student to absorb and assimilate more effectively the contents delivered in the Lecture classes.

P stands for **Practice** session and it consists of Hands on Experience / Laboratory Experiments / Field Studies / Case Studies that equip students to acquire the much required skill component.

2. Courses of Study and Credits

a. The study of various subjects in BCA degree program is grouped under various courses. Each of these courses carries credits which are based on the number of hours of teaching and learning.

b. In terms of credits, every **one hour session of L amounts to 1 credit per Semester** and a minimum of **two hour session of T or P amounts to 1 credit per Semester or a three hour session of T / P amounts to 2 credits** over a period of one Semester of 16 weeks for teaching-learning process.

c. **The total duration of a semester is 20 weeks inclusive of semester-end examination.**

d. **A course shall have either or all the four components.** That means a course may have only lecture component, or only practical component or combination of any two or all the three components.

e. The total credits earned by a student at the end of the semester upon successfully completing the course are L + T + P. **The credit pattern of the course is indicated as L: T: P**

Different C**ourses of Study** are labeled and defined as follows:

a. Core Course:

A course which should compulsorily be studied by a candidate as a core-requirement is termed as a Core course. The CORE courses of Study are of THREE types, viz – (i) Foundation Course, (ii) Hard Core Course, and (iii) Soft Core Course.

b. Foundation Course (FC):

The foundation Course is a core course which should be completed successfully as a part of graduate degree program irrespective of the branch of study. These would include basic courses in Languages, courses of study prescribed by the University.

c. Hard Core Course (HC):

The **Hard Core Course** is a Core Course in the main branch of study and related branch(es) of study, if any that the candidates have to complete compulsorily.

d. Soft Core Course (SC):

A Core course may be a **Soft Core** if there is a choice or an option for the candidate to choose a course from a pool of courses from the main branch of study or from a sister/related branch of study which supports the main branch of study.

e. Open Elective Course:

An elective course chosen generally from other discipline / subject, with an intention to seek exposure to the basics of subjects other than the main discipline the student is studying is called an O**pen Elective Course.**

f. Project Work / Dissertation:

Project work / Dissertation work is a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. A project work carrying **FOUR or SIX** credits is called **Minor Project** work / **Dissertation.** A project work of **EIGHT, TEN, TWELVE or SIXTEEN** credits is called **Major Project** work / **Dissertation**. **A Minor Project work may be a hard core or a Soft Core as decided by the BOS / concerned. But the Major Project shall be Hard Core.**

3. Scheme, Duration and Medium of Instructions:

3.1. The BCA Degree program is of 6 semesters - 3 years duration. A candidate can avail a maximum of 12 semesters - 6 years as per double duration norm, in one stretch to complete the BCA, including blank semesters, if any. Whenever a candidate opts for blank semester, he/she has to study the prevailing courses offered by the School when he/she resumes his/her studies.

3.2. The medium of instruction shall be English.

4. Credits and Credit Distribution

4.1. A candidate has to earn 120 credits for successful completion of Three Year BCA degree with the distribution of credits for different courses as decided by the Board of Studies.

4.2. The concerned BOS based on the credits distribution pattern given above shall prescribe the credits to various types of courses and shall assign title to every course including project work, practical work, field work, self study elective, as **Foundation Course(FC), Hard Core(HC) or Soft Core(SC) or Open Elective(OE)**.

4.3. A candidate can enroll for a maximum of 30 credits and a minimum of 20 credits per Semester. However he / she may not successfully earn a maximum of 30 credits per semester. This maximum of 30 credits does not include the credits of courses carried forward by a candidate.

4.4. Only such full time candidates who register for a minimum prescribed number of credits in each semester from I semester to VI semester and complete successfully 120 credits in 6 successive semesters shall be considered for declaration of Ranks, Medals, Prizes and are eligible to apply for Student Fellowship, Scholarship, Free ships, and such other rewards / advantages which could be applicable for all full time students and for hostel facilities.

5. **Add- on Proficiency Certification:**

To acquire **Add on Proficiency Certification** a candidate can opt to complete a minimum of 4 extra credits either in the same discipline /subject or in different discipline / subject in excess to 120 credits for the Three Year BCA Degree program.

6. **Add on Proficiency Diploma:**

6.1. To acquire **Add on Proficiency Diploma,** a candidate can opt to complete a minimum of 18 extra credits either in the same discipline /subject or in different discipline / subject in excess to 120 credits for the Three Year BCA Degree program.

6.2. The A**dd on Proficiency Certification / Diploma** so issued to the candidate contains the courses studied and grades earned.

7. Scheme of Assessment & Evaluation

7.1. The Scheme of Assessment and Evaluation will have two parts, namely;

i. Internal Assessment (IA); and
ii. Semester End Examination

7.2. Assessment and Evaluation of each Course shall be for 100 marks. The Internal Assessment and Semester End Examination of UG non engineering programs and PG programs shall carry 50 marks each (i.e., 50 marks internal assessment; 50 marks semester end examination).

7. 3. The 50 marks of Internal Assessment shall comprise of:

Internal Test	=	30 marks
Assignments	=	10 marks
Presentations / Quizzes / Case studies	=	10 marks

7.4. There shall be two internal tests conducted as per the schedule given below. The students have to attend all the two tests compulsorily.

- 1st test for 15 marks at the end of 8th week of the beginning of the Semester; and
- 2nd test for 15 marks at the end of the 16th week of the beginning of the Semester; and

7.5. The coverage of syllabus for the said three tests shall be as under:

- For the 1st test syllabus shall be 1st and 2nd unit of the course;
- For the 2nd test it shall be 3rd and 4th unit;

7.6. The Semester End Examination for 50 marks shall be held during 18th and 19th week of the beginning of the semester and **the syllabus for the semester end examination shall be entire 4 units**.

7.7. **Evaluation of Foundation Course - Tree Plantation in Tropical Region: Benefits and Strategic Planning:**

Note:

1. Tree plantation activity shall start in first semester; conduction of classes and evaluation is done in second semester.
2. Successful maintenance of tree is considered to be one of the eligibility criterions for the award of university degree.

Summary of Internal Assessment and Evaluation Schedule

Sl. No.	Type of Assessment	When	Syllabus Covered	Max Marks	Reduced to	Date by which the process must be completed
1	Test-1	During 8th Week	First 50%	25	12.5	8th week
2	Test -2	During 15th Week	Remaining 50%	25	12.5	15th Week
3	SEE	18th to 20th Week	100%	50	25	20th Week

7.8. The **duration of the internal test shall be 75 minutes and for semester end examination the duration shall be 3 hours.**

Summary of Continuous Assessment and Evaluation Schedule

Type of Assessment	Period	Syllabus	Marks	Activity
First Test	8th Week	1st and 2nd Units	15	Consolidation of 1st and 2nd Unit
Allocation of Topics for Assignments	-	First Unit and second unit		Instructional process and Continuous Assessment
Submission of Assignments	-	First Unit and second unit	5	Instructional process and Continuous Assessment
Presentations / Quizzes/Case studies	-	First Unit and second unit	5	Instructional process and Continuous Assessment
Second Test	16th Week	Third unit and Fourth unit	15	Consolidation of 3rd and 4th Unit
Allocation of Topic for 2nd Assignment	-	2nd half of second unit and 3rd Unit		Instructional process and Continuous Assessment
Submission of Assignments	-	2nd half of second unit and 3rd Unit	5	Instructional process and Continuous Assessment
Presentations / Quizzes / Case studies	-	2nd half of second unit and 3rd Unit	5	Instructional process and Continuous Assessment
Semester End Practical Examination	17th Week	Entire syllabus	50	Conduct of Semester - end Practical Exams
Preparation	16th & 17th	Entire		Revision and

for Semester–End Exam	Week	Syllabus		preparation for semester–end exam
Semester End Theory Examination	18th Week & 19th Week	Entire Syllabus	50	Evaluation and Tabulation
	End of 20th Week			Notification of Final Grades

Note: 1. *Examination and Evaluation shall take place concurrently and Final Grades shall be announced latest by 5 days after completion of the examination.*

1. *Practical examination wherever applicable shall be conducted after 2nd test and before semester end examination. The calendar of practical examination shall be decided by the respective School Boards and communicated well in advance to the Registrar (Evaluation) who will notify the same immediately*

8.0. Evaluation of Practical's and Minor Project / Major Project / Dissertation

8.1. The performance in the practice tasks / experiments shall be assessed on the basis of:

a) Knowledge of relevant processes;

b) Skills and operations involved;

c) Results / products including calculation and reporting.

8.2 The 50 marks meant for continuous assessment of the performance in carrying out practical's shall further be allocated as under:

i	Conduction of regular practical / experiments throughout the semester	20 marks
ii	Maintenance of lab records	10 marks
iii	Performance of mid-term test (to be conducted while conducting second test for theory courses); the performance assessments of the mid-term test includes performance in the conduction of experiment and write up about the experiment.	20 marks
	Total	**50 marks**

The 50 marks meant for Semester End Examination, shall be allocated as under:

i	Conduction of semester end practical examination	30 marks
ii	Write up about the experiment / practical conducted	10 marks
iii	Viva Voce	10 marks
	Total	**50 marks**

8.3. The duration for semester-end practical examination shall be decided by the concerned School Board.

8.4 Evaluation of Minor Project / Major Project / Dissertation:

Right from the initial stage of defining the problem, the candidate has to submit the progress reports periodically and also present his/her progress in the form of seminars in addition to the regular discussion with the supervisor. At the end of the semester, the candidate has to submit final report of the project / dissertation, as the case may be, for final evaluation. The components of evaluation are as follows:

i	Periodic Progress and Progress Reports (25%)
ii	Results of Work and Draft Report (25%)
iii	Final Evaluation and Viva-Voce (50%). Evaluation of the report is for 30% and the Viva-Voce examination is for 20%.

9.1 Provision to Carry Forward the Failed Subjects / Courses:

A student who has failed in a given number of courses in odd and even semesters shall move to next semester of immediate succeeding year and final year of the study. However, he / she shall have to clear all the courses of all semesters within the double duration, i. e., within six years of admission of the first semester failing which the student has to re-register to the entire program.

9.2 Re-Registration and Re-Admission:

a) In case a candidate's class attendance in aggregate of all courses in a semester is less than 75% or as stipulated by the University, such a candidate is considered as dropped the semester and is not allowed to appear for end semester examination and he / she shall have to seek re-admission to that semester during subsequent semester / year within a stipulated period.

b) In such a case where in a candidate drops all the courses in a semester due to personal reasons, it is considered that the candidate has dropped the semester and he / she shall seek re-admission to such dropped semester.

10. Attendance Requirement:

10.1 All students must attend every lecture, tutorial and practical classes.

10.2 In case a student is on approved leave of absence (e g:- representing the university in sports, games or athletics, placement activities, NCC, NSS activities and such others) and / or any other such contingencies like medical emergencies, the attendance requirement shall be minimum of 75% of the classes taught.

10.3Any student with less than 75% of attendance in aggregate of all the courses including practical courses /

field visits etc, during a semester shall not be permitted to appear to the end semester examination and such student shall seek re-admission as provided above.

10.4 Teachers offering the courses will place the above details in the School Board meeting during the last week of the semester, before the commencement of examination, and subsequently a notification pertaining to the above will be brought out by the Director of the School before the commencement of examination. A copy of this notification shall also be sent to the office of the Registrar & Registrar (Evaluation).

11. Challenge Valuation

a. A student who desires to apply for challenge valuation shall obtain a photo copy of the answer script by paying the prescribed fee within 10 days after the announcement of the results. He / She can challenge the grade awarded to him/her by surrendering the grade card and by submitting an application along with the prescribed fee to the Registrar (Evaluation) within 10 days after the announcement of the results. This challenge valuation is only for SEE.

b. The answer scripts for which challenge valuation is sought for shall be evaluated by the external examiner who has not involved in the first evaluation. The higher of two marks from first valuation and challenge valuation shall be the final.

12. Grade Card and Grade Point:

a. **Provisional Grade Card**: The tentative / provisional Grade Card will be issued by the Registrar (Evaluation) at the end of every semester indicating the courses completed successfully. The provisional grade card provides **Semester Grade Point Average** (SGPA).

b. Final Grade Card: Upon successful completion of BCA Degree a Final Grade card consisting of grades of all courses successfully completed by the candidate will be issued by the Registrar (Evaluation).

c. **The Grade and the Grade Point:** The Grade and the Grade Point earned by the candidate in the subject will be as given below:

Marks P	Grade G	Grade Point (GP=V x G)	Letter Grade
90>100	10	v*10	O
80>90	9	v*9	A+
70 > 80	8	v*8	A
60> 70	7	v*7	B+
55 > 60	6	v*6	B
50 > 55	5.5	V*5.5	C
40> 50	5	v*5	P
0-40	0	v*0	F
ABSENT			AB

O - Outstanding; A-Excellent; B-Very Good; C-Good; D-Fair; E-Satisfactory; F - Fail

Here, P is the percentage of marks (P=[(IA)+M] secured by a candidate in a course which is **rounded to nearest integer**. V is the credit value of the course. G is the grade and GP is the grade point.

i. Computation of SGPA and CGPA

The following procedure to compute the Semester Grade Point Average (SGPA)

The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student in a given semester, i.e :

$$\textbf{SGPA (Si)} = \sum(\textbf{Ci x Gi}) / \sum\textbf{Ci}$$

where C_i is the number of credits of the i^{th} course and G_i is the grade point scored by the student in the i^{th} course.

ii. Cumulative Grade Point Average (CGPA):

Overall Cumulative Grade Point Average (CGPA) of a candidate after successful completion of the required number of credits (144) for MCA degree is calculated taking into account all the courses undergone by a student over all the semesters of a program i. e.,

$$\mathbf{CGPA = \sum(Ci \times Si) / \sum Ci}$$

where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.

The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

CONVERSION OF GRADES INTO PERCENTAGE:

Conversion formula for the conversion of CGPA into Percentage is:

Percentage of marks scored = CGPA Earned x 10

Illustration: CGPA Earned 8.11 x 10 = 81.10

12.1 Classification of Results

The final grade point (FGP) to be awarded to the student is based on CGPA secured by the candidate and is given as follows.

CGPA	Grade (Numerical Index)	Letter Grade	Performance	FGP
	G			Qualitative Index
9 >= CGPA 10	10	O	Outstanding	Distinction
8 >= CGPA < 9	9	A+	Excellent	
7 >= CGPA < 8	8	A	Very Good	First Class
6 >= CGPA < 7	7	B+	Good	
5.5> = CGPA < 6	6	B	Above average	Second Class
> 5 CGPA < 5.5	5.5	C	Average	
> 4 CGPA <5	5	P	Pass	Satisfactory
CGPA <4	-	F	Fail	-

Overall percentage=10*CGPA

12.2 Provision for Appeal

If a candidate is not satisfied with the evaluation, he/she can approach the grievance cell with the written submission together with all facts, the assignments, test papers etc, which were evaluated. He/she can do so before the commencement of semester-end examination. The grievance cell is empowered to revise the marks if the case is genuine and is also empowered to levy penalty as prescribed by the university on the candidate if his/her submission is found to be baseless and unduly motivated. This cell may recommend taking disciplinary/corrective action on an evaluator if he/she is found guilty. The decision taken by the grievance cell is final.

For every program there will be one grievance cell. The composition of the grievance cell is as follows:-

- The Registrar (Evaluation) - Ex-officio Chairman / Convener
- One Senior Faculty Member (other than those concerned with the evaluation of the course concerned) drawn from the school / department/discipline and/or from the sister schools / departments/sister disciplines – Member.
- One Senior Faculty Members / Subject Experts drawn from outside the University school / department – Member.

12.3 With regard to any specific case of ambiguity and unsolved problem, the decision of the Vice-Chancellor shall be final.

School of Computer Science and Applications
Faculty list

Sl.No	Name	Designation	Contact No.
1	Dr. Senthil	Professor & Director	**8884750100/ 73497 97355**
2	Dr. M Vinayaka Murthy	Professor	9448809443
3	K. Vijaya Lakshmi	Assoc. Professor	9740388711
4	Dr . Rajeev Ranjan	Assoc. Professor	9108898284
5	Dr. Anand R	Assoc. Professor	9944301453
6	Dr. Hemanth K S	Assoc. Professor	9986257582
7	Dr. Sasikala G	Assoc. Professor	7259176911
8	Dr. Ambili P S	Assoc. Professor	9446503903
9	Dr. Vijayalakshmi A Lepakshi	Assoc. Professor	9742138440
10	Dr. Devi A	Assoc. Professor	9945270104
11	Dr. Lakshmi K	Associate Prof.	9844144380
12	Dr. N Thrimoorthy	Asst. Professor	9060967911
13	Dr. Thontadari	Asst. Professor	9844573076
14	Dr. A P Bhuveneswari	Asst. Professor	9148445592
15	Dr. Deeba K	Asst.Professor	9003516146
16	Dr. Setturu Bharath	Asst.Professor	9483832144
17	Prof. Lokesh C K	Asst. Professor	9448295877
18	Prof. Ravi Dandu	Asst. Professor	9379772672
19	Prof. R Pinaka Pani	Asst. Professor	9972254146
20	Prof. Vijaya Kumar H	Asst. Professor	9663887148
21	Prof. Vijayalaxmi. P. Chiniwar	Asst. Professor	9611345300
22	Prof. Deepa B G	Asst. Professor	8105095047
23	Prof. Vidya S	Asst. Professor	9902989134
24	Prof. Krishnamurthy R	Asst. Professor	9480050433
25	Prof. Md Abdul Khader Jailani	Asst. Professor	9790521466
26	Prof. Shobhana Saxena	Asst. Professor	9341261151
27	Prof. P Sree Lakshmi	Asst. Professor	9731068437
28	Prof. Shreetha Bhat	Asst. Professor	9743002419
29	Prof.Sneha N	Asst. Professor	9538589009
30	Prof. Vinay G	Asst. Professor	8310899551
31	Prof.Abhay Kumar Srivastav	Asst. Professor	9611364430
32	Prof.Aryamol	Asst. Professor	9986628052
33	Prof.Kusha K R	Asst. Professor	9738462560
34	Prof.Aditya V	Asst. Professor	9886430728

35	Prof. Manju B	Asst. Professor	9591450920
36	Prof. Jesla	Asst. Professor	9447964223
37	Prof. Komala R	Asst. Professor	9844551833
38	Prof. Pradeepa D	Asst. Professor	9513873344
39	Prof. Pradeep Udupa	Asst. Professor	8618109452
40	Prof. Apoorva M C	Asst. Professor	7760114305
41	Prof. Nagaraju S	Asst. Professor	9036737368
42	Prof. Shuaib Ahmed Shariff	Asst. Professor	8971104643
43	Prof. Anjali Surendran	Asst. Professor	9562227630
44	Prof. Manjunath B	Asst. Professor	9845265965
45	Prof. Anitha Rani K S	Asst. Professor	8971534442
46	Prof. Archana Bhaskar	Asst. Professor	9916510899
47	Prof. Farhanaaz	Asst. Professor	9902329068
48	Prof. B Hemalatha	Asst.Professor	7904051721
49	Prof. Rajib Guha Thakurta	Asst.Professor	7980031252 9831972166
50	Prof. Sunit Navneet Jha	Asst.Professor	9724478310
51	Prof. Mohammed Mueen Pasha	Asst.Professor	9845225993
52	Prof. Sherin	Asst.Professor	9742854395
53	Prof. Sowmya P D	Asst.Professor	7204909639
54	Prof. Divyashree D	Asst.Professor	7349189651
55	Prof. Sheela D V	Asst.Professor	9620341850

Sl. No	Name	
External Faculty		
1	Mr. Sanjeev	
2	Mr. Venkatesh	
3	Mrs. Priyadarshani	
4	Mr. Rakesh	
5	Prof. Madhavi	
6	Prof. Krishna	
7	Prof. Naveenth	
8	Prof. Ramesh	
9	Mr. Hema Maheswar Rao	
10	Mrs. Aarathi Padma Gadi	
11	Mr. Anurag K	
12	Mr. Issac Johnson	
13	Mr. Vignesh	
14	Mr. Shivakumar	

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