UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE' UNIVERSITY)
(Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(24/May Adp./ 15)

In partial modification of this office Notification No. F.Acd/II/24/13276-13286 dated 12.01.2024, it is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the amended Syllabus and Courses of Studies for Four Year Under Graduate Programme (Design Your Degree) of Semester Ist (as given in the annexure) for the examinations to be held in the years as per the details given below:

Programme	Semester	For the examinations to be held in the year
FYUGP (Design Your Degree)	Semester-I	December 2023, 2024 and 2025

The Syllabi of the courses are also available on the University website: www.jammuuniversity.ac.in.

Sd/-
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/24/ 2195- 2204
Dated: 29-05-2024

Copy for information and necessary action to:

1. Director/Convener, Board of Studies in Design your Degree
2. Sr. P.A.to the Controller of Examinations
3. All members of the Board of Studies
4. Confidential Assistant to the Controller of Examinations
5. Director, Computer Centre, University of Jammu
6. Deputy Registrar/Asstt. Registrar (Conf. /Exams. UG)
7. Incharge University Website for necessary action please

Sunita Sharma 9/5/2024
Deputy Registrar (Academic)

9/5/24 9/5/24 9/5/24

University of Jammu
Four Year Innovative Undergraduate Program

(Design Your Degree)

Semester Ist

Course Code	Course Title	Credits	Contact Hours (per Credit)
UFDDPC101	Understanding the World through Data Lens	04	15
UFDDPC102	Mathematics Without Phobia	04	15
UFDDPC103	IT in Everyday Life	04	15
UFDDPC104	Expressing Creativity	04	15
UFDDPC105	Exploring the Surroundings	04	15
UFDDPC106	Life Skills	02	15

Prof. Alka Sharma
Director, SIIEDC

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC101

Course Title: Understanding the World through Data Lens

Credits: 04

Contact Hours: 15 per credit

Maximum Marks: 100

Internal Evaluation: 30

External Evaluation: 70

Course Objective: Data is a powerful tool for describing the world around us. It allows us to see patterns and make predictions. For example, data can describe demographic information, geographic information, attributes of physical objects, events, how people use technology, social dynamics etc.

Course Outcomes:

- The students will be able to describe the real life problems through data;
- They will be able to analyze Data and make informed decisions.

Collection of data (primary/secondary), understanding Data through tables, diagrams with spreadsheets.

Making sense of Data, identifying the variables as quantitative or qualitative, understanding error, accuracy and approximation in the collected Data.

Interpretation of Data, locating the center, mode, median and mean and their calculations with spreadsheets. Percentiles, percentiles in spreadsheets, percent rank, skewness, variance and standard deviation and normal distribution.

University of Jammu
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Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC101

Course Title: Understanding the World through Data Lens

Completing the picture through Data: Formulation of the problem statement and decision making

Activity: Data collection for:

- Demographic Information: age, interests, behaviors, social media activi- ties etc.
- Geographic Information: Population Density, Traffic Patterns, Public Trans- portation Usuage etc.
- Attributes of Physical Objects: Product Quality, Sales, Customer Feed- back etc.
- Events: Cases of Recent Epidemic (for example, COVID-19), Election Results etc.
- Actions: Player Performance Statistics

Pedagogy: The entire course is a kind of project work excepting a few lectures for introducing statistical concepts which the Mentor must introduce through Data collected from the real life situations in the city of Jammu itself. Different groups of Students be allotted different projects and be allowed to carry out the required task at their own except for general guidance/supervision.

Reference Book for self study:

- Shobha Bagai, Amber Habib and Geetha Venkataraman, *A Bridge to Math- ematics,* Sage Publications India PvtLtd., 2017.
- David Spiegelhalter (2019). The Art of Statistics Learning from Data, Penguin Books Australia.
- Scott E. Page (2018). The model thinker: what you need to know to make data work for you, Basic Books.
- Derek Rowntree (2018). Statistics without tears An Introduction for Non-Mathematician, Penguin.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC101

Course Title: Understanding the World through Data Lens

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be assessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC102 | **Course Title: Mathematics without Phobia**
Credits: 04 | **Maximum Marks: 100**
Contact Hours: 15 per credit | **Internal Evaluation: 30**
External Evaluation: 70

Objectives: The course aims to construct a bridge to the subject by introducing the students to the language of Mathematics. It will help the students develop an understanding about the fundamental role of mathematics in society and develop critical thinking skill.

Course Outcomes:

- Increasing the appreciation of mathematics as an art and a human endeavor.
- Motivating the students to use mathematics by providing them basic tools.
- Evolving mathematical ability to handle real life problems

Critical Thinking and Problem Solving Skills

As we move towards a digitalized world, the societal problems are becoming more complex. Hence, there is a constant need to make decisions. This unit includes:

1. Inductive and deductive reasoning
2. Art of estimation
3. Solving a problem using Polya's Four steps: Understand the problem, Devise a plan, Use the plan to solve the problem, Look back and check the answer

Logic and Reasoning

In order to communicate effectively, make more convincing arguments and develop patterns of reasoning for decision making. Logic is used in the programming of modern devices such as cell phones and digital cameras. This unit shall discuss

1. Syllogistic arguments using Venn Diagrams
2. Understand Logical statement with the help of switching circuits

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Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC102 **Course Title: Mathematics without Phobia**

Mathematics behind Scheduling and Path finding

In order to solve the problems of scheduling, this unit will help in understanding and solving the

1. Street Routing problems
2. Travelling salesman Problems
3. Scheduling Problems

Art of Encryption

Humans are now using online payment modes. The messages are being sent through electronic platform. In order to maintain privacy and security, the devices use encryption modes based on Mathematics. This unit will familiarize the students to

1. Different enumeration methods (number system in bases other than 10)
2. Modular Arithmetic
3. Prime numbers
4. Application of prime numbers in the RSA procedure

References:

i. Angel, A.R., Abbott, C.D. and Runde, C.D., A Survey of Mathematics with Applications, Pearson, 11th Ed, 2021.

ii. Blitzer, R., Thinking Mathematically, Pearson, 8th Ed, 2022.

iii. Bagai, S., Habib, A. and Venkataraman, G., A Bridge to Mathematics, Sage Publications India Pvt Ltd., 2017.

iv. Tannenbaum, P., Excursions in Modern mathematics, Pearson, 10th Ed, 2021.

v. Michael D. Smith, Understanding Mathematics in the Digital Age, Winchelsea Press, 2018.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC102 **Course Title: Mathematics without Phobia**

Pedagogy: The entire course is a kind of project work excepting a few lectures for introducing mathematical concepts which the Mentor must introduce through the real life situations in the city of Jammu itself. Different groups of Students be allotted different projects and be allowed to carry out the required task at their own except for general guidance/supervision.

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be assessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

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Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC103
Credits: 04
Contact Hours: 15 per credit

Course Title: IT in Everyday Life
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Objectives

1. To provide an understanding of the role and impact of information technology (IT) in everyday life
2. To familiarize students with commonly used IT tools and applications
3. To develop essential digital literacy skills for effective use of IT in personal and professional contexts
4. To enhance critical thinking and problem-solving abilities through practical IT exercises

Information Technology and the Communication Revolution

Overview of information technology. Communication prerequisites: Devices and services, Computers, Laptops, Smart phones, smart gadgets, internet, mobile and web applications. Communication channels: email, video conferencing tools, i.e., Zoom, Google Meet, Microsoft Teams, etc., social media platforms, i.e., Facebook, Twitter, LinkedIn etc., their responsible use for personal and professional networking, and their impact on society.

Activity:

a. Students may create accounts on different social media to create personal and professional
networks.

b. Students may appreciate the impact of these social media technologies in their overall growth. They may try to build up their professional network using these applications.

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Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC103 **Course Title: IT in Everyday Life**

c. Students may identify the risks and safety measures to be followed while using social media application.

Resources:

"What is Information Technology?" by Simplilearn: https://www.youtube.com/watch?v=-FIWXeURBKs

"Introduction to Information Systems" by study.com https://www.youtube.com/watch?v=VDQsT6XdQyQ

"Social Media 101: Understanding the Basics" https://www.youtube.com/watch?v=3SuNx0UrnEo

"The Dark Side of Social Media" by Kurzgesaghttps://www.youtube.com/watch?v=d5GECUAdX_k

IT in smart banking and E-commerce:

Online/ net banking, mobile payments, UPIs, other financial transaction methods. Online shopping: e-commerce websites, i.e., GeM, Amazon, Flipkart, eBay, Myntra, etc., their working, customer and product management. Impact of smart banking and e-commerce on the lives of common people. Safety measures to following while doing online financial transactions.

Activity:

a. Students may explore different online payment methods and identify their pros and cons.

b. Students may select any e-commerce platform and analyze it's working.

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Course Code: UFDDPC103 **Course Title: IT in Everyday Life**

Resources:

1. "What is E-commerce? A Beginner's Guide" by Shopify: https://www.youtube.com/watch?v=1hLbH3ZhzJE

2. Title: "How Online Shopping Works"by Techquickie: https://www.youtube.com/watch?v=vc9rYfOYjls

3. Title: "How to Stay Safe While Shopping Online"by TechGumbo: https://www.youtube.com/watch?v=EErkUk3fWYU

IT in entertainment and productivity

Entertainment: Streaming services, i.e., Netflix, YouTube, Hotstar, Amazon Prime, Spotify, etc. Gaming services, online and console gaming platforms, i.e., Dream11, Call of Duty, Clash of Clans, etc. Productivity tools: Search engines, i.e., google, bing, yahoo, etc. Navigation, i.e., GPS, GLONASS, NAVIC, etc.

Activity:

a. Students may identify different online entertainment service providing channels and discuss with each other about their mechanism of operating.

b. Any other activity based on the above topics.

Resources:

1. https://www.netflix.com/in/

2. https://www.youtube.com/

3. https://www.amazon.in/amazonprime

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Course Code: UFDDPC103 **Course Title: IT in Everyday Life**

4. https://www.google.co.in/webhp

5. https://en.wikipedia.org/wiki/Global_Positioning_System

Other useful and productive online services

Cloud storage: Google drive, Dropbox, iCloud, Microsoft Azure, AWS, IBM Watson, etc., facilities and benefits of cloud services. Online Learning Platforms: Coursera, Edx, Datacamp, Udemy, Khan Academy, etc. pros and cons of e-learning. Smart home devices/services: smart speakers, smart lighting, fans, security cameras, home automation.

Activity:

1. Appreciate the use and benefits of different cloud services.
2. Ask students to identify various e-learning platforms and explore free important courses on them.
3. Students may create a home automation application of their choice as assignment.

Resources:

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

2. https://www.learnworlds.com/online-learning-platforms/

3. https://azure.microsoft.com/en-in/

Pedagogy: The entire course is a kind of project work excepting a few lectures for introducing the concepts which the Mentor must introduce through the real life situations in the city of Jammu itself. Different groups of Students be allotted different projects and be allowed to carry out the required task at their own except for general guidance/supervision.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC103 **Course Title: IT in Everyday Life**

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

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The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

UNIVERSITY OF JAMMU

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Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(25/March/Adp./88)

In partial modification of this office Notification No. F.Acd/II/24/2195-2204 dated 09.05.2024, it is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the amended Syllabus and Courses of Study for **Four Year Under Graduate Programme (Design Your Degree) Course Code: UFDDPC-104 titled- Expressing Creativity** for **Semester-I (as given in the annexure)** for the examinations to be held in the years as per the details given below:

Subject	**Semester**	**For the examinations to be held in the year**
FYUGP (Design Your Degree)	Semester- I	December 2025, 2026 and 2027

The Syllabi of the courses are also available on the University website: www.jammuuniversity.in

DEAN ACADEMIC AFFAIRS

No. F.Acd/II/25/ 19021 – 19030
Dated: 17 - 03 - 2025

13/3/25 13/3/25

Copy to:

1. Director/Convener, Board of Studies in Design Your Degree
2. All members of the Board of Studies.
3. C.A. to the Controller of Examinations
4. Director, Computer Centre, University of Jammu
5. Deputy Registrar/Asst. Registrar (Conf. /Exams. UG)
6. In-charge University Website for necessary action please

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Semester I[st]
(For the session 2025, 2026 and 2027)

Course Code: UFDDPC-104
Credits: 04
Contact Hours: 15 per credit

Course Title: Expressing Creativity
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Title: Expressing Creativity (4 credits)

About the Course

The human mind is an amazing machine. However, unlike machines, it has the unique ability to create. We can see this amply demonstrated throughout history and across cultures. This course will help students to find out what creativity is, how this process works and its vital role in society and the advancement of civilization. Students will learn to express themselves using a variety of artistic and creative methods. They will be exposed to a variety of methods of expression like written, verbal, singing, dancing, painting, traditional art, photography and even playing instruments. They will create their own works of art drawing from their life experiences to express themselves.

Learning Objectives

- To develop and improve creative thinking
- To understand key components/concepts and approaches to creativity
- Develop interpersonal and vocal expression skills
- Develop writing skills
- Create original works of art using original ideas, drafts, and final creations
- Engage in analysis and reflection.

Fine arts and performance arts:

Music/VisualArt/Crafting/Writing/Photography/Drama/Movement/Choreography

Activity: Students are required to choose any one genre from the above and do one activity on that particular genre.

Audio Visual skills Graph:

Photography & video documentary/podcast/ vlogs.

Activity: Students are required to choose one of the above categories and make/create a sample as an expression of their creativity.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Semester Ist
(For the session 2025, 2026 and 2027)

Course Code: UFDDPC-104
Credits: 04
Contact Hours: 15 per credit

Course Title: Expressing Creativity
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Writing Skills:

Articles/ blogs/ poetry/ script or content writing

Activity: Choosing any form or category given above, demonstrate your writing abilities.

Oral communications:

Debate/ Declamation/ storytelling/ Extempore/ Recitation

Activity: Students are required to do any one activity on any of the above given genres.

Project:

1. Transforming: Mini TEDTalk - Presentation and Review
2. Theatrical Drama: Conglomerating all types of creative skills learned.

Learning Outcomes:

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

- Understand key components/concepts and approaches to creativity
- Develop interpersonal and expression skills
- Create original works of art using original ideas, drafts, and final creations
- Combine analytical insights with creative subjects
- Collaborate with teams of people from diverse backgrounds and disciplines.

Recommended readings

Amabile, T. (2012), "Componential theory of creativity", No. 12-096, Harvard Business School. http://www.hbs.edu/faculty/Publication%20Files/12-096.pdf

Bennick, G. (2009) We Want Something More. TEDx talk "Creativity and Transformation." https://www.youtube.com/watch? v=dnchjo8J8fg

Cropley, A. (2006), "In Praise of Convergent Thinking", *Creativity Research Journal*, Vol. 18/3, pp. 391-404.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Semester I[st]
(For the session 2025, 2026 and 2027)

Course Code: UFDDPC-104
Credits: 04
Contact Hours: 15 per credit

Course Title: Expressing Creativity
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Gajda, A., M. Karwowski and R. Beghetto (2017), "Creativity and academic achievement: A meta-analysis." *Journal of Educational Psychology*, Vol. 109/2, pp. 269-299. http://dx.doi.org/10.1037/edu0000133.

Guastello, S. (2009), "Creativity and personality", in Rickards, T., M. Runco and S. Moger (eds.), *The Routledge Companion to Creativity*, Routledge/Taylor & Francis, New York. http://psycnet.apa.org/record/2009-03983-022

Guilford, J. (1950), "Creativity", *American Psychologist*, Vol. 5/9, pp. 444-454, http://dx.doi.org/10.1037/h0063487.

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

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University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC105 **Course Title: Exploring the Surroundings**
Credits: 04

Maximum Marks:100
Contact Hours: 15 per credit **Internal Evaluation: 30**
External Evaluation:70

Objectives

1. To foster a sense of curiosity and life- long learning
2. To deeply engage and explore the surroundings
3. To develop observational skills and cultivate the deep understanding of the surroundings
4. To develop effective communication skills, presentations and documentation of findings
5. To courage creativity and inter-disciplinary thinking in exploring and interpretating the surroundings
6. To promoting interconnectedness between local environment, social dynamics and human activities

Course Outcome/Preamble

The student shall be able to

1. To develop heightened sense of observation of the surroundings and interpret the problems and provide solution to it.
2. To understand the inter-connectedness between various social, economic, cultural and historical dimensions of the surroundings.
3. To identify various flora, fauna and ecological systems present in the surroundings and their roles and contributions
4. To foster a deeper understanding and appreciations of local community and its diversity
5. To apply research skills in order to investigate their surroundings

Course Content

Understanding the Cultural and historical aspects

- Exploring the historical and cultural significance of the area
- Exploring events and festivals and its impact on local community

Activity

1. Make a documentary and group Presentation on any historical landmarks, museums and cultural sites of your area with geo-tag pictures
2. Prepare a presentation on events and festivals and its impact

University of Jammu

Four Year Innovative Undergraduate Program

(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC105 **Course Title: Exploring the Surroundings**

Understanding the geography of the area

- Studying the ecosystem and their intersection
- Exploring the biodiversity and natural resources

Activity

1. Debate on issues related to Biodiversity and natural resources
2. Prepare a presentation on ecosystem and their intersection

Understanding the social fabrics

- Studying the demographic data and diversity
- Identification and analysis of social issues and dynamics within the community

Activity

1. Studying the demographic data of your area
2. Prepare a presentation/ report on identification and analysis of social issues of your area

Understanding the economic fabric

- Exploring economic fabric of the local area
- Exploring the economy and its associated issues and challenges

Activity

1. Make a group presentation on any economic issue and its challenges
2. SWOT analysis of any economic sector of country/region/area

Major Project and Reflection

Students develop a final project based on their exploration
Presentation and sharing experiences

- **Continuous Assessment**

1. **Participation in field visits and different activities**
2. **Final project report and presentation**
3. **Class engagement and contribution**

University of Jammu
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Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC105 **Course Title: Exploring the Surroundings**

References
I. Books

- "The Nature Principle: Reconnecting with Life in a Virtual Age" by Richard Louv
- "Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder" by Richard Louv
- "A Sand County Almanac" by Aldo Leopold

- "The Hidden Life of Trees: What They Feel, How They Communicate—Discoveries from a Secret World" by Peter Wohlleben
- "The Geography of Nowhere: The Rise and Decline of America's Man-Made Landscape" by James Howard Kunstler
- "Exploring Nature in Your Neighborhood: An Inspirational Guide to Discovering the Outdoors" by Jennifer Ward
- A Short History of Nearly Everything" by Bill Bryson
- "Sapiens: A Brief History of Humankind" by Yuval Noah Harari
- "The Smithsonian's History of America in 101 Objects" by Richard Kurin
- "The Meaning of Things: Applying Philosophy to Life" by A.C. Grayling
- "The Historical Atlas of New York City: A Visual Celebration of Nearly 400 Years of New York City's History" by Eric Homberger
- "A History of the World in 100 Objects" by Neil MacGregor "The Atlas of World Heritage: Mapping Earth's Cultural and Natural Treasures" by Lonely Planet "100 Landmarks of the World: A Journey to the Most Fascinating Landmarks around the Globe" by ted talks
- "A History of the World in 100 Objects" by Neil MacGregor
- "The Atlas of World Heritage: Mapping Earth's Cultural and Natural Treasures" by UNESCO (published by Lonely Planet)
- Tourism: Principles, Practices, Philosophies" by Charles R. Goeldner and J. R. Brent Ritchie
- "Cultural Tourism: The Partnership between Tourism and Cultural Heritage Management" by Bob McKercher and Hilary du Cros
- "Heritage: Critical Approaches" edited by Rodney Harrison, Helaine Silverman, and Deborah C. Vischak
- Evicted: Poverty and Profit in the American City" by Matthew Desmond
- "Bowling Alone: The Collapse and Revival of American Community" by Robert D. Putnam
- "The Spirit Level: Why Greater Equality Makes Societies Stronger" by Richard Wilkinson and Kate Pickett

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(For the Session 2023, 2024, 2025)

Course Code: UFDDPC105 **Course Title: Exploring the Surroundings**

- "The New Urban Crisis: How Our Cities Are Increasing Inequality, Deepening Segregation, and Failing the Middle Class—and What We Can Do About It" by Richard Florida
- "The Death and Life of Great American Cities" by Jane Jacobs

II. Ted Talks

- The Power of Vulnerability" by Brené Brown
- "The Danger of a Single Story" by Chimamanda Ngozi Adichie
- "The Hidden Influence of Social Networks" by Nicholas Christakis
- "How We Can Face the Future Without Fear, Together" by Rabbi Lord Jonathan Sacks
- "The Surprising Habits of Original Thinkers" by Adam Grant

III. Websites and Online Resources:

- National Geographic Education: https://www.nationalgeographic.org/education/
- Project Learning Tree: https://www.plt.org/
- National Park Service: https://www.nps.gov/
- Audubon Society: https://www.audubon.org/
- iNaturalist: https://www.inaturalist.org/
- Online Courses and MOOCs:
- Coursera (https://www.coursera.org)
- edX (https://www.edx.org)
- Khan Academy (https://www.khanacademy.org)

IV. Documentaries:

- "Civilizations" - A nine-part documentary series that explores the history of art, culture, and civilization across different regions and time periods.
- "Secrets of the Smithsonian" - A series that uncovers the fascinating stories behind the artifacts and exhibitions in the Smithsonian museums.
- "The Story of India" - A documentary series presented by historian Michael Wood, which delves into the rich history and cultural heritage of India.
- "World Heritage: The Panama Route" - A documentary that explores the historical significance of the Panama Canal and its impact on global trade and culture.

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(For the Session 2023, 2024, 2025)

Course Code: UFDDPC105 **Course Title: Exploring the Surroundings**

- "Carnival!" - A documentary that takes you behind the scenes of various carnival celebrations around the world, showcasing the vibrant cultures and traditions associated with these events.
- The Power of Vulnerability" by Brené Brown
- "The Danger of a Single Story" by Chimamanda Ngozi Adichie
- "The Hidden Influence of Social Networks" by Nicholas Christakis
- "How We Can Face the Future Without Fear, Together" by Rabbi Lord Jonathan Sacks
- "The Surprising Habits of Original Thinkers" by Adam Grant
- "Man on Wire" - This documentary tells the story of Philippe Petit, a high-wire artist who walked between the Twin Towers of the World Trade Center in 1974, exploring themes of determination, fear, and personal growth.
- "Jiro Dreams of Sushi" - This documentary delves into the life and work of Jiro Ono, an 85-year-old sushi master in Japan, who embodies dedication, perfectionism, and continuous personal growth in his pursuit of culinary excellence.

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be assessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC106
Credits: 02
Contact Hours: 15 per credit

Course Title: Life Skills
Maximum Marks: 50
Internal Evaluation: 20
External Evaluation: 30

Course Objectives:

1. To provide knowledge about new skills and an opportunity to apply these skills.

2. To help learners shape their attitudes and beliefs in a positive manner by making productive life choices, managing their well-being, and achieving personal success.

Course Outcomes:

By the end of the course, students will be able to:

1. Develop an understanding of themselves, including their emotions, thoughts, and behavior.
2. Establish healthy relationships skillfully with others through assertiveness and conflict resolution.
3. Exhibit effective decision making by using creative thinking and effective execution skills.

Self Awareness

1. Stress Management
2. Emotions & Feelings
3. Positive Thinking
4. Self Esteem

Activities and Assessment:

Conduct activities and role plays to provide hands-on learning experiences for stress management, emotional awareness, positive thinking, and enhancing self-esteem.

University of Jammu

Four Year Innovative Undergraduate Program

(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC106 **Course Title: Life Skills**

Resources:

How to Manage Stress: https://www.youtube.com/watch?v=HB1snh5ArVw by HealthyPlace.
The Power of Positive Thinking: https://www.youtube.com/watch?v=pPrEHa5K4AI by Brian Tracy
How to Build Self-Esteem: https://www.youtube.co[1]m/watch?v=MbF5dyU96CE by The School of Life
The Basic Emotions: What They Are and How They Work: https://www.youtube.com/watch?v=y0Ko3aWihGQ
by Simply Psychology

Interpersonal Skills

1. Empathy
2. Listening Skills
3. Interpersonal Effectiveness
4. Handling Disputes
5. Managing Relationships
6. Confident Communication

Activities and Assessment:

1. Engage in activities, role plays, and discussions to develop and enhance empathy, active listening skills, interpersonal effectiveness, conflict resolution, relationship management, and confident communication.

Resources:

Empathetic Listening Skills: https://www.youtube.com/watch?v=lO1gpzakbik by Charisma On Command
How to Listen Actively: https://www.youtube.com/watch?v=SnCJIjQxbeY by Emerald Works
How to Handle Conflict Effectively:https://www.youtube.com/watch?v=jyFYcQkduco by Charisma on Command

University of Jammu
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(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC106 **Course Title: Life Skills**

How to Communicate with Confidence:https://www.youtube.com/watch?v=EBU8biGIbZU by Fast Track Your Career

Thinking Skills

1. Goal Setting (Setting SMART goals)
2. Decision Making
3. Problem Solving
4. Critical and Creative Thinking
5. Executive Functioning Skills
6. Resilience

Activities and Assessment:

1. Participate in activities, exercises, and discussions to develop and enhance goal-setting skills, decision-making abilities, problem-solving techniques, critical and creative thinking, executive functioning skills, and resilience.

Resources:

How to Set SMART Goals | Goal Setting for Students by Achieve Your Goals :https://www.youtube.com/watch?v=i0QfCZjASX8
Decision Making and Problem Solving:https://www.youtube.com/watch?v=vUSqnzieiY4 by Smarter Every Day
The 7 Steps of Problem Solving: https://www.youtube.com/watch?v=iQtnggDMfqE by Business Infographics
How to Make Better Decisions:https://www.youtube.com/watch?v=VPkj7BJ-noc by TED-Ed
Critical Thinking vs. Creative Thinking: https://www.youtube.com/watch?v=MDdK4diviSA by Chandler Bolt
How to Improve Your Critical Thinking Skills: https://www.youtube.com/watch?v=I50YRzeMzZwby Khan Academy
How to Build Resilience: 5 Practices That Work:https://www.youtube.com/watch?v=36terqkUD_c by Verywell Mind

University of Jammu
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(For the Session 2023, 2024, 2025)

Course Code: UFDDPC106 **Course Title: Life Skills**

Executive Function Skills are the Roots of Success | Stephanie Carlson | TEDxMinneapolis: https://www.youtube.com/watch?v=BvyTiC_byOo

Project:

Engage in a group project focused on addressing a real-life problem faced by people in a specific area or locality. The project will involve the following steps:

1. Identify a problem of relevance.
2. Build a perspective on the identified problem through research and analysis.
3. Discuss possible solutions and their implications.

Resources:

1. "Emotional Intelligence: Why It Can Matter More Than IQ" by Daniel Goleman
2. "The Power of Positive Thinking" by Norman Vincent Peale
3. "Mindset: The New Psychology of Success" by Carol S. Dweck
4. "Crucial Conversations: Tools for Talking When Stakes Are High" by Kerry Patterson, Joseph Grenny, Ron McMillan, and Al Switzler
5. "Decision Making for Dummies" by Dawna Jones
6. "Creative Confidence: Unleashing the Creative Potential Within Us All" by Tom Kelley and David Kelley
7. "The 7 Habits of Highly Effective People" by Stephen R. Covey
8. "Grit: The Power of Passion and Perseverance"

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 1st

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC106 **Course Title: Life Skills**

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 20 marks of the total of 50 shall be on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 30 shall be assessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE' UNIVERSITY)
(Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(24/May Adp./ 15)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the Syllabus and Courses of Studies for Four Year Under Graduate Programme (Design Your Degree) of Semester IInd (as given in the annexure) for the examinations to be held in the years as per the details given below:

Programme	Semester	For the examinations to be held in the year
FYUGP (Design Your Degree)	Semester-II	May 2024, 2025 and 2026

The Syllabi of the courses are also available on the University website: www.jammuuniversity.ac.in.

Sd/-
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/24/ 2205-2215
Dated: 09-05-2024

Copy for information and necessary action to:

1. Director/Convener, Board of Studies in Design your Degree
2. Sr. P.A.to the Controller of Examinations
3. All members of the Board of Studies
4. Confidential Assistant to the Controller of Examinations
5. Director, Computer Centre, University of Jammu
6. Deputy Registrar/Asstt. Registrar (Conf. /Exams. UG)
7. Incharge University Website for necessary action please

Deputy Registrar (Academic)
9/5/2024

9/5/24 9/5/24 9/5/24

University of Jammu
Four Year Innovative Undergraduate Program

(Design Your Degree)

Semester 2nd

Course Code	Course Title	Credits	Contact Hours (per Credit)
UFDDPC201	Coding Through GPT-4	04	15
UFDDPC202	World of Startups through Real Life Studies	04	15
UFDDPC203	Decoding the world through AI	04	15
UFDDPC204	Discovering the Self	04	15
UFDDPC205	Art and Aesthetics of Designing	04	15
UFDDPC206	Responsible Citizenship through Experimentation	02	15
UFDDPA207	A language to Understand the Nature	04	15
UFDDPA208	Understanding the World through Data Lens - II	04	15

Prof. Alka Sharma
Director, SIIEDC

6/C

UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A ++ GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

CORRIGENDUM

Please Read: -

Course no. **UFDDPC209 titled - Problem Solving through Generative AI**

Instead of

Course no. **UFDDPC201 titled - Coding through GPT-4 Semester - II**

As mentioned in the syllabi and course of study for Four Year Under Graduate Programme **(Design Your Degree)** of Semester-II notified vide notification No. F. Acd/II/25/19031-19040 dated 17.03.2025 **(as given in annexure).**

29/7/2025
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/25/4887-4916
Dated: 30/7/2025

Copy for information and necessary action to:

1. Director/Convener Board of Studies in Design Your Degree.
2. All members of the Board of Studies.
3. Sr. P.A. to the Controller of Examinations
4. Director, Centre for IT Enabled services and Management, University of Jammu for information and for uploading on University Website.
5. All members of the Board of Studies
6. I/C Director, Computer Centre, University of Jammu for necessary action please
7. Deputy Registrar/ Asst. Registrar (Confidential/ Exam. UG)

UNIVERSITY OF JAMMU

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Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(25/March/Adp./89)

In partial modification of this office Notification No. F.Acd.II/24/2205-2215 dated 09.05.2024, it is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the amended Syllabus and Courses of Study for **Four Year Under Graduate Programme (Design Your Degree)** Course Code: UFDDPC-201 titled- Problem Solving through Generative AI **Instead of** Coding through GPT-4 for **Semester-II (as given in the annexure)** for the examinations to be held in the years as per the details given below:

Subject	Semester	For the examinations to be held in the year
FYUGP (Design Your Degree)	Semester- II	May 2024, 2025 and 2026

The Syllabi of the courses are also available on the University website: www.jammuuniversity.in

DEAN ACADEMIC AFFAIRS

13/3/25 13/3/25

No. F.Acd/II/25/ 19031-19040
Dated: 17-3-2025

Copy to:

1. Director/Convener, Board of Studies in Design Your Degree
2. All members of the Board of Studies.
3. C.A. to the Controller of Examinations
4. Director, Computer Centre, University of Jammu
5. Deputy Registrar/Asst. Registrar (Conf. /Exams. UG)
6. In-charge University Website for necessary action please

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 2nd

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC-209

Course Title: Problem Solving through Generative AI

Credits: 04

Maximum Marks: 100

Contact Hours: 15 per credit

Internal Evaluation: 30

External Evaluation: 70

Course Objectives

1. To introduce students to coding using GPT-4, a state-of-the-art language model.
2. To familiarize students with the principles and techniques of natural language processing and machine learning.
3. To provide hands-on experience in developing applications using GPT-4 and related tools.
4. To enable students to understand the ethical considerations and limitations of AI-powered coding.

Introduction to GPT-4 in Coding

Overview of GPT-4, its capabilities, and applications in coding, Prompt Engineering, Art of interacting with Generative AI models.

Activity:

a. Conduct a virtual workshop or presentation on GPT-4 using ChatGPT to simulate a live session.
b. Organize a coding competition where participants use ChatGPT to solve coding challenges.
c. Host a panel discussion with AI experts, employing ChatGPT for Q&A sessions and discussions.

Resources:

Use ChatGPT to generate summary scripts for relevant YouTube resources on GPT-4 features and applications.

Practical Applications of ChatGPT

Exploring diverse applications - Excel, content writing, image generation, etc.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 2nd

(For the Session 2023, 2024, 2025)

Course Code: UFDDPC-209

Course Title: Problem Solving through Generative AI

Credits: 04

Maximum Marks: 100

Contact Hours: 15 per credit

Internal Evaluation: 30

External Evaluation: 70

Activity:

a. **Excel Automation Workshop:** Use ChatGPT to guide participants in automating Excel tasks, such as data analysis, formula generation, and report creation.
b. **Content Writing Script:** Engage participants in a content writing script activity where they utilize ChatGPT to generate creative content, blog posts, or articles.
c. **Image Generation Experiment:** Explore image generation using ChatGPT. Participants can experiment with generating images or creative designs through textual prompts.

Resources:

Utilize ChatGPT to generate step-by-step guides and scripts for Excel automation, content writing, and image generation.

GPT-4 Architecture

Understanding the architecture and working of GPT-4.

Activity:

a. Conduct a technical presentation on GPT-4's architecture using ChatGPT to generate slides and visuals.
b. Organize a group project with ChatGPT-generated code snippets to implement a simplified version of GPT-4 architecture.
c. Facilitate a discussion on the limitations of GPT-4's architecture, using ChatGPT to explore potential improvements.

Resources:

Employ ChatGPT to create summary notes for technical videos explaining GPT-4 architecture.

University of Jammu

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(Design Your Degree)

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Credits: 04

Maximum Marks: 100

Contact Hours: 15 per credit

Internal Evaluation: 30

External Evaluation: 70

Creative Content Generation

Generating diverse content types using ChatGPT - scripts, essays, letters, etc.

Activity:

- **Script Writing Challenge:** Participants use ChatGPT to write scripts for various scenarios, such as a dialogue between fictional characters or a short film script.
- **Essay Writing Session:** Engage in an essay writing session where participants utilize ChatGPT for generating content on specific topics.
- **Letter Writing Exercise:** Participants use ChatGPT to craft formal and informal letters for different purposes.

Resources:

Utilize ChatGPT to generate sample scripts, essay prompts, and letter templates for participants.

AI Ethics, Integration, and Future Trends

Leveraging GPT-4 for intelligent code completion and error correction.

Activity:

a. Conduct a demonstration session using ChatGPT to showcase GPT-4 in code completion and auto correction.
b. Organize a coding challenge where participants use ChatGPT to complete and correct code snippets.
c. Facilitate a discussion on the implications of relying on intelligent code completion and autocorrect tools, using ChatGPT to generate discussion points.

Resources:

University of Jammu
Four Year Innovative Undergraduate Program
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(For the Session 2023, 2024, 2025)

Course Code: UFDDPC-209

Course Title: Problem Solving through Generative AI

Credits: 04

Maximum Marks: 100

Contact Hours: 15 per credit

Internal Evaluation: 30

External Evaluation: 70

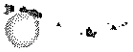
Utilize ChatGPT to generate summaries for videos on AI Code Completion with GPT-4.

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be assessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.



University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 2nd
(For the Session 2024, 2025, 2026)

Course Code: UFDDPC202

Course Title: World of Startups through Real Life Studies

Credits: 04
Contact Hours: 15 per credit

Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Objectives

The objective of this course is to provide a comprehensive understanding of entrepreneurship and startups and also equip the students with the skills and knowledge needed to start and manage a successful business. The course balances theoretical concepts with practical applications to prepare students for the challenges and opportunities of entrepreneurship. At the end of the course the students will

- To inspire the learner to explore avenue for new venture creation or a startup
- To realize the challenges faced by entrepreneurs and how they overcome them to become successful
- Learn techniques for generating and evaluating innovative business ideas.
- Gain an understanding of legal and regulatory aspects related to starting a business.
- Learn about business structures, intellectual property, and compliance requirements.
- Explore different funding options for startups and understand how to pitch to investors and create a compelling business case.

Understanding the Startup Ecosystem

The Mindset of an Entrepreneur: Understand how an entrepreneur thinks, identifies opportunities, translate them into business value propositions, faces challenges, beats competition and creates a successful enterprise.

The Startup Ecosystem: Discuss the various elements that make up a startup ecosystem, including entrepreneurs, investors, support systems like incubators and accelerators, government policies, universities, and more.

Activity

- Each student will identify and meet a local successful entrepreneur and conduct an interview to understand how the entrepreneur has been able to successful build the enterprise. On the basis of the interview, discussion each student will write a short case study.
- Students in groups will identify various global, national and regional level institutions that provide support to entrepreneurs and promote entrepreneurship.

Resources

- Listen to the "Startup as a Career Option" TedTalk by Prof Dinesh Singh https://www.youtube.com/watch?v=5JfbT5mMFMI
- The Secret of How to Think Like an Entrepreneur | Amy Wilkinson | TEDxPaloAltoSalon https://www.youtube.com/watch?v=WAMwyAm0ySw

University of Jammu
Four Year Innovative Undergraduate Program
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Semester: 2nd
(For the Session 2024, 2025, 2026)

Course Code: UFDDPC202 **Course Title:** World of Startups through Real Life Studies

Generating Business Idea

Design Thinking Approach: Discuss the concept of design thinking and how this approach can be used to generate commercially viable ideas.

Idea Validation: Explain how to assess whether a business idea is viable. This could include strategies for conducting market research, creating a minimum viable product, and getting feedback from potential customers.

Business Models: Discuss different types of business models that startups can adopt and how they can be utilized for different sectors or industries.

Activity

- Students in groups will major trends / challenges / problems that are emerging in the society. Based on this, they will explore what are the existing products or service solutions available in the market to deal with such challenges? Are the customers / people in the society satisfied with them? Students are expected to use design thinking approach to propose possible innovative and creative solutions.

Resources

- Listen to the Creative thinking - how to get out of the box and generate ideas: Giovanni Corazza https://www.youtube.com/watch?v=bEusrD8g-dM
- Listen Clayton Christensen discussing Disruptive innovation https://www.youtube.com/watch?v=rpkoCZ4vBSI
- Listen to TedTalk on Speed up Innovation with Design Thinking | Guido Stompff https://www.youtube.com/watch?v=ZBxZC9I6xyk

Developing Business Plan

Business Plan: Discuss the relevance and importance of a comprehensive business plan. Also guide the students on the various components of a business plan. Contrast the business plan with detailed project report (DPR)

Pitch Deck: Understand the concept of pitching in entrepreneurship. Explain how students can develop interesting and effective pitch decks.

Entrepreneurial Finance: Discuss the concept of equity, debt, bootstrapping, valuation, stock markets

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 2nd
(For the Session 2024, 2025, 2026)

Course Code: UFDDPC202 **Course Title**: World of Startups through Real Life Studies

Activity

- Based on the major trends / challenges / problems that have been identified by the students and proposed solution, they will develop a business plan around the idea. Further they will be making a pitch deck in front of entrepreneurs and representative of financial institution.

Resources

- Watch various episodes of Shark Tank India / Global and understand how start ups present their idea
- Read various scheme documents of banks, financial institutions and other government agencies that support or provide

Entrepreneurship and Society

Social Entrepreneurship: Discuss using case studies how entrepreneurship can solve social problems in the world. Elaborate on the concept of social entrepreneurship and its relevance in the emerging economies

Activity

- Each student will identify any one social enterprise and make a detailed report / presentation of the role of the selected enterprise in solving a social problem.

Resources

https://www.schwabfound.org/
https://www.ikeasocialentrepreneurship.org/
https://www.ashoka.org/en-in/focus/social-entrepreneurship

Pedagogy

The entire course is a kind of project work excepting a few lectures for introducing the concept of entrepreneurship which the Mentor must introduce through the real life case studies. Different groups of students be allotted different projects and be allowed to carry out the required task at their own except for general guidance/supervision.
Regular/periodic meetings and interaction with local/regional/national level entrepreneur shall be organized.

University of Jammu
Four Year Innovative Undergraduate Program
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Semester: 2nd
(For the Session 2024, 2025, 2026)

Course Code: UFDDPC202 **Course Title:** World of Startups through Real Life Studies

Reference Books / Resources

Text Books

1. Entrepreneurship: Successfully Launching New Ventures, 6/eby Bruce R. Barringer Pearson Education [ISBN- 9789353066499]
2. Entrepreneurship Development and Small Business Enterprises by Poornima M Charantimath, Pearson Education [ISBN- 9789353066260]
3. Entrepreneurial Thinking: Mindset in Action by Suzanne Mawson, Lucrezia Casulli; Sage
4. Global Entrepreneurship & Innovation by Sarika Pruthi, Jay Mitra; Sage
5. Design Thinking for Student Projects by Tony Morgan, Lena J. Jaspersen; Sage
6. Exploring Entrepreneurship by Richard Blundel, Nigel Lockett, Catherine Wang, Suzanne Mawson; Sage

International

1. The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses, Eric Ries
2. "The $100 Startup" by Chris Guillebeau
3. The Founder's Dilemmas: Anticipating and Avoiding the Pitfalls That Can Sink a Startup by Noam Wasserman
4. Dear Female Founder: 66 Letters of Advice from Women Entrepreneurs Who Have Made $1 Billion in Revenue by Lu Li
5. Zero to One: Notes on Startups, or How to Build the Future , Peter Thiel and Blake Masters
6. The Innovator's Dilemma by Clayton Christensen
7. Start with Why: How Great Leaders Inspire Everyone to Take Action is a book by Simon Sinek
8. Hooked: How to Build Habit-Forming Products, Nir Eyal

University of Jammu
Four Year Innovative Undergraduate Program
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Semester: 2nd
(For the Session 2024, 2025, 2026)

Course Code: UFDDPC202 **Course Title:** World of Startups through Real Life Studies

National

1. Dream with Your Eyes Open: An Entrepreneurial Journey, Ronnie Screwvala, Rupa Publications
2. The Golden Tap: The Inside Story of Hyper-Funded Indian Startups, by Kashyap Deorah
3. Stay Hungry, Stay Foolish, Rashmi Bansal
4. Arise Awake: The Inspiring Stories Of 10 Young Entrepreneurs Who Graduated From College Into A Business Of Their Own, Rashmi Bansal, Bushfire Publishers
5. Doglapan: The Hard Truth about Life and Start-Ups, Ashneer Grover
6. Big Billion Startup: The Untold Flipkart Story Mihir Dalal.
7. Dolphin and the Shark, The Lessons in: Stories on Entrepreneurship. by Namita Thapar
8. The Unusual Billionaires, Saurabh Mukherjea, Penguin Random House India

Magazines

- Entrepreneur India, Business India, Business Today, Outlook Business

Movies / Documentaries

Any of the below mentioned movies can be screened in the classroom and the students can be advised to discuss the key learning in the classroom

1. The Social Network
2. Steve Jobs
3. The Founder
4. The Startup Kids
5. The Pursuit of Happyness
6. Startup.com
7. WeWork: or The Making and Breaking of a $47 Billion Unicorn
8. Generation Startup
9. Becoming Warren Buffet
10. Indian Startup Stories [Amazon Prime]

University of Jammu
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(For the Session 2024, 2025, 2026)

Course Code: UFDDPC202 **Course Title:** World of Startups through Real Life Studies

YouTube Channels on Startups / Entrepreneurship

Any of the below mentioned movies can be screened in the classroom and the students can be advised to discuss the key learning in the classroom

- Your Story
- Shark Tank India / Global
- Y Combinator
- Raj Shamami
- Harvard Innovation Labs

Mode of Evaluation

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be assessed through a trans-disciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 2nd

(For the Session 2024, 2025, 2026)

Course Code: UFDDPC203
Credits: 04
Contact Hours: 15 per credit

Course Title: Decoding the world through AI
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Objectives

- To provide an in-depth understanding of the concepts and applications of artificial intelligence (AI)
- To explore various AI techniques and algorithms
- To analyze the ethical and societal implications of AI
- To develop critical thinking and problem-solving skills in the context of AI

Foundations of AI

Introduction to Intelligence; Benchmarking of Intelligence; History and Significance of AI; Real world applications of AI; Goals, Challenges, and Applications of AI

Activity:

a. Conduct a presentation on the basics of AI.
b. Organize a group discussion on AI goals and applications.
c. Facilitate a panel discussion on the ethical considerations in AI.

Resources:

Crash Course, Simplilearn, edureka!, Intellipaat, CodeEmporium videos.

Machine Learning Fundamentals

Understanding Supervised, Unsupervised, and Reinforcement Learning, Introduction to Common ML Algorithms

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 2nd

(For the Session 2024, 2025, 2026)

Course Code: UFDDPC203
Credits: 04
Contact Hours: 15 per credit

Course Title: Decoding the world through AI
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Activity:

a. Workshop on ML fundamentals with hands-on activities.
b. Group discussion on practical ML applications.
c. Q&A session on strengths and limitations of ML algorithms.

Resources:

Andrew Ng, Simplilearn, Stat Quest, Microsoft Azure, Google Cloud videos.

Deep Learning and Neural Networks

Overview of Neural Networks and Deep Learning, Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs), Practical Applications in Computer Vision, NLP, and Speech Recognition

Activity:

a. Workshop on basics of deep learning with hands-on experience.
b. Hands-on activity with deep learning frameworks and tools.
c. Panel session on real-world applications of deep learning.

Resources:

- StatQuest, sentdex, 3Blue1Brown, Google Developers videos.

Tools and Technologies used in AI

Basics of programming languages for AI (Python, R), Introduction to libraries and frameworks (TensorFlow, PyTorch)
Data Preprocessing and Feature Engineering: Importance of quality data in AI, Data preprocessing techniques, Feature engineering and selection.
Model Training and Evaluation: Training and evaluating machine learning models, Hyperparameter tuning, Model performance metrics, Introduction to MATLAB.

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Course Code: UFDDPC203
Credits: 04
Contact Hours: 15 per credit

Course Title: Decoding the world through AI
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Activity:

a. Workshop on basics of AI Tools and Technologies.
b. Group activity Training and evaluating machine learning models.
c. Panel session on challenges and potential of AI Tools & Technologies.

Resources:

- Stanford University, DeepMind, Sentdex, Code Bullet, CrashCourse AI videos.

AI Ethics, Integration, and Future Trends

Analyzing Ethical Considerations in AI, Integration of AI and Robotics, **Future Trends in AI:** Explainable AI, Generative AI, AI for Social Good

Activity:

a. Lecture on AI ethics and responsible AI.
b. Workshop on AI and Robotics integration.
c. Panel discussion on the future trends and challenges in AI.

Resources:

- The Royal Society, Stanford HAI, Intel, Boston Dynamics, Various TED Talks

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Course Code: UFDDPC203
Credits: 04
Contact Hours: 15 per credit

Course Title: Decoding the world through AI
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be assessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

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Semester: II
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Course Code: UFDDPC204 | **Course Title: Discovering the Self**
Credits: 04 | **MaximumMarks: 100**
Contact Hours: 15 per credit | **Internal Evaluation: 30**
External Evaluation:70

Course Objectives:

This learning programme is designed to enable the students to delve within their inner self to discover the drumbeat of their soul. The meaning of the phrase 'drumbeat of the soul' is best exemplified by illustrative examples of the lives of notable individuals. The intention of this learning programme is to use the lives and examples of such individuals to help the students to grasp the concept of 'drumbeat of the soul.' Once that concept is somewhat understood to a reasonable extent, then the students are expected to examine their own existence and seek indicators that shall point towards what may appear to be the drumbeat of their soul. It is not the intention of this learning programme to get the students to discover their drumbeat; rather the programme is designed to enable the student to realise the following:

1. What are the drumbeats of the souls of some notable individuals?
2. What were methods and tools that helped each one of these individuals to realise their individual drumbeats?
3. Encourage the student to take advantage of the paths these individuals followed and the methods they employed to realise their individual drumbeats to help the students to understand theirown drumbeat.
4. The student must learn from the lives of the individuals in the list of illustrative examples that this is not a simple or easy task nor is it one that happens in a flash. Rather, this is a lifelong quest.

Learning Outcomes:

It shall be repeatedly emphasized to the learner-by the mentor-that there is no single unique or standard path to achieve this understanding of the student's drumbeat. Different students may quite likely attempt to find their individual paths and are likely to use methods that are special or peculiar to their own quests on this journey. However, it shall be expected that the students shall realize from a study of the notable and illustrative examples that there are some features common to the list of examples. These common features shall include but not be limited to the following:

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A. An enormous appetite for hard work.

B. Adherence to discipline and balance in their daily lives.

C. Eagerness to learn and engage with the real world.

D. Abundant curiosity.

E. Ability to persist.

F. Display of fortitude, determination and even courage.

G. Ability to be good communicators.

Pedagogy:

The pedagogy for this learning program shall be in complete harmony with the pedagogy as prescribed for the entire Design Your Degree program. Hence, the students shall be learning significantly in a project mode. This shall involve forming groups of students. Each group shall take up a study of one or two notable individuals. Different groups shall study different individuals. The first questshall be to try and become familiar with the main aspects of their lives. They shall try and ask questions- within their groups-as to what made these individuals such determined and disciplined personalities. Discussions, readings and research must focus on identifying the drumbeats of each one of the notable individuals. The thrust or focus shall be on trying to figure out how and what enabled these individuals to discover the drumbeats of the souls.
The following is a list of some notable individuals:

1. Michael Faraday
2. Abraham Lincoln
3. Srinivasa Ramanujan
4. C. V. Raman
5. Mohammed Ali
6. Sachin Tendulkar
7. Isaac Newton

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8. Milkha Singh
9. Mahatma Gandhi
10. Arthur Ashe
11. Usain Bolt
12. Pele
13. Major Dhyan Chand
14. Louis Pasteur
15. Albert Einstein

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/presentations/class participation/small live projects emphasizing on development of skills in application, effective communication, and teamwork. The remaining 70% of the grade shall be assessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

The projects will involve, but not be limited to, discussing the lives and achievements of notable individuals within their respective groups. Additionally, students will be encouraged to identify other individuals who possess similar qualities, no matter how modest they may be. Subsequently, students will engage in frank and modest discussions about their own qualities and characteristics in the context of both the notable individuals and those identified through personal experiences. The aim is to prompt each student to, in a sense, be on the lookout for external stimuli from the world around them that can awaken or stir their own inner "drumbeat." For instance, consider two groups, Group X and Group Y, each comprising 6 or 7 students. Group X may be assigned Mahatma Gandhi, while Group Y is assigned Muhammad Ali. Students in Group X will be expected to conduct research and engage in internal discussions to explore Gandhi's "drumbeat," his journey of discovery, and how he adhered to it. Similarly, Group Y will undertake the same exploration for Muhammad Ali.

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It is anticipated that during inter-group discussions, students will observe that Ali and Gandhi were very unlike each other. Ali engaged in a sport that involved physically harming his opponents, whereas Gandhi advocated love for one's opponents. However, students will also be expected to uncover several common features between them. For example, Gandhi became an adherent of truth after witnessing the play "Satyavadi Raja Harishchandra," while Ali took up boxing after watching boxers on a TV show. Additionally, despite their differences, students are also expected to discover striking commonalities between Ali and Gandhi. For instance, Ali displayed great courage as a boxer, while Gandhi displayed great courage in his personal life when he assisted victims of the plague in South Africa.

The project will progress along these lines, and eventually, students will also search for similar stories and individuals in their own personal lives or through personal discovery. The mentor must skillfully guide the students to ask themselves questions about whether there are any external stimuli, like those experienced by Ali and Gandhi, that have stirred something within them. This will make them aware of the possibility of dormant "drumbeats" within themselves.

Suggested Readings:

Arsenault, Raymond. *Arthur Ashe: A Life*. Simon & Schuster, 2018.

Basu, Tejan Kumar. *A Complete Biography of C.V. Raman*. Prabhat Prakashan, 2021.

Blomfield, Vishvapani. *Gautama Buddha: The Life and Teachings of the Awakened One*. Quercus, 2012.

Bolt, Usain. *Faster than Lightning: My Story*. Harpercollins, 2015.

Calaprice, Alice, and Trevor Lipscombe. *Albert Einstein: A Biography*. Jaico Publishing House, 2012.

Casey, Peter. *The Story of Tata: 1868 to 2021*. Penguin Books, 2021.

Chand, Dyan. *Goal: An Autobiography*. The Hindu Group. 2018.

Charnwood, Lord. *A Complete Biography of Abraham Lincoln*. Vayu Education of India, 2019.

Crawley, Sara, Lara Foley, and Constance Shehan. "Creating a World of Dichotomy: Categorizing Sex and Gendering Cultural Messages." *Race, Gender, Sexuality, and Social Class*, Edited by Susan J Ferguson, Sage Publications Inc., 2015, pp. 31-43.

Desai, Mahadev Haribhai. *Mahatma Gandhi: An Autobiography: The Story of My Experiments WithTruth*. Fingerprint Publishing, 2009.

Fischer, Louis. *The Life of Mahatma Gandhi*. Harpercollins, 2006.

Gandhi , Mahatma. *The Story of My Experiments with Truth*. Fingerprint, 2009.

Gandhi, A. K. *Ratan Tata: A Complete Biography*. PrabhatPrakashan, 2021.

Gandhi, Mohandas Karamchand. *Hind Swaraj or Indian Home Rule*. Pilgrims Publishing, 2013.

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Hauser, Thomas. *Muhammad Ali: His Life and Times*. Simon & Schuster, 1992.

Hirshfeld, Alan. *The Electric Life of Michael Faraday*. Walker Books, 2006.

History, Hourley. *Michael Faraday: A Life from Beginning to End*. Createspace Independent PublishingPlatform, 2017.

---. *Issac Newton: A Life from Beginning to End*. Independently Published, 2017.

Jablonski, Carla. *The Story of Abraham Lincoln: A Biography Book for New Readers*. Rockridge Press,2020.

Kalam, A. P. J. Abdul. *Ignited Minds: Unleashing the Power Within India*. Penguin Books India, 2002.

Kalam, A. P. J. Abdul, and Arun Tiwari. *Wings of Fire: An Autobiography*. Universities Press, 2022.

Keim, Albert. *Louis Pasteur: A Biography*. CreateSpace Independent Publishing Platform, 2015.

Kepler, Johannes, and Carola Baumgardt. *Johannes Kepler: Life and Letters*. Philosophical Library, 1951.

Khalid, Haroon. *Walking with Nanak*. Vintage Books, 2022.

Lachowicz-Tabaczek K., and J. Śniecińska. "Self-concept and Self-esteem: How the Content of the Self- concept reveals Sources and Functions of Self-esteem." *Polish Psychological Bulletin*, vol. 42, no. 1, 2011, pp. 24-35.

Mehra, Rakeysh Omprakash. *Milkha Singh - An Autobiography - The Race of My Life*. Rupa, 2013.

Mitra S., S. Basu, and N. Sanyal. "Unraveling the Roots of Personality Disorganization through

Nandini. *Biography of Har Gobind Khorana: A Nobel Laureate's Inspiring Story*. Prabhat Prakashan, 2021.

Parameswaran, Uma. *C. V. Raman: A Biography*. Penguin India, 2010.

Pele. *Pele: The Autobiography*. Simon & Schuster, 2007.

Prabhudesai, Devendra. *Hero: A Biography of Sachin Ramesh Tendulkar*. Rupa Publications, 2017.

Robins R. W., and L. A. Pervin. editors. *Handbook of Personality: Theory and Research*. Guilford Press, 2008.

Singh, Ritu. *NR Narayana Murthy: A Biography*. Rajpal Publishing, 2018.

Teja, S Krishna and Sai Srinivasa. *Ramanujan Biography*. Notion Press, 2022.

Tesser, A., Felson, Richard B. Felson , and Jerry M. Suls. *Psychological Perspectives on Self and Identity*.American Psychological Association, 2000.

Thapar, Sewaram Singh. A *Critical Study of the Life and Teachings of Sri Guru Nanak Dev: The Founder ofSikhism*. White Falcon Publishing, 1989.

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Suggested Videos:

https://www.youtube.com/watch?v=0h5mr6LpyCs
https://www.youtube.com/watch?v=L80_q2tPveo
https://www.youtube.com/watch?v=hpZwCRInrgo
https://www.youtube.com/watch?v=ZWK-e80ae9Y
https://www.youtube.com/watch?v=OETtNQ7-who
https://www.youtube.com/watch?v=QEXcE67xMxA
https://www.youtube.com/watch?v=MKGHC00732A
https://www.youtube.com/watch?v=B37MXvsB_Vc
https://www.youtube.com/watch?v=Vc7_VyVXDLs
https://www.youtube.com/watch?v=7FvrgW7wOY8
https://www.youtube.com/watch?v=7-ZbWV61uMs
https://www.youtube.com/watch?v=kHgsOppb1WM
https://www.youtube.com/watch?v=np7fbR13n-E

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Course Code: UFDDPC205
Credits: 04
Contact Hours: 15 hours per credit

Course Title: Art and Aesthetics of Designing
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation:70

Course Objectives

1. Introduction to the World of designs
2. Provide the opportunity to the students to develop understanding about how the designs are created
3. Initiate an attitude of playfulness to aid design thinking
4. How they can develop effective solutions for designing

Outcomes:

1. Students will be able to investigate and think creatively about design problems and opportunities
2. Students will be able to develop visual literacy and will be able to articulate design problems

Designing and Types of designs

Where do we find designs (Natural/Artificial/Random/Manmade), SMART Designs (Functional, and Efficient)

Activity: Effective Gallery walk and Role Plays

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Resources

https://www.wonderopolis.org/wonder/is-design-a-science-or-an-art/

designshttps://www.designmattersmedia.com/podcast/2013/sheila-bridges

How To Think Like A Great Graphic Designer. New York: Allworth Press. 2007. ISBN 9781581156355. OCLC 181142646.

The Essential Principles of Graphic Design. Cincinnati, Ohio: How Books. 2008. ISBN 9781600610479. OCLC 176923189.

De Bono, E. (1985) Six Thinking Hats: An Essential Approach to Business Management. Little, Brown, & Company (Ed) Penguin Life

https://gutschow.wordpress.com/ Kai Notes on Architect

Biological Designs

Complexity of cells of human and plant: Discussion on design of DNA, Designs of human body cells, cell of ostrich, Amoeba (Design and Functionality),

Workout the structural complexity of plants, emphazing the intricate organization and functionality of flowers. Consider the specialized adaptations and diverse morphological features that contribute to reproductive success and ecological significance of slower within the plant kingdom

Designs and patterns of stars and galaxies (listing of galaxies, new galaxies, functionality of design)

Activity: Crazy 8s exercise and Story Board/Telling

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Resources:

youtube: The Art and Science of Design | Frank Stephenson | TEDxEton

BIODESIGN : Nature, Science and Creativity, William Myers, 2018, Museum of Modern Art (MoMA) in New York and Thames & Hudson More at www.biology-design.com

Biology in the Grid: Graphic Design and the Envisioning of Life (Posthumanities Book 46) Kindle Edition

Biologically Inspired Design: Computational Methods And Tools, Springer London Ltd, ISBN: 9781447152477

Gomez-Palacio, Bryony, and Armin Vit. *Women of design: influence and inspiration from the original trailblazers to the new groundbreakers.*, p. 175–177, How Books, 2008, ISBN 978-1600610851

De Bono, E. (2016), Lateral Thinking, Penguin Life, ISBN-9780241257548

Kahneman, Daniel, (2015), Thinking, Fast and Slow. New York Penguin Books Ltd, ISBN-13: 978-0141033570, ISBN-10: 0141033576

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Course Code: UFDDPC205 **Course Title: Art and Aesthetics of Designing**
Credits: 04 **Maximum Marks:** 100
Contact Hours: 15 hours per credit **Internal Evaluation: 30**
External Evaluation:70

Architectural designs and Machine Design

Varieties of Architectural designs , Cities which are SMART across the World: Well acquainted with functionality, Structure and functions of ancient designs across the World , Discussion on the Architectural Works (India and abroad) and Understanding architects of simple Machines

Activity: Reflection exercise, Mind Mapping, Listing and functionality of designs of ancient structures, Videos of Jopseph Allen Stein (American Architect) on his works in India),

Resources:

https://archestudy.com/climatologically-sound-building-the-indian-habitat-centre/

https://www.re-thinkingthefuture.com/case-studies/a3516-india-international-centre-or-iic-by-joseph-allen-stein-a-structure-of-three/

Weinstein, Dave (2007), "Architectural idealist: Modernist Joseph Allen Stein preferred to design public housing and finished his career in India", San Francisco Chronicle.

White, Stephen (1993), Building in the Garden: The Architecture of Joseph Allen Stein in India and California, Oxford University Press, ISBN 0-19-562924-8

White, Stephen (1993), Oxford University Press. The architecture of Joseph Allen Stein in India and California, by

The responsibility for environment: First address, 9 October 1962, by Joseph Allen Stein. University of California, College of Environmental Design, 1962

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Credits: 04 | **Maximum Marks: 100**

Contact Hours: 15 hours per credit | **Internal Evaluation: 30**

External Evaluation:70

Applications of designs

Application of Design Thinking to solve the design problems in everyday life

Projects

1. Designing a school library
2. Improving public transport
3. Designing sustainable packaging solutions
4. Enhancing remote learning

Activity: Developing physical model of designs, 3D models of design and Journey Map

Resources:

Soni,P.,(2020), Design your thinking, Penguin Random House India Portfolio, ISBN: 9780670094097

Towards a New Architecture (Vers une Architecture) LE CORBUSIER, Dover Publications, New York, 1986, 1927, English; originally published 1923 in French, ISBN: 9780486250236

Alexandra Lange (2022), Meet Me by the Fountain: An Inside History of the Mall Hardcover, Bloomsbury Publishing, ISBN 978-1635576023

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Credits: 04
Contact Hours: 15 hours per credit

Course Title: Art and Aesthetics of Designing
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation:70

Pedagogy: The entire course is a kind of project work which will be pre reads, discussions activities and explorations of designs from the surroundings and then from the other parts of the country followed by the designs across the world. Few lectures by the Mentor on how to understand the art and science of designing, which aspects must be taken and deliberated while studying comparing and developing the various designs. Mentor will provoke students to think innovatively about the naturally existing designs their purpose behind the designs of the nature.
Different groups of students will be allotted different projects and to be carried out that will require different task at their own like field visits and explorations from the surrounding as well through online mode along with general guidance/supervision

Mode of Evaluation:
The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be accessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

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Semster-2nd
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Course Code: UFDDPC206
Credits: 02
Contact Hours: 15 per Credit

Course Title: Responsible Citizenship through Experimentation

Maximum Marks: 50
Internal Evaluation: 20
External Evaluation: 30

About the Course:

Citizenship education is essential for preparing young students for our shared democratic life. It is about enabling the people to make their own decisions and to take the responsibilities for their own lives and their communities. Experimenting citizenship is essentially a skill the college students should equipped with and they need to have a reasonable understanding of the political, social , economic and civic functions of our society. Citizenship is more than a subject as if tailored in local context, its skills and values will enhance democratic life for all of us. The concept of citizenship is centered to the issues of self, empathy, assumption, stereotypes, discrimination, prejudices, conflict and peace building, innovation, continuous learning etc . The pedagogy shall largely be experiential and shall consist of team exercises, group learning, community actions, discussions, group activities, cases studies, simulation exercises, field trip, report writing and report presentations.

Learning Objectives:

The objective s of the course is to provide the **knowledge and understanding** of the various concept like citizenship, democracy, rule of law, human rights diversity, multiculturalism , justice, equality sustainable development global community etc.

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Course Title: Responsible Citizenship through Experimentation

To equip the students with the **skills and aptitudes** so as to take decision on the basis of critical thinking, expressing opinions, taking part in discussions and debates, negotiation and taking part in the community action.

To equip the students with **the values** wherein he/she respect and understand the idea of justice, rule of law, tolerance, courage to defend his/her point of view and work with and stand up for others.

Students will be able to identify ripple effects of human movements across the globe and how they impact holistic human ecologies.

Students will be able to give voice to their local narratives and develop an ability to step into self-authorship.

Students will be able to recognize and discuss their personal and social identities, as well as gain an understanding of their sense of self-efficacy within a community justice framework.

Students will learn to translate their knowledge and wisdom to actionable practice within their communities.

Course Outcome:

It will help the students to learn the **concept in detail** and various **relationships with** survival, growth of democracies and a healthy vibrant society.

It enables the students to make the **positive contribution** by developing the expertise to claim their rights and understand their responsibilities in the evolving world.

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Course Title: Responsible Citizenship through Experimentation

It shall enable the students with a **voice** in his/her college life, in their communities and societies at large.

It shall further enable them to be **informed, articulate and responsible** in their respective communities.

Module-A: Making sense of citizenship

- **Activities:** Today, on the way to campus (asking the students what they have experienced, witnessed, heard or read in the context of citizenship e.g., a biker jumping the signal, the heap of garbage on wayside, heard/read that people helping the police to figure out the possible narcotics spots in the area, traffic jam etc)

  Pedagogy: Discussion/ interaction on the issues raised in the activity, possible agreeable position (constitutional/ sustainable /culturally acceptable plans by the students for the issues raised).

  Learning outcomes: student shall be able to contextualize the issue with the concept under discussion and further be able to have comprehensive knowledge and also be able to make a reasonable plan to address the issue raised.

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Contact Hours : 15 per Credit

Course Title: Responsible Citizenship through Experimentation

Module-B: Practising Citizenship

Activities: Doable action plan in the immediate vicinity (shall be finalized with the discussion/ input of the students)

Pedagogy: making teams/action plan/ reaching to a agreeable action plan/ action spreadsheet/execution of the plan.

Learning outcome: learning leadership, team building, responsibilities to immediate surrounding/community, how to make local sustainable and acceptable plan.

Module-A: Digital citizenship

Activities: to asking students what bad/unpleasant they received /heard of other/sent on social media platform. How they categorize (acceptable/ unacceptable content, who defines, cultural sensitivity, laws associated with etc.

Pedagogy: discussion on issues/concerns /event raised by the students shall be followed by the presentation (individual /group) about the various laws about usage of digital space.

Simulation exercise on the limitations, sensitivities (cultural/religious/identity/nationalism etc.), usage and misusage of digital platform.

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Course Title: Responsible Citizenship through Experimentation

Learning outcomes: student shall be able to inculcate mutual respect, inclusivity, cultural sensitivities etc.

Module-B: Multi-culturism, Global citizenship

- **Activities**: 1-pin-baloon (prejudice), exercise -2: explain individual in the picture (stereotype), new girls in the class (discrimination). Discussions, cases studies-(macro & micro level).

  Pedagogy: The group can have interaction/ discussion with diverse set of people (other region /culture/religion/ethnic background etc.) and the same shall be followed by presentation (individual/group)

  Learning outcome: students shall be able to acquire better life skills/ career skills /understanding sensitivities of other/respecting others.

References &resources:

https://ncert.nic.in/textbook/pdf/lepy102.pdf

https://www.hoddereducation.com/media/resources/he/Citizenship/MRN%20AQA%20GCSE%20(9-1)%20Citizenship/MRN%20AQA%20GCSE%20Citizenship%20skills.pdf

https://practice-school.eu/activity5-conflict-solution-peace-making-and-peacekeeping-activities/

https://ncert.nic.in/textbook/pdf/lepy102.pdf

Guiding classroom discussions for democratic citizenship education.

https://www.tandfonline.com/doi/full/10.1080/03055698.2017.1373629

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Semster-2nd
(Session 2024, 2025, 2026)

Course Code: UFDDPC206
Credits:02
Contact Hours : 15 per Credit

Course Title: Responsible Citizenship through Experimentation

Lifelong citizenship, https://brill.com/display/book/9789463512398/BP000007.xml

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, whereas the external shall be of 70%. The evaluation shall be based shall be of Participation in the discussion/interaction, their reflections, individual assignments/ presentations /group presentations, project participation and its completion.

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Semester: II
(For the Session 2024, 2025, 2026)

Course Code: UFDDPA207
Credits: 04

Contact Hours: 15 per credit

Course Title: A Language to Understand the Nature
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation:70

Objectives: The objective of the course on "A Language to Understand the Nature" include:

- Developing linguistic skills to describe and analyze natural phenomena;
- Developing the ability to apply Calculus techniques to solve problems in various fields including mathematics, science, engineering, and social sciences;
- Developing critical thinking and problem-solving skills through challenging Calculus problems and applications;
- Preparing for further study in mathematics, science, engineering and related areas.

Contents of the Course

A. Real Numbers

- Review of Sets, relations and functions;
- Real numbers: Real numbers as natural extension of rational numbers, the set of real numbers as field, the least upper bound property of real numbers;
- sequences of real numbers: Introducing the idea of limit, sequence of real numbers and its convergence, monotonic sequences, Cauchy sequence, some useful limits;
- Series of real numbers: Convergence of the series, necessary and sufficient condition for convergence, comparison test, D'Alembert's ratio test, Caucy's root test, idea of absolute convergence.

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Course Code: UFDDPA207 **Course Title: A Language to Understand the Nature**
Credits: 04

B. Differentiation and Interaction

- Continuity: Limit of a function, elementary properties of limits, some useful limits, Continuous function, algebra of continuous functions, intermediate value theorem, Fixed-point theorem, exponentials and logarithms, Heine-Borel theorem, Uniformly continuous functions;
- Differentiability: Introduction of differentiation as the rate of change and steepness of a curve, properties of differentiable functions, Chain rule, Rolle's theorem, Mean-Value theorem, Leibnitz's theorem, Taylor's theorem, Introduction of Maxima and Minima through real world examples;
- Riemann Integration: Introduction of Riemann integration as area under a curve, upper and lower Riemann integrals, necessary and sufficient condition for a function to be Riemann integrable, continuity and integration, fundamental theorem of calculus.

C. Differential equations

- Differential equations: Introduction of differential equation through real world problems;
- First-order linear differential equation with examples like (a) Modelling how a person learns, (b) Law of heating and cooling,
  (c) Parabola, (d) The hanging cable;
- Bernoulli's equation;
- Introduction of partial derivatives, Exact differential equation;
- Existence and uniqueness of solution;
- Second-order differential equations and their examples like Hooke's law, Simple pendulum, L-C-R electrical circuit, Kepler's laws etc.

D. Vectors

- Vectors: Vectors in the plane, Cartesian coordinates and vectors in space, dot and cross product of vectors, lines and planes in space;
- Matrices: Algebra of matrices, types of matrices, determinant of square matrices, the adjoint of a square matrix, the inverse of a matrix, Cramer's rule;
- Linear mappings: Linear mappings on R^2, algebra of linear transformations on R^2, linear transformations and matrices, linear transformations and geometry.

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Credits: 04

Activity: Examples and exercises based on each of the topics of all the four topics shall be done through class discussions, tutorials, seminars etc. Different Minor and Major projects to be given to different groups of the class besides regular involvement in problems solving sessions/class seminars.

Pedagogy: Mentor must introduce each topic with the help of real life situations/problems so as to give complete understanding of the concept and enabling the students to find solutions to the problems at their own by "How to Solve it" approach. Mathematical concepts must come to the students in a natural way instead of imposing on them.

Reference Books for self study:

(1) Sinha, K.B., Karandikar, R.L., Musili, C., Pattanayak, S., Singh, D., and Dey, A., Understanding Mathematics, Universities Press (India) Pvt. Ltd. Hyderabad, India, 2000.
(2) Gregson, K., Understanding Mathematics, Nottingham University Press, Nottingham, UK, 2007.
(3) Acheson, D., The Calculus Story, A Mathematical Adventure, Oxford University Press, UK, 2017.
(4) Thomas, G.B. and Finney, R.L.,Calculus and Analytic Geometry, Pearson Education in South Asia, 2006.

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ minor projects emphasizing on development of problem solving skills and applications of calculus to other disciplines.

The remaining 70% of the grade shall be assessed through a transdisciplinary major project with an emphasis on applications of calculus to real world problems. This project will span over the entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

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Semester: II

(For the Session 2024, 2025, 2026)

Course Code: UFDDPA208

Course Title: Understanding the World through Data Lens - II

Credits: 04

Contact Hours: 15 per credit

Maximum Marks: 100

Internal Evaluation: 30

External Evaluation:70

Course Objectives

1. To make you to understand the appropriate application of various statistical tools, procedures and tests.
2. Enable you to make informed decisions based on data with sophisticated statistical tools.
3. To teach you the uses, capabilities and limitations of various statistical procedures
4. To facilitate you in interpreting and reporting the results

Core Learning Outcomes

Probability and Distribution

Probability, Conditional Probability, Bayes Probabilities, Some discrete and Continuous Probability Distributions, Sampling Distributions

Activity:

a) Conduct probability experiments in the classroom using coins, dice and playing cards.
b) Group activity on case studies

Introduction of Estimation and Statistical Inference

Point and interval estimation of population parameters, design of hypothesis, errors in inference, the reasoning of significance tests stating the hypothesis.

Activity:

a) Demonstrate a learning sessions to develop hypothesis through different applications.
b) Host a panel discussion between different groups in different disciplines.

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Course Code: UFDDPA208

Course Title: Understanding the World through Data Lens – II

Tests of Significance

Creating and calculating the value of a test statistics, finding the p-value, Making Decision, Interpretation and conclusion followed by recommendations, small and large sample tests, ANOVA, Chi-square test.

Activity:

a) Conduct demonstration sessions using SPSS to analyze data sets.
b) Organize a group project to inferential analysis of case study through SPSS
c) Critical Group discussion on the report of group project.

Bivariate and Multivariate Analysis

Simple and multiple linear regressions, assumptions, method of estimation, Inference, Testing, Interpretation and applications, Discriminant Analysis, Logistic Regression Analysis, Factor Analysis

Activity:

a) Appropriate numerical case study will be given to the students to analyze.
b) Practical problems solving in and outside class through assignments.
c) Analyze real world scenarios and determine the appropriate type of analytical techniques to utilize.
d) Interpret and communicate the results of statistical analysis generated by SPSS or EXCEL.

Essential Textbooks

1. Jim Frost (2020): Introduction to Statistics: An Intuitive Guide for Analyzing Data and Unlocking Discoveries, published by Statistics By Jim Publishing.
2. David Spiegelhalter (2019): The Art of Statistics: How to learn from Data, published by Basic Books, First Edition.
3. Albert Rutherford (2023):Statistics for the Rest of Us: Mastering the Art of Understanding Data Without Math Skills (Advanced Thinking Skills), published by Independently Published.
4. Albert Rutherford (2022): The Art of Statistical Thinking: Detect Misinformation, Understand the World Deeper, and Make Better Decisions. (Advanced Thinking Skills), published by Independently published.

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Course Code: UFDDPA208

Course Title: Understanding the World through Data Lens – II

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ minor projects emphasizing on development of problem solving skills and applications of analytical tools to other disciplines.

The remaining 70% of the grade shall be assessed through a transdisciplinary major project with an emphasis on applications of analytical tools to real world problems. This project will span over the entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving

UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE' UNIVERSITY)
(Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(24/Oct./ Adp./ 76)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the Syllabus and Courses of Studies for **Four Year Under Graduate Programme (Design Your Degree)** of **Semester IIIrd (as given in the annexure)** for the examinations to be held in the years as per the details given below:

Programme	Semester	For the examinations to be held in the year
FYUGP (Design Your Degree)	Semester-III	December 2024, 2025 and 2026

The Syllabi of the courses are also available on the University website: www.jammuuniversity.ac.in.

DEAN ACADEMIC AFFAIRS

No. F. Acd/II/24/10391-97
Dated: 11/10/2024

Copy for information and necessary action to:

1. Director/Convener, Board of Studies in **Design your Degree**
2. Sr. P.A.to the Controller of Examinations
3. All members of the Board of Studies
4. Confidential Assistant to the Controller of Examinations
5. Director, Computer Centre, University of Jammu
6. Deputy Registrar/Asstt. Registrar (Conf. /Exams. UG)
7. Incharge University Website for necessary action please

University of Jammu

Four Year Innovative Undergraduate Program

(Design Your Degree)

Semester III

Course Code	Course Title	Credits	Contact Hours (per credit)
UFDDPC-301	Does the world revolve around Economics	04	15
UFDDPC-302	Social Innovations	04	15
UFDDPC-303	Art and Science of Communication	04	15
UFDDPC-304	Understanding the Challenges of Climate Change	04	15
UFDDPC-305	Technologies of the Future	04	15
UFDDPC-306	Developing equipoise of mind and body	02	15
UFDDPA-307	The Art of Mathematical Modelling	04	15

Prof. Alka Sharma
Director, SIIEDC

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Semester III
(For the session 2024, 2025, 2026)

Course Code: UFDDPC-301

Course Title: Does the world revolve around Economics

Credits: 04
Contact Hours: 15 per credit

Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Objectives

"This course explores the central question: 'Does the world revolve around economics?' by examining the pervasive influence of economic principles on global events, policies, and everyday life."It seeks to uncover the pervasive influence of economic principles and dynamics on the functioning of societies, institutions, and individuals worldwide. Grounded in interdisciplinary perspectives and empirical analysis, this course examines the multifaceted relationships between economics and various aspects of human existence, from global governance to individual decision-making. Through a combination of theoretical inquiry, case studies, and experiential learning, students will gain a deep understanding of how economic forces shape and are shaped by social, political, and cultural factors, illuminating the intricate web of interdependencies that underpin the world's economic landscape.The major focus of the course is to delve into following questions and statements:

1. Wars have profound and multifaceted impacts on economies, influencing everything from immediate financial markets to long-term development trajectories. They lead to the loss of human capital, reduced productivity, and setbacks in education and healthcare.
2. How interruption of trade due to wars can lead to shortages of goods, increase prices, and disruption of global supply chains, affecting economies worldwide?
3. What is the process of economy recovery and reconstruction?
4. **Does political power drive economic change, or does economic power drive political change?**
5. **How do economic policies affect political stability and vice versa?**
6. What is the role of incentives, information asymmetry, and socio-economic factors in decision-making of individuals.
7. How people make decisions under stress and uncertainty, providing insights into how fear, urgency, and survival instincts shape economic choices.

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Course Code: UFDDPC-301

Credits: 04
Contact Hours: 15 per credit

Course Title: Does the world revolve around Economics
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Learning Outcome

Studying the economic impacts of wars through the lens of real time case studies students will get a comprehensive understanding of both macroeconomic and microeconomic dynamics in times of conflict. At macro level, students will grasp how wars necessitate significant resource reallocation, leading to the opportunity costs of foregone investments in other sectors such as healthcare, education, and infrastructure. Through experiential comparison, students will identify how different political and economic ideologies are applied in real-world organizational structures. At micro level, students will be able to **explore how local economies are influenced by and contribute to broader economic trends. They will be able to comprehend** the role of incentives, information asymmetry, and socio-economic factors in decision-making at individual level. Thereby gaining insight into the influence of individual and collective behavior, particularly in the context of scarcity and survival. Throughout the semester, through experiential learning, by demystifying economic principles and applying them to real-world scenarios, the students shall empower to think critically, question conventional wisdom, and uncover the hidden truths that shape our society. Thus, they may be able to apply economic reasoning to real-world scenarios.

Course Content

I. Wars and its profound and multifaceted impacts on economies, affecting everything from immediate financial markets to long-term development trajectories.Comprehensive understanding of the critical role of economic policies in both preventing conflicts and facilitating post-war recovery

1. The Syrian Civil War and destruction of infrastructure
2. Mongol's Invasion and its impact.
3. The ongoing conflict in Ukraine and disruption of the export of grain, causing global food supply issues and price increases.
4. The economic impacts of the Vietnam War continue to influence Vietnam's economic policies and development strategies.
5. Post-war Iraq and its impact on its foreign investment
6. Post-World War II reconstruction in Europe, supported by the Marshall Plan, led to significant economic recovery and growth.

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Course Title: Does the world revolve around Economics
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Activities

1. Provide students with real-time data on global food prices before and after the Ukraine conflict. Students analyze the data to understand the economic impact on global markets and make predictions about future trends.
2. Students create an interactive digital map that visually represents the economic impacts of different wars (including those in your assignments). The map should include data points, images, and brief analyses of each conflict.
3. Students participate in a role-playing simulation where they take on the roles of different stakeholders during the Mongol Invasion (e.g., local rulers, traders, Mongol leaders). They must navigate the immediate economic devastation and plan for the future.
4. Students may work in teams to develop a comprehensive reconstruction plan for a hypothetical war-torn country. The plan should include infrastructure rebuilding, economic policy reforms, foreign investment strategies, and social stability measures.

Books for reference

1. The Economics of Warby Paul Poast
2. War and the Economy in the Twentieth Century by Alan S. Milward
3. War and Peace: Essays on the Relationships between War and the Military Establishment by Michael Howard (Editor)
4. The Economic Consequences of the Peace by John Maynard Keynes
5. The Oxford Handbook of War by Julian Lindley-French and Yves Boyer (Editors)
6. Syria: The Making and Unmaking of a Refuge State by Dawn Chatty
7. Postwar: A History of Europe Since 1945by Tony Judt
8. The Great War and the Origins of Modern Financeby Marc Flandreau
9. Man, the State, and War: A Theoretical Analysisby Kenneth N. Waltz
10. War and Change in World Politics by Robert Gilpin
11. **Vietnam's Economic Entities in Transition edited by Akira Suehiro and Tran Van Tho.**
12. **Vietnam's Economic Miracle: Policy Reforms and Economic Growth" by Adam Fforde and Stefan de Vylder**

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Course Code: UFDDPC-301

Course Title: Does the world revolve around Economics

Credits: 04
Contact Hours: 15 per credit

Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Documentaries

1. The Fog of War
2. For Sama
3. Restrepo
4. Trade Disruptions and War
5. Beyond Borders: The Debate Over Humanitarian Intervention (2000)
6. The War After the War (1998)
7. The Marshall Plan: Against the Odds (1997)
8. Hearts and Minds
9. The Vietman War

II. To Understand how political and economic factors intersect in real-world governance.
Investigation of different political ideologies that shape economic policies:

1. **Capitalism: The market-driven approach where private ownership and profit motive dominate, and the role of the state is debated between laissez-faire and interventionist models.**
2. **Socialism: A system in which the state or community plays a significant role in controlling resources and distributing wealth.**
3. **Mixed Economies: How most modern nations implement a blend of capitalist and socialist elements.**

Activities

1. **Students shall conduct interviews with workers or managers at both locations to understand the differences in decision-making, profit distribution, and worker involvement in governance. They present their findings, comparing the capitalist and cooperative models.**
2. Visit to a local government or policy-making institution (e.g., city council, central bank, or government economic advisory office) to observe how economic policies are debated and shaped by political considerations.

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Course Title: Does the world revolve around Economics
Maximum Marks: 100
Internal Evaluation: 30
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Books

1. **"The Wealth of Nations"** by Adam Smith
2. **Economic Development by Higgins**
3. **Capital in the Twenty-First Century"** by Thomas Piketty
4. **The Road to Serfdom"** by Friedrich Hayek

Documentary

1. **The Corporation"** (2003)
2. **"Inside Job"** (2010)
3. **Capitalism: A Love Story"** (2009)

III. Uncovering surprising truths about:

The economics of human behavior, particularly regarding the role of incentives whether monetary rewards, recognition, or social approval influences the decisions making more than just financial motivations and the role played by it in shaping behaviors and choices. Uncovering the role of information in decision-making, market efficiency, and policy effectiveness.

Activities

1. Write a final reflection paper on what you have learned about the hidden side of economics and how it applies to your daily life.
2. Using data analysis tools to interpret economic data; identify trends and different causal relationships.
3. In small groups, students design a policy that uses specific incentives (monetary or non-monetary) to achieve a social or economic goal (e.g., reducing carbon emissions, increasing savings rates). They must consider how different incentives will influence behavior and the potential outcomes.

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Credits: 04
Contact Hours: 15 per credit

Course Title: Does the world revolve around Economics
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Books

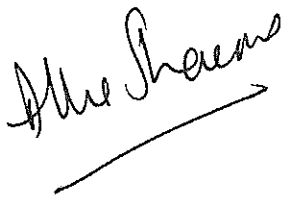
1. **The Undercover Economist by Tim Harford**
2. Feakonomics by Steven D. Levitt and Stephen J. Dubner (Primary Text)
3. Super Freakonomics by Steven D. Levitt and Stephen J. Dubner

Documentaries

1. The Economics of Happiness (2011)
2. Freakonomics: The Movie"
3. The Big Short
4. Inside Job
5. TED Talks by Steven Levitt, Dan Ariely, and Richard Thaler

IV. Economics extends beyond finances and markets; it delves into human behavior and societal dynamics, revealing unexpected insights about how people and society functions.

1. Causation and correlation between various socio-economic and cultural aspects
2. Complex interplay of socio-economic factors in understanding various societal issues and providing an economical solution to it.



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Course Title: Does the world revolve around Economics

Credits: 04
Contact Hours: 15 per credit

Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Activities

1. Students will design and conduct interviews and surveys to gather primary data on economic behaviors and social norms. This could involve looking at how people make decisions in local markets, manage household finances, or engage in informal economies.

2. Students choose a public space (e.g., a park, coffee shop, or campus) to observe and analyze social interactions through an economic lens. They can focus on how individuals negotiate, cooperate, or compete in social settings.

3. Organize a debate where students explore the intersection of economics and social justice. They can argue for or against specific policies (e.g., universal basic income, minimum wage laws) and their impact on societal dynamics and human behavior.3

Books for reference

1. Freakonomics by Steven D. Levitt and Stephen J. Dubner (Primary Text)
2. Super Freakonomics by Steven D. Levitt and Stephen J. Dubner
3. Thinking, Fast and Slow by Daniel Kahneman
4. Predictably Irrational by Dan Ariely
5. Nudge by Richard H. Thaler and Cass R. Sunstein

Documentaries

1. Freakonomics: The Movie"
2. The Big Short
3. Inside Job
4. TED Talks by Steven Levitt, Dan Ariely, and Richard Thaler

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Course Title: Does the world revolve around Economics

Credits: 04
Contact Hours: 15 per credit

Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Pedagogical Approaches:

The pedagogy of this course is entirely in align with the pedagogy prescribed for the Design Your Degree program. The course design incorporates a variety of interactive activities, practical exercises, and real-world experiences to facilitate holistic learning and skill development. The prime emphasis shall be on active participation and hands-on experiences, which are highly effective in understanding complex issues like the economic impacts of war. Accordingly small groups shall be formed to discuss case studies of different wars and their economic impacts. Each group presents their findings.

Mode of Evaluation

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30 per cent of the overall grade, on the basis of continuous performance monitoring through minor projects, group discussions, presentations/tests/quizzes, class participation, team work and 70% of the grade shall be assessed through a Major Project, which will span an entire semester. The evaluation of the major project would be comprehensive, considering various factors like identification of problem, methodology applied, tools used, data analysis and practical implication of the project. The project may involve choosing a specific war/local issue and conduct a detailed analysis of its long-term economic impacts, presenting their findings in a comprehensive research paper and oral presentation.

Internal Evaluation shall be based on

1. Participation in Discussions and Activities
2. Weekly Assignments and Reflections
3. Minor Projects and Presentations

External Evaluation shall be based on

1. Major Project and Final Presentation:

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Course Code: UFDDPC-302
Credits: 04
Contact Hours: 15 per credit

Course Title: Social Innovations
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Objectives

According to the Center for Social Innovation at the Stanford, Graduate School of Business, social innovation is defined as *"A novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals."* Social innovation is vital for creating sustainable, inclusive, and effective solutions to the complex challenges facing society today. It not only addresses immediate issues but also contributes to long-term systemic change, enhancing the overall well-being of individuals and communities.

This course explores the concept of social innovation, focusing on how novel solutions can address pressing social challenges. At the end of the course, students will

- Understand the community problems, social and economical change.
- Identify new and unaddressed social needs.
- Understand social innovation concepts and approaches.
- Analysis of social innovation disclosures in different sectors.
- Design innovative solutions with social impact through application of new models of leadership, collective intelligence and creativity techniques.

Students are expected to develop the following skills / competencies

- *Visionary* – Articulate the vision for self and society and believe that they can play a role in making the world a better place
- *Change Maker* – Understand the problem from someone else's perspective and solve problems by identifying new ideas
- *Collaborator* – Cultivate and nurture networks by working in teams and show empathy while interacting with others
- *Courageous Leader* – Think critically and be willing to navigate success and failure by working persistently over time
- *Community Orientation* – Feel respect for the community and appreciate the impact of diversity in the society

Understand the Social Context

Students (in groups of 4-5) will immerse themselves in a social context (preferably a rural setting) wherein they will be undertaking the following activities.

- Stay / Visit a village / town (other than their hown-town) for atleast one week
- Interact with various stakeholders within the community and understand the social context
- Identify various issues / challenges / problems / opportunities in the social context
- Undertake social , economic, resource and livelihood mapping of the village

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Course Code: UFDDPC-302
Credits: 04
Contact Hours: 15 per credit

Course Title: Social Innovations
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

- Assess the infrastructure (education, agriculture, health, community and related) available in the area
- Identify various institutions (government / non-government / community driven) working in the area.
- Evaluate the role of various government schemes in the development of the community and the area
- Assess the cultural and historical aspect of the area

Based on this, students will identify the social problem

Identify the Social Problem

The team is expected to conduct a thorough research to understand the problems which exist in the community and which the team want to address. The team will engage with the community members and other stakeholders to gain insights and understand the community's needs and perspectives.

To frame the social problem effectively, students can refer to the following theories of social innovation - Structural Functionalism; Conflict Theory; Symbolic Interactionism; Social Constructionism; Systems Theory; Feminist Theory; Critical Race Theory; Rational Choice Theory; Human Capital Theory; Ecological Systems Theory; Strain Theory; Social Learning Theory; Labeling Theory

Case Studies on Social Innovation

Students will go through the successful social innovation case studies and understand the social impact it has created. List of indicative case studies are

- Grameen Bank [https://grameenbank.org.bd/]
- BRAC [https://www.brac.net/]
- Aravind Eye Care System [https://aravind.org/]
- Ashoka [https://www.ashoka.org/]
- SELCO India [https://selco-india.com/]
- Jaipur Foot [https://www.jaipurfoot.org/]
- Barefoot College [https://www.barefootcollegetilonia.org/]
- Goonj [https://goonj.org/]
- Teach for India [https://www.teachforindia.org/]

Innovate for Social Problem

Based on the social problem identified in Unit 1 & 2, students will work on possible innovative solution. Students will be exposed to various models of social innovation - Social Enterprises, Open Innovation, Crowd sourcing and Crowd funding, Living Labs, Microfinance, Social Franchising. The relative merits and demerits of each of these models will be discussed.

List of Books / Readings

- Social Innovation: How Societies Find the Power to Change by Geoff Mulgan (2019)
- The Open Book of Social Innovation, by Geoff Mulgan (2010)

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- Frontiers in Social Innovation: The Essential Handbook for Creating, Deploying, and Sustaining Creative Solutions to Systemic Problems (2022)
- The Neutrality Trap: Disrupting and Connecting for Social Change by Bernard Mayer and Jacqueline N. Font-Guzmán
- Yes to the City: Millennials and the Fight for Affordable Housing by Max Holleran, reviewed by Asher Kohn
- Another World Is Possible: How to Reignite Social and Political Imagination by Geoff Mulgan
- The Voltage Effect: How to Make Good Ideas Great and Great Ideas Scale by John A. List
- The New Reason to Work: How to Build a Career That Will Change the World by Roshan Paul & Ilaina Rabbat
- Social Innovation: Comparative Perspectives (Routledge Studies in Social Enterprise & Social Innovation) by Helmut Anheier, Gorgi Krlev, Georg Mildenberger.
- Systems Thinking For Social Change: A Practical Guide to Solving Complex Problems, Avoiding Unintended Consequences, and Achieving Lasting Results by David Peter Stroh
- The Social Labs Revolution: A New Approach to Solving our Most Complex Challenges by Zaid Hassan
- Crutchfield, Leslie and Heather McLeod Grant. 2008. *Forces for Good: The Six Practices of High-Impact Nonprofits.* Jossey-Bass.
- Gladwell, Malcolm. 2000. *The Tipping Point.* Little Brown: Boston.
- Goldsmith, Stephen. 2010. *The Power of Social Innovation: How Civic Entrepreneurs Ignite Community Networks for Good.* Jossey-Bass.
- Laura Michelini, 2012, *Social Innovation and New Business Models: Creating Shared Value in Low-Income Markets*, Springer.
- Carlo Petrini, *Terra Madre: Forging a New Global Network of Sustainable Food Communities*, Chelsea Green.

Mode of Evaluation

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30 per cent of the overall grade, on the basis of continuous performance monitoring through minor projects, group discussions, presentations/tests/quizzes, class participation, team work and 70% of the grade shall be assessed through a Major Project, which will span an entire semester. The evaluation of the major project would be comprehensive, considering various factors like identification of problem, methodology applied, tools used, data analysis and practical implication of the project.The project may involve choosing a specific war/local issue and conduct a detailed analysis of its long-term economic impacts, presenting their findings in a comprehensive research paper and oral presentation.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Semester III
(For the Session 2024, 2025, 2026)

Course Code: UFDDPC-303

Course Title: Art and Science of Communication

Credits: 04
Contact Hours: 15 hours per credit

Maximum Marks: 100
Internal Evaluation:30
External Evaluation:70

Course Objectives

- Understand the fundamental theories and principles of communication.
- Analyze the role of communication in different contexts (interpersonal, group, organizational, intercultural).
- Develop practical skills in public speaking, writing, and digital media
- Explore the impact of technology and media on communication practices

Outcomes:

1. Students will be able to critically evaluate the effectiveness of different communication strategies
2. Students will be able to analyze the role of communication in different contexts (interpersonal, group, organizational, intercultural)

Communication among Living organisms and Verbal and Non Verbal Communication

History of communication, Communication Strategies of various Live Plants and Animals, Amoeba communication, Child Communication

Elements of verbal communication: Language, Effective speaking and listening skills, Barriers to effective communication. Types of non-verbal communication:., Role of non-verbal cues in communication, Cultural variations in non-verbal communicatio

Activity:

- **Videos on -Plants, Sparrow, Fox communication**
- **Book The secret life of Plants 1973 by Jagdish Bose**

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- Role-playing exercise where students communicate specific messages using only non-verbal cues
- functional Speaking skills,
- Reflect on the activity and discuss the challenges and insights gained.
- Observe a public place (e.g., park, café) and write a report on the non-verbal communication observe
- **Visuals without sound and effect**
- **Dumsharts**

Resources

csumb.edu/hr/employee-development/pearls-of-wisdom/verbal-non verbalcommunication/#:~:text=Verbal%20communication%20involves%20using%20words,use%20to%20communicate%20without%20words
https://study.com/learn/lesson/verbal-nonverbal
Body Language: How to Read Others' Thoughts by Their Gestures Allan Pease, John Chandler
Nonverbal Communication: Studies and Applications Nina-Jo Moore, Mark Hickson III, Don W. Stacks

Interpersonal Communication & Group Communication

Dynamics of interpersonal relationships, Self-concept and self-disclosure, Conflict resolution and negotiation, Characteristics of small group communication, Roles and responsibilities in group settings, Decision-making and problem-solving in groups

Activity:

- Story telling
- using boards for expressing stories,
- making and editing videos
- Improving interpersonal communication and active listening skill

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Resources
The Lost Art of Listening: How Learning to Listen Can Improve Relationships Michael P. Nichols
Humble Inquiry: The Gentle Art of Asking Instead of Telling Edgar H. Schein
https://www.commonsense.org/education/articles media-literacy-resources-for-classroom

Media and Technology in Communication, its differences and importance, Evolution of communication technologies, Impact of social media and digital platforms, Ethical issues in digital communication, Basics of visual design and graphic communication, Role of visuals in enhancing messages, Analyzing visual media and advertisements

Activity:

- Integrate social media,
- **Make a commercial:** Making a video of a commercial,
- **Writing Skills**

Integrating technology to enhance learning

- **Learning Management Systems (LMS)**: Use platforms like Blackboard, Moodle, or Canvas for resources and assignments.
- **Online Discussion Forums**: Promote online discussions to extend learning outside the classroom.
- **Video Conferencing Tools**: Utilize tools like Zoom or Microsoft Teams for virtual presentations and guest lectures.

Resources:

https://www.goguardian.com/blog/9-unique-ways-to-use-technology-in-the-classroom

https://asiasociety.org/education/five-ways-use-technology-and-digital-media-global-learning

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Public Speaking and Case Studies and Applications

Origin of public speaking, Preparing and organizing speeches, Techniques for effective delivery, Handling public speaking anxiety, Case studies on successful and failed communication strategies, Application of communication theories to real-world, Group presentations on case study analyses

Style of Communication: Limcoln, Martin lurther SSpeech Civil rights Movements
Was Gandhi a good communicator

Activity: Discussion and Public Speaking by using the following aspects

- **Diverse Content:** Include examples and case studies from different cultures.
- **Inclusive Language:** Use language that respects all students' identities and backgrounds.
- **Global Perspective**: Discuss communication in a global context, highlighting intercultural differences and similarities

Resources:

Adler, R. B., Rodman, G., & DuPré, A. (2016). Understanding Human Communication. Oxford University Press

DeVito, J. A. (2015). The Interpersonal Communication Book. Pearson.

McQuail, D. (2010). McQuail's Mass Communication Theory. Sage Publications.
academic articles, case studies, and multimedia resources provided throughout the course
https://courses.lumenlearning.com/publicspeakingprinciples/chapter/course-contents-at-a-glance/

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Pedagogy: The entire course is a project work based which will be on the basis of the role play to practice real-life communication, one act plays, making interactive videos, taking interview, discussion on some topics of social relevance
Mentor will facilitate class discussions to encourage critical thinking and exchange their ideas and by conducting interactive workshops on specific skills like public speaking or active listening. Mentor will use videos, podcasts, and other media to illustrate communication principles on how to understand the difference in communication and effective communication, listening and effective listening. Mentor will work on how to frame the content and justify what they want to communicate. Mentor will provoke students to think of making their communication so impressive and valid that their point doesn't remain unnoticed
Different groups of students will be allotted different projects and to be carried out that will require different task during their field visits by explorations from their surrounding

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Contact Hours: 15 hours per credit

Maximum Marks: 100
Internal Evaluation:30
External Evaluation:70

Mode of Evaluation:

The assessment structure for this program consists of two components: Internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication and teamwork.

The remaining 70% of the grade shall be accessed through a transdisciplinary major project, which will span an entire semester.
The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor. The candidates will be evaluated on the basis of the change in their own communication skills, overcoming inhibitions and the assessment will be based on

- **Simulations and Case Studies**: Analyze real-world communication
- **Communication Labs**: Create a lab environment for practicing speeches and presentations
- **Community Engagement**: Encourage students to engage in community projects to practice communication in diverse settings.

Assessment will be further strengthening by offering strong feedback mechanism like:

- **Peer Reviews**: Facilitate peer reviews to allow students to critique and learn from each other.

- **Self-Assessment**: Encourage self-reflection and self-assessment of communication skills.
- **Instructor Feedback**: Provide detailed feedback on assignments and participation.

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Course code: UFDDPC-304

Credit: 04
Contact hours: 15 per credit

Course Title: Understanding the challenges of climate change
Maximum marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Objective: Understanding the challenges of climate change is essential for addressing its impacts and implementing effective solutions.The objective of the course is deepening students' grasp of the scientific principles behind climate change, including the greenhouse effect, the carbon cycle, and the role of human activities involving history of climate science, current climate trends, and the effects of climate change on both natural and human systems. Students will also learn about policies and governance structures designed to combat climate change. Moreover, equipping students with the ability to interpret and analyze climate data, critically, evaluate information sources, and apply scientific knowledge to propose and assess potential solutions. The course will also enhance communication skills, enabling students to effectively convey climate change issues, and foster collaborative skills through team-based projects and research.Applying theoretical knowledge to real-world scenarios through case studies, simulations, and practical projects is the foremost objective. Students will also engage with local communities and stakeholders to develop practical, effective solutions to climate challenges. By the end of the course, students will have a robust understanding of the complexities of climate change, be equipped with the necessary skills to tackle these challenges, and be motivated to engage in proactive and informed climate action.

Learning Outcomes

The course will enhance the student's ability to:

- understand and analyze impact of climate change on socio-economic growth;
- decipher the link between climate change and human civilization;
- understand role and application of data science in climate change;
- understand the causal mechanisms of the factors affecting climate variability;
- understand the role of climate variability in societal transformation;
- application of interdisciplinary approach to tackle climate issues.
- understand the relation between natural hazard and climate change.

The tangible learning outcomes will be observed when

- students will demonstrate their ability to explain key concepts such as the greenhouse effect, carbon cycle, and human impact on climate change through routine discussions and quizzes.
- students will produce in-depth case studies assessing the environmental and socio-economic impacts of climate change.
- students will complete projects involving the interpretation and analysis of climate data using statistical tools.
- students will participate in and complete group projects, demonstrating their ability to work collaboratively.

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- students will write self-assessment reports reflecting on their learning progress and contributions to climate action throughout the course.

Topics for Discussion

- Climate change is real or a hoax?
  - In-depth understanding of climate change, historical perspective evidences.
  - Students will explore the causes, impacts, and potential solutions related to climate change at local and global level.
  - Through a comprehensive examination of scientific research, data, and expert opinions, participants will gain the knowledge and critical thinking skills necessary to navigate discussions surrounding climate change and distinguish facts from misinformation.
- International climate agreements – understanding role of global communities
  - Why are climate agreements so controversial?
    - Global opinion about climate change
  - How does the politics govern climate and climate govern world politics?
    - Deeper understanding of international climate agreements, and the role of world politics in governing these agreements.
  - What would be the role of Indian subcontinent, in next decade to tackle the issue of climate change?
- Climate Change and Social-Media
  - Exploring the intersection of climate change and social media, examining the influence of social media platforms on climate change discourse, communication, and activism.
  - Role of movies/entertainment/short films/dedicated TV channels in understanding the issue of climate change.
- Scientific approach and understanding the climate change
  - Scientific tools and procedures to understand the climate change.
  - Role of data science in climate change research and mitigation.
  - Understanding the impact of climate change on agriculture, water resources, ecosystems, human behavior, global economy, and socio-political component.
  - Natural disasters and climate changes. Is there any relation between these two? How can we mitigate the impact of natural disaster?
- Climate Change and Sustainable Development in the Jammu Region
  - Understanding impact of climate change on socio-economic cultural aspect of local communities in Jammu.
  - Explore mitigation strategies and sustainable development practices relevant to the region.
  - Developing skills for planning and implementing sustainable solutions in region.

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Activities:

- Analysis of video shows on climate change and its impact
- Weekly group and biweekly individual seminar
- Quiz on field-based studies.
- Visit local ecosystems, interview experts, or participate in community initiatives focused on climate resilience and adaptation.
- Encourage students to find the real problem in the local areas and develop innovative solutions.
- Conduct research and study scientific literature, reports, and studies related to climate change
- Analyse case studies and real-world examples of the impacts of climate change and climate variability on various social and economic sectors.
- Engage in fieldwork and observations to gain firsthand experience of climate impacts and variability.
- Calculation of carbon footprint and ecological footprint.
- Temporal comparison of local flora.
- Effect of CO_2 on temperature experiments (Global Warming Simulation).
- Energy Consumption Experiment with Bulbs.
- Heat Island Effect Demonstration.
- Collection local climatic data of last 2-3 decades and its analysis.

1. *Digital resources:*

- Down to Earth:
- United Nations (Climate Action):
- NASA (Global Climate Change):
- Copernicus climate change program:
- Environment and Climate Change Canada:
- Green Ninja Academy:
- Introduction to Atmospheric Dynamics:
- World Climate Research Program:

2. *Books*

- Climate change in practices - topics for discussion with group exercise (by Robert L. Wilby)

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- Climate change past, present and future (Marie-Antoinette Mélières, ChloéMaréchal)
- Assessmentof Climate Changeover the IndianRegion -A Report of theMinistry of Earth Sciences (MoES),Government of India (edited by R. Krishnan · J. Sanjay ·ChellappanGnanaseelan · Milind Mujumdar ·Ashwini Kulkarni · Supriyo Chakraborty)
- Climate Change Science:A Modern SynthesisVolume 1 - The Physical Climate (by G. Thomas Farmer, John Cook)
- Goosse H., P.Y. Barriat, W. Lefebvre, M.F. Loutre, and V. Zunz (2010). Introduction
- to climate dynamics and climate modeling. Online textbook available at
-
- Big Data Mining for Climate Change (byZhihua Zhang, Jianping Li)

Mode of Evaluation
The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30 per cent of the overall grade, on the basis of continuous performance monitoring through minor projects, group discussions, presentations/tests/quizzes, class participation, team work and 70% of the grade shall be assessed through a Major Project, which will span an entire semester. The evaluation of the major project would be comprehensive, considering various factors like identification of problem, methodology applied, tools used, data analysis and practical implication of the project. The project may involve choosing a specific war/local issue and conduct a detailed analysis of its long-term economic impacts, presenting their findings in a comprehensive research paper and oral presentation.

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Course Code: UFDDPC-305 | **Course Title:** Technologies of the future
Credits: 04 | **Maximum Marks: 100**
Contact Hours: 15 per credit | **Internal Evaluation: 30**
External Evaluation: 70

This course aims to:

1. Explore emerging technologies and their potential impact on various industries and society.
2. Understand the principles and applications of key future technologies.
3. Analyse the ethical, social, and economic implications of adopting these technologies.
4. Encourage critical thinking and creativity in envisioning the future of technology.

Learning Outcomes:

By the end of this course, students should be able to:

A. Exhibit a deep understanding of the impact of emerging technologies.
B. Apply principles of key technologies in various scenarios.
C. Critically assess the ethical, social, and economic aspects of these technologies.
D. Demonstrate innovative and creative thinking regarding the future of technology.

Course Content:

Story of Emerging Technologies: Students will be exposed to the different technological environments in order to make them understand and identify the different aspects and parameters that comes under the ambit of a technology.

- Internet of Things (IoT)

In a bustling metropolis, imagine homes that think, cars that communicate, and healthcare systems that predict and prevent illnesses. This is the world of IoT. From smart refrigerators that order groceries to wearable devices that monitor health, IoT transforms our daily lives. However, with great connectivity comes great responsibility. We delve into the security challenges and ethical considerations that accompany this technological revolution.

Activities:

1. Create a presentation on IoT applications and their societal impacts.

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2. Conduct group research on specific IoT use cases across different industries.
3. Engage in a group discussion focusing on the security and ethical issues related to IoT.

- **Drones**

Picture a farmer surveying his vast fields with the help of a drone, a rescue team locating survivors in a disaster zone, and a city planner mapping out urban growth from the sky. Drones are the eyes in the sky that offer unprecedented perspectives and capabilities. We explore their integration with IoT and grapple with the regulatory and ethical questions they raise.

Activities:

1. Present on drone applications using real-world examples.
2. Research in groups on the impact of drones in various industries.
3. Discuss in groups the regulatory and ethical issues in drone usage.
4. Experience a hands-on drone demonstration, if feasible.

- **The Art of Cryptography and Blockchain Technology**

Students will be exposed to the mathematics behind the Art of Cryptography to make them fiddle with the algorithms responsible for maintaining the secrecy in transmission of Data on Networks i.e Whats app, Facebook, Twitter, Email, Financial Transactions etc

Imagine a world where financial transactions are transparent and secure, supply chains are tamper-proof, and personal data is decentralized and controlled by individuals. This is the promise of blockchain technology. We explore the fundamentals of blockchain, its role in powering crypto currencies like Bitcoin and Ethereum, and its potential applications in various sectors.

Activities:

1. Participate in a workshop on blockchain fundamentals.
2. Conduct group research on blockchain applications in specific industries.
3. Engage in group discussions on the future and potential of blockchain technology.

- **Augmented Reality (AR) and Virtual Reality (VR)**

Step into a classroom where history comes alive, a training session where surgeons practice complex procedures in a virtual environment, or a game that immerses you in an alternate reality. AR and VR are transforming the way we learn, train, and entertain ourselves. We explore the concepts, applications, and challenges of these technologies.

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Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Activities:

1. Attend a workshop on AR and VR concepts.
2. Research in groups on AR and VR applications in specific fields.
3. Discuss in groups the potential and future of AR and VR technologies.

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment.

- Internal Assessment (30%): Continuous performance monitoring through tests, quizzes, presentations, class participation, and small live projects, emphasizing the development of skills in application, effective communication, and teamwork.
- External Assessment (70%): A transdisciplinary major project spanning an entire semester.

The evaluation of the major project will consider:

- The depth and accuracy of the project's content.
- The applied methodology and research rigor.
- The effective use of IT tools and data analysis.
- The meaningful findings and practical implications derived from the project.
- Testing of innovativeness, communication, and problem-solving skills.

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Course Code: UFDDPC-306

Course Title: Developing Equipoise of mind and body

Credits:2
Contact Hours: 15 per credit

Maximum Marks:50
Internal Evaluation:15
External Evaluation:35

Course Objectives

The course "Equipoise of Mind and Body" is designed to provide students with a comprehensive understanding of how to achieve and maintain a balanced state of mental and physical well-being. Grounded in interdisciplinary perspectives and leveraging experiential learning methods, this course aims to integrate mindfulness, emotional intelligence, physical health, and holistic practices into students' daily lives. By engaging in a variety of activities, students will cultivate self-awareness, resilience, and holistic well-being, ultimately fostering personal growth and improving their overall quality of life.

- Understand the principles of mental and physical balance.
- Develop mindfulness and meditation practices.
- Enhance physical health through regular exercise and wellness activities.
- Integrate holistic well-being practices into daily routines.
- Apply experiential learning techniques to foster personal growth and resilience.

Learning outcome

The course aims to provide students with a holistic understanding and practical tools to achieve and maintain a balanced state of mental and physical well-being. By the end of the course, students will have developed a comprehensive skill set that includes mindfulness practices, personalized fitness routines, healthy eating habits, and emotional intelligence. They will also have explored various holistic health practices and learned effective stress management techniques. Students will be equipped to create and sustain balanced lifestyles through well-being plans and community engagement, fostering personal growth and resilience. Continuous self-reflection and the ability to set and achieve long-term well-being goals will be integral parts of their learning journey. Overall, the course prepares students to thrive in both personal and professional domains by promoting lifelong habits of physical health, mental clarity, and emotional resilience.

Upon successful completion of this course, students will:

- Understand the Interconnectedness of Mind and Body
- Improve Emotional Intelligence and Manage Stress Effectively
- Cultivate habits of self-reflection and continuous personal grow

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Understanding mind and body: understanding how mind and body interact to promote overall well-being. Initial activities include ice-breakers and reflective journaling, encouraging students to assess their current state of mental and physical health. Various meditation techniques, such as focused attention, open monitoring, and loving-kindness, are explored.

Activities:
Students will identify a community need related to well-being (e.g., organizing a local wellness fair, starting a community garden, or leading a mindfulness workshop). They will develop and implement a project plan, engage community members, and reflect on the impact of their project on both themselves and the community. Journals will be evaluated based on consistency, depth of reflection, and personal insights and execution

Resources:

The Miracle of Mindfulness" by Thich Nhat HanhA practical guide to mindfulness, offering exercises and insights for integrating mindfulness into daily life.

"Wherever You Go, There You Are" by Jon Kabat-Zinn. A comprehensive introduction to mindfulness meditation from the founder of the Mindfulness-Based Stress Reduction program

Documentaries

"The Mindfulness Movement" (2020) Explores the growing interest in mindfulness and its impact on individuals and society

"Walk with Me" (2017), Follows Thich Nhat Hanh and his community of Zen Buddhist monks and nuns, offering insights into mindfulness practice

"Brené Brown: The Call to Courage" (2019) A documentary featuring Brené Brown, discussing vulnerability, courage, and emotional intelligence.

"Heal" (2017) Investigates the connection between the mind and body in healing, featuring insights from leading scientists and spiritual teachers

"Yogi: The Life and Times of Yogi Berra" (20

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Physical Health and Exercise: Understanding the critical role of physical activity in maintaining mental and physical health. Nutrition and Wellness: Emphasizes on the impact of nutrition on mental and physical health. Exploring the principles of balanced diets, healthy eating habits, hydration, and the importance of sleep.

Activities:

Students will design a weekly meal plan that includes balanced nutrition. They will prepare at least three meals from their plan, document the process, and reflect on the experience, noting any changes in energy levels, mood, and physical health. Meal plans, preparation documentation, and reflections will be evaluated based on nutritional balance

Resources:

You Are Your Own Gym: The Bible of Bodyweight Exercises" by Mark Lauren and Joshua Clark
A practical guide to fitness, offering bodyweight exercises that can be done anywhere

"In Defense of Food: An Eater's Manifesto" by Michael Pollan An exploration of food, nutrition, and healthy eating habits, offering practical advice on how to eat well

"The Blue Zones Solution: Eating and Living Like the World's Healthiest People" by Dan Buettner
Insights from regions with high longevity rates, focusing on diet, lifestyle, and wellness practices

"The Heart of Yoga: Developing a Personal Practice" by T.K.V. Desikachar A comprehensive guide to yoga, offering practical advice and philosophical insights.

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Maximum Marks:50
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Documentaries

Physical Health and Wellness: "The Game Changers" (2018) Examines the benefits of plant-based diets for athletes and overall health

"Forks Over Knives" (2011) Advocates for a plant-based diet, exploring its benefits for health and longevity.

"What the Health" (2017) Investigates the impact of diet on health, exploring the benefits of plant-based eating.

Emotional Intelligence and Resilience: Techniques for enhancing emotional intelligence and building resilience are examined through role-playing, emotional intelligence assessments, and group activities.: The impact of stress on the mind and body, and explore techniques for managing and reducing stress.

Activities: Students will design a game to build resilience, healthy ways to cope and how to draw resources in their community to build resilience like learning ways to deal with stress effectively.

Students will be asked to develop social connections that might help protect health and lengthen life as our links to others can have powerful effects on our health both emotionally and physically

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External Evaluation:35

Resources:

Emotional Intelligence: Why It Can Matter More Than IQ" by Daniel Goleman
An exploration of the components of emotional intelligence and its importance in personal and professional settings.

"The Gifts of Imperfection" by Brené BrownA guide to embracing vulnerability and cultivating self-compassion, resilience, and emotional intelligence.

"Spark: The Revolutionary New Science of Exercise and the Brain" by John J. Ratey
Examines the connection between physical exercise and mental well-being, emphasizing the cognitive benefits of regular exercise.

Documentaries

"Minimalism: A Documentary About the Important Things" (2015) Explores the benefits of simplifying life and focusing on what truly matters for well-being

Holistic Well-being Practices: While focused on the life of a famous baseball player, it also touches on how physical activity and discipline contribute to mental and emotional well-being.

"Happy" (2011) Explores the science of happiness and well-being, highlighting different cultures and personal stories.

"Breath: The New Science of a Lost Art" by James Nestor, Explores the science and history of breathing techniques and their impact on health and well-being.

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Course Code: UFDDPC-306

Course Title: Developing Equipoise of mind and body

Credits: 02
Contact Hours: 15 per credit

Maximum Marks:50
Internal Evaluation:15
External Evaluation:35

Pedagogical Approaches:

The pedagogy of the "Equipoise of Mind and Body" course is rooted in experiential learning, a dynamic approach that emphasizes active engagement, reflection, and application of knowledge. The course design incorporates a variety of interactive activities, practical exercises, and real-world experiences to facilitate holistic learning and skill development. Workshops on meditation, mindfulness walk, fitness, and stress management shall provide practical skills and techniques that students can apply in their daily lives. Guided meditation sessions, physical fitness classes, and group activities shall offer immersive experiences that deepen understanding and foster personal growth. Workshops on meal planning and cooking classes will provide practical skills for maintaining a nutritious diet. Additionally, sessions on sleep hygiene and lifestyle choices will highlight the interconnectedness of various wellness factors.

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 20% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork. The remaining 30% of the grade shall be accessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness and communication.

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(For the session 2024, 2025, 2026)

Course code: UFDDPA-307

Credit: 04
Contact hours: 15 per credit

Course Title: The Art of Mathematical Modelling
Maximum marks: 100
Internal Evaluation: 30
External Evaluation: 70

Objectives: The objectives of the course on "The Art of Mathematical Modelling" include:

- translate real-world problems into mathematical terms and structures;
- develop mathematical models that represent the essential aspects of the problem;
- use mathematical techniques, in particular, difference method and ordinary differential equations, to analyze and study the models;
- solving the corresponding ordinary differential equations using numerical techniques;
- validation of the model.

Prerequisite of the course- Course Number: UFDDPA-207

- **Motivation**: The real world is nature's embodiment and change is the law of nature. Thus, the rate of change comes into play. All physical phenomena involve the rate of change which in mathematical terms is called the derivative of a function representing that phenomenon. Therefore, to find solutions to real-world problems, we need to have a mathematical formulation of that problem generally known as Mathematical modelling. After converting the phenomenon into a mathematical setting, one can use mathematical tools and techniques to analyze and solve the problem. The solution is then reformulated back to the original term in which the problem exists in the real world.
- To find the solutions to real-world problems, the students are required to have some knowledge of calculus. In fact, the knowledge of ordinary differential equations is indispensable for handling such problems.
- How a physical phenomenon is governed by a differential equation.

(1) Introduction
Detailed Content: One can take any physical phenomenon, for example, population growth.
(a) Consider a discrete-time model of population growth through population data and solve the population growth problem using difference equations.

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Course Title: The Art of Mathematical Modelling
Maximum marks: 100
Internal Evaluation: 30
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(b) Represent the population size as a function of time and the rate of change of population, that is, the derivative of the function at a given point of time. Then explain how the given population growth phenomenon is converted into a differential equation.
(c) **Activities:** Simple real-life problems and their mathematical formulations.

(2) Introduction to Difference Equations
Detailed Content:
(a) Explain recursion and iteration for first and second-order difference equations.
(b) Explain Generating functions and systems of difference equations, Logistic Equation.
(c) **Activities:** Exercises on first and second-order difference equations.
(d) **Assignments:** Problem sets on real-life applications of difference equations, for example, a model of a population of rabbits, a case of a single cold pill, and a model of the economy.

(3) First-Order Differential Equations - Basics
Solving linear first-order ODEs, separable equations, integrating factor method.
Detailed Content:
(a) Explain the methods to solve linear first-order differential equations.
(b) Explain separable equations and how to solve them.
(c) Introduce the integrating factor method.
(d) **Activities:** Exercises on solving basic first-order differential equations.
(e) **Assignments:** Problem sets on first-order differential equations and solution of the problem "Spread of a Rumor: Discrete Logistic Growth".

(4) First-Order Differential Equations - Applications
Growth and decay models, cooling problems, mixing problems.
Detailed Content:
(a) Exponential Growth: The Math behind "going viral".
(b) Explain the formulation and solution of the growth model.
(c) Explain the formulation and solution of the decay model.
(d) Cover cooling problems and mixing problems in practical contexts.
(e) **Activities:** Practical problem-solving sessions.
(f) **Assignments:** Homework on applying first-order ODEs to real-life problems.

(5) Numerical Techniques to solve first-order differential equations
Detailed Content:
(a) Introduce numerical methods for solving ODEs.

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Course code: UFDDPA-307

Credit: 04
Contact hours: 15 per credit

Course Title: TheArtofMathematicalModelling
Maximum marks: 100
Internal Evaluation: 30
External Evaluation: 70

(b) Introduce Euler's method and its application.
(c) Discuss improved Euler's method and Runge-Kutta methods.
(d) **Activities:** ComputationallabsusingMATLAB.
  (a) Plottingoffirst-ordersolutionofdifferentialequation;
  (b) Growthmodel(Exponentialcaseonly);
  (c) Decaymodel(Exponentialcaseonly);
  (d) Lakepollutionmodel(withconstant/seasonalflowandpollution concentration);
  (e) Limitedgrowthofpopulation(withharvesting);
  (f) Limitedgrowthofpopulation(withoutharvesting);
(e) **Assignments:** NumericalexercisesonsolvingODEs.

(6) Modellingwithdifferenceanddifferentialequations
DetailedContent:
  (a) Discusstheprocessofformulatingreal-lifeproblemsusingdifference and differential equations.
  (b) Explaintostudentshowtosolvetheseequationsandinterprettheresults.
  (c) **Activities:** Practicalapplicationsandproblem-solvingsessions.
  (d) **Assignments:** Problemsetsonreal-lifeapplications.
(7) ModelValidationandVerification
Methodsofvalidatingmodels.sensitivityanalysis.andensuringaccuracyand reliability.
DetailedContent:
  (a) Explainmethodsforvalidatingmathematicalmodels.
  (b) Discusssensitivityanalysisanditsimportance.
  (c) Explainhowtoensuretheaccuracyandreliabilityofmodels.
  (d) **Activities:** Validationexercisesonpreviouslylearnedmodels.
  (e) **Assignments:** Homeworkonmodelvalidationandverification.
(8) CaseStudiesinBiology.
Modellingpopulationdynamics,andlogisticgrowth.

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Course code: UFDDPA-307

Course Title: TheArtofMathematicalModelling

Credit: 04

Maximum marks: 100

Contact hours: 15 per credit

Internal Evaluation: 30

External Evaluation: 70

Pedagogy: Mentor must introduce each topic with the help of real-life situations/problems so as to give complete understanding of the concept and enabling the students to find solutions to the problems at their own by "How to Solve it" approach.Mathematicalconceptsmustcometothestudentsinanaturalwayinstead of imposing on them.

ReferenceBooksforself-study:

(1) Ross S.L. Differential Equations, 3rd edition. India: John Wiley and Sons, 2004.
(2) RaiB.,ChoudhuryD.P.andFreedmanH.I.ACourseinOrdinaryDifferentialEquations.AlphaScienceInternationalLtd.2012.
(3) Codington E.A. An Introduction to Ordinary Differential Equation.New York:Dover Publications, 1989.
(4) Barnes,BelindaandGlennR.Fulford. MathematicalModelingwithCase Studies:ADifferentialEquationApproachusingMapleandMATLAB, 2nd Ed.London and New York:Taylor and Francis group, 2009.
(5) Hilbert, S., Maceli, J., Robinson, E., Schwartz, D., and Seltzer, S. Calculus: AnActiveApproachwithProjects.MathematicalAssociationofAmerica, 2010.

Mode of Evaluation

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30 per cent of the overall grade, on the basis of continuous performance monitoring through minor projects, group discussions, presentations/tests/quizzes, class participation, team work and 70% of the grade shall be assessed through a Major Project, which will span an entire semester. The evaluation of the major project would be comprehensive, considering various factors like identification of problem, methodology applied, tools used, data analysis and practical implication of the project. The project may involve choosing a specific war/local issue and conduct a detailed analysis of its long-term economic impacts, presenting their findings in a comprehensive research paper and oral presentation.

UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A ++' GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(25/March/Adp./87)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the syllabi and courses of study for **Four Year Under Graduate Programme (Design Your Degree)** of Semester IV **(as given in the annexure)** for the examinations to be held in the years as per details given below:-

Subject	**Semester**	**For the examinations to be held in the year**
FYUGP (Design Your Degree)	Semester- IV	May 2025, 2026 and 2027

The Syllabi of the courses are also available on the University website: www.jammuuniversity.in

DEAN ACADEMIC AFFAIRS

No. F.Acd/II/25/ 18994-19003
Dated: 17-03-2025

Copy to:

1. Director/Convener, Board of Studies in Design Your Degree
2. All members of the Board of Studies.
3. C.A. to the Controller of Examinations
4. Director, Computer Centre, University of Jammu
5. Deputy Registrar/Asst. Registrar (Conf. /Exams. UG)
6. In-charge University Website for necessary action please

University of Jammu
Four Year Innovative Undergraduate Program

(Design Your Degree)

Semester 4th

Course Code	Course Title	Credits	Contact Hours (per Credit)
UFDDPC-401	Digital Humanities	04	15
UFDDPC-402	Demystifying Human Behaviour	04	15
UFDDPC-403	Food as Medicine: Traditional and Modern Practices	04	15
UFDDPC-404	Exploring Tourism in J&K: An Entrepreneurial Perspective	04	15
UFDDPC-405	Exploring the world of Cinema With Smart Phones	04	15
UFDDPC-406	Marvels of the World	02	15
UFDDPA-407	The Art and Science of Predictions	04	15

Prof. Alka Sharma
Director, SIIEDC

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Semester IV
(For the session 2025, 2026 and 2027)

Course Code: UFDDPC-401
Credits: 04
Contact Hours: 15 per credit

Course Title: Digital Humanities
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Objectives:

1. To introduce students to the interdisciplinary field of Digital Humanities (DH), blending technology with humanities research.
2. To equip students with hands-on experience in using digital tools and methods for analyzing, interpreting, and presenting humanities data.
3. To foster critical thinking about the implications of digital technology on humanities disciplines.
4. To encourage collaborative and project-based learning, emphasizing practical applications of digital methods in humanities.

Learning Outcomes:

By the end of the course, students will be able to:

1. Understand the core concepts, history, and scope of Digital Humanities.
2. Apply digital tools and methodologies to analyze and visualize humanities data.
3. Design and execute a DH project, incorporating collaborative and interdisciplinary approaches.
4. Critically evaluate the ethical, social, and cultural implications of using digital technologies in humanities.
5. Develop skills in digital storytelling, text analysis, and data visualization

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Semester IV
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Course Code: UFDDPC-401 **Course Title: Digital Humanities**
Credits: 04 **Maximum Marks: 100**
Contact Hours: 15 per credit **Internal Evaluation: 30**
External Evaluation: 70

Introduction to Digital Humanities

- Historical development and key debates in Digital Humanities.
- Overview of major tools and technologies.

Activities:

- Group discussion: What does "Digital Humanities" mean to you?
- Case study analysis: Examples of successful DH projects.
- Tool exploration: Brief introduction to tools like Voyant, Zotero, and Omeka.

Digital Textual Analysis

- Text mining and corpus analysis.
- Topic modelling and sentiment analysis.
- Natural language processing basics.

Activities:

- Hands-on workshop: Using Voyant for text analysis.
- Mini-project: Analyzing themes in a chosen literary text or historical document.
- Reflection session: Discussing insights from the text analysis.

Data Visualization and Digital Mapping

- Introduction to data visualization principles.
- Tools for visualization: Tableau, Gephi, and Flourish.
- GIS and spatial humanities: Mapping historical and cultural data.

Activities:

- Workshop: Creating visualizations using Tableau.

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- Collaborative project: Mapping cultural or historical events using GIS tools.
- Peer review: Presenting and critiquing visualizations.

Digital Storytelling and Collaborative Projects

- Digital storytelling techniques and platforms.
- Collaborative project management and tools.
- Ethics and copyright in digital humanities.

Activities:

- Creating a digital story using tools like StoryMapJS or Twine.
- Group project: Developing a small-scale DH project.
- Reflection and feedback session: Sharing experiences and challenges.

Pedagogical Approaches:

The pedagogy for the Digital Humanities (DH) course is based on an interdisciplinary, experiential, and collaborative learning approach. Students will be actively engaged through discussions, hands-on workshops, and project-based activities designed to bridge technology and humanities research. The course emphasizes exploratory learning, where students will interact with digital tools and methodologies to analyze and present humanities data while considering its ethical, social, and cultural implications. Each module integrates practical applications, including tool exploration, text analysis, data visualization, and digital storytelling. Collaborative projects will play a central role, requiring students to work in teams, manage tasks, and develop solutions to real-world humanities questions. Students will engage in critical discussions, reflective learning

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Maximum Marks: 100
Internal Evaluation: 30
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sessions, and peer reviews to deepen their understanding and enhance their skills.

Mode of Evaluation:

The evaluation for the Digital Humanities course consists of two components: **internal assessment** and **external assessment**, ensuring a holistic evaluation of students' performance.

Internal Assessment (30%):

This component focuses on continuous performance monitoring to develop skills in application, effective communication, and teamwork.

Class Participation (10%): Encourages active involvement in discussions and activities, promoting meaningful engagement.

Mini-Projects (20%): Facilitates focused exploration of specific tools and methodologies, enhancing practical knowledge and problem-solving abilities.

External Assessment (70%):

The external assessment is centered on a semester-long transdisciplinary major project that demonstrates the practical application of Digital Humanities methodologies.

Digital Humanities Project (30%): Promotes interdisciplinary teamwork to produce a comprehensive and innovative outcome.

Reflection Papers (20%): Provides a platform for critical analysis of readings, experiences, and project development.

Final Presentation (20%): Offers an opportunity to showcase the project's process, findings, and outcomes in a structured and professional manner.

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Course Title: Digital Humanities
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Book References:

1. Gold, M. K. (Ed.). (2012). Debates in the Digital Humanities. (NED-New edition). University of Minnesota Press. http://www.jstor.org/stable/10.5749/j.ctttv8hq
2. Berry DM (ed.). 2012. *Understanding Digital Humanities*, Houndmills: Palgrave Macmillan
3. Underwood, T. (2019). Distant Horizons: Digital Evidence and Literary Change, University of Chicago Press
4. JOCKERS, M. L. (2013). Macroanalysis: Digital Methods and Literary History. University of Illinois Press. http://www.jstor.org/stable/10.5406/j.ctt2jcc3m
5. Graham, S., Milligan, I., & Weingart, S. (2015). Exploring Big Historical Data: The Historian's Macroscope.
6. Martyn Jessop, Digital visualization as a scholarly activity, *Literary and Linguistic Computing*, Volume 23, Issue 3, September 2008, Pages 281–293, https://doi.org/10.1093/llc/fqn016
7. Alexander, B. (2011). The New Digital Storytelling: Creating Narratives with New Media.Bloomsbury Publishing
8. McPherson, T. (Ed.) (2008). Digital Youth, Innovation, and the Unexpected. MIT Press

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Semester: 4th
(For the Session 2025, 2026,2027)

Course Code: UFDDPC-402

Course Title: Demystifying Human Behaviour

Credits: 04
Contact Hours: 15 hours per credit

Maximum Marks:100
Internal Evaluation: 30
External Evaluation:70

Course Objectives

- To understand why people think, feel and act the way they do
- To systematically observe, analyze and develop insight of human behavior
- To understand the core drivers of behaviour

Outcomes

- To create better habits, shift thought patterns, and control emotional triggers
- To develop interventions to behave in a better ways
- To develop App for monitoring behavior

Biological Foundations of behaviour:

Exploring the biological factors that influence human behavior, including genetics, brain structure, exploring automated systems of the human body and their relationship with our behavior.

Activity:

1. How does human brain play role in shaping behavior? Collect evidences and discuss.
2. Which brain parts are involved in behavioral change? Can we improve or transform behaviour? Techniques and methodology to study the same.
3. Design an experiment to find if hormones and which hormones play a role in behavioral differences in various genders if so.
4. Do we inherit behavior? Discussion and activity to find out if so.
5. Conduct experiments to test behavioral change pre- and post-intervention.

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Semester: 4th
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Course Code: UFDDPC-402

Course Title: Demystifying Human Behaviour

Credits: 04
Contact Hours: 15 hours per credit

Maximum Marks:100
Internal Evaluation: 30
External Evaluation:70

Resources:

1. The Female Brain, a book by Louann Brizendine

2. The Male Brain, a book by Louann Brizendine.

3. The Mind and the Brain: Neuroplasticity and the Power of Mental Force. Book by Jeffrey M. Schwartz and Sharon Begley
4. How Genes Influence Behavior,a book by Jonathan Flint

Movies:

A Beautiful Mind, based on A mathematical genius, John Nash and directed by Ron Howard.

https://www.youtube.com/watch?v=gkrM1gMpqRU

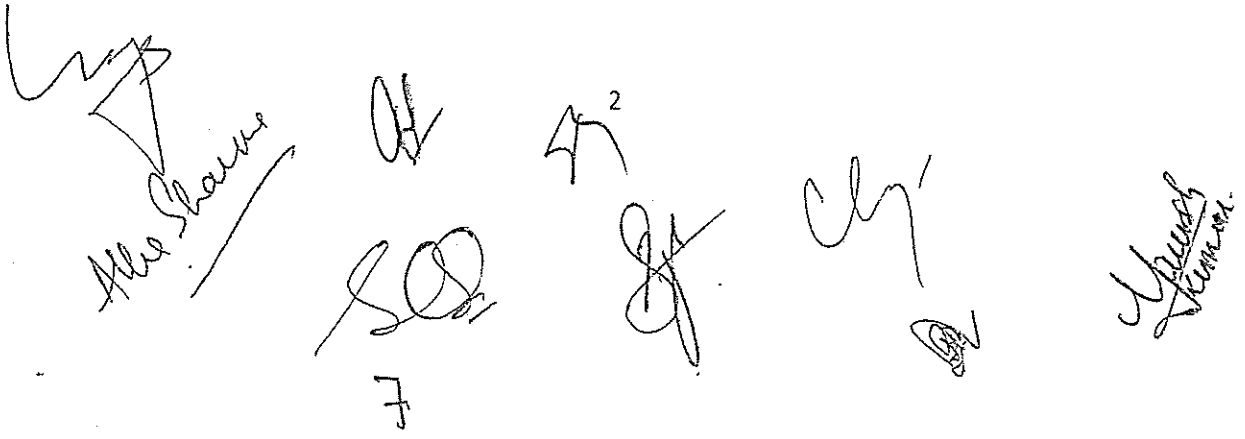
https://www.youtube.com/watch?v=fISwz3DvrII

https://www.youtube.com/watch?v=GogLW14WEb0

https://www.youtube.com/watch?v=yQ6VOOd73MA

Psychological, socio cultural and evolutionary factors of behavior

Influence of Thoughts, Emotions, Environment, and Unconscious Processes on Human Actions and Behavior, Impact of Social Conditioning and Group Dynamics on Behavior Development, Significance of Survival Instinct in Shaping Human Behavior



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Activity

- Data collection with the help of questionnaires/interviews/ case studies/online resources for data collection/ research studies on human behavior, Analyzing and interpreting the data
- Thought-Emotion-Behavior Mapping
- Environmental Triggers Analysis
- Unconscious Bias Test
- Social Norms Challenge
- Conformity Experiment
- Role-Playing Cultural Conditioning
- Fight-or-Flight Simulation
- Scarcity Mindset Experiment
- Evolutionary Behavior Debate

Resources:

Films and Documentaries:

1. "Inside Out" (2015)
2. "The Stanford Prison Experiment" (2015)
3. "Study" (2012)
4. "Eighth Grade" (2018)
5. "Whiplash" (2014)

Books:

1. "Influence: The Psychology of Persuasion" by Robert Cialdini"
2. The Social Instinct: How Cooperation Shaped the World" by Nichola Raihani:
3. "Behave: The Biology of Humans at Our Best and Worst" by Robert M. Sapolsky
4. "The Naked Ape: A Zoologist's Study of the Human Animal" by Desmond Morris:
5. "Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives" by Nicholas A. Christakis and James H. Fowle

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Maximum Marks:100
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Online Resources:

- "How Films Reach Into Our Unconscious" by Psychology Todaypsychologytoday.com
- "The Ecology of Human Fear: Survival Optimization and the Nervous System"pmc.ncbi.nlm.nih.gov
- "Inside Out – A Psychological Insight"

Brain Activities and EEG

Introduction to Brain Activities, Neurons, synapses, and brain waves (Alpha, Beta, Gamma, Theta, Delta), EEG (Electroencephalography), How EEG works and its applications, Basics of EEG signal processing.

Activity 1: Explore open-source EEG datasets (e.g., DEAP, SEED).
Activity 2: Use Python libraries (e.g., MNE-Python) to visualize EEG signals.
Project: Analyze a small EEG dataset and create a visualization of brain wave patterns

Data Preprocessing, Cleaning and normalizing EEG data

Feature extraction from EEG signals, Exploratory Data Analysis (EDA), Visualizing emotional data using graphs and charts AI-Based Emotion Classification, Introduction to Machine Learning (ML), Supervised learning basics, Common ML algorithms (e.g., SVM, Random Forest), Building Emotion Classification Models, Training and testing ML models on EEG datasets, Evaluating model performance (accuracy, precision, recall)

Activity 1: Preprocess an EEG dataset using Python (e.g., filtering noise, extracting features).
Activity 2: Perform EDA on an emotion dataset using Pandas and Matplotlib.
Project: Prepare a report on the analysis of an emotion dataset, highlighting key findings
Activity 3: Train a simple ML model (e.g., SVM) to classify emotions using an EEG dataset.
Activity 4: Build a deep learning model (e.g., CNN) for emotion classification.
Project: Develop an AI-based emotion classification system using EEG data and present the result

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Credits: 04
Contact Hours: 15 hours per credit

Maximum Marks:100
Internal Evaluation: 30
External Evaluation:70

Final Project Description

Students will work in teams to:

1. Preprocess and analyze an EEG dataset.
2. Build and evaluate an AI model for emotion classification.
3. Present their findings in a report and presentation.

Deliverables:
A working prototype or model and a final report and presentation

Key Tools and Resources

1. EEG Datasets: DEAP, SEED, DREAMER.
2. Software: Python, Jupyter Notebook, MNE-Python, TensorFlow, PyTorch.
3. Libraries: Pandas, NumPy, Matplotlib, Scikit-learn

Pedagogy: The entire course is a kind of project work which will be pre reads, discussions, activities and explorations of understanding, data gathering from general population and using AI resources to demystifying the behavior from different context. Mentor will provoke students to think innovatively and understand different context and causes of behavior and the factors leading to different behaviours among people hence broadening their understanding about different perceptions, learning, personalities, attitudes and values of the people. students will be allotted different projects in groups which needs to be carried by field visits, interacting with people as well as lab work. The students will also be mentored to learn the AI applications for behavioral monitoring

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Course Title: Demystifying Human Behaviour

Credits: 04

Contact Hours: 15 hours per credit

Maximum Marks:100
Internal Evaluation: 30
External Evaluation:70

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be accessed through a transdisciplinary major project, which will span an entire semester.

The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving.

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Semester: 4th
(For the Session 2025, 2026,2027)

Course Code: UFDDPC-403

Course Title: Food as Medicine: Traditional and Modern Practices

Credits: 04

Contact Hours: 15 hours per credit

Maximum Marks:100

Internal Evaluation: 30

External Evaluation:70

Learning objectives:

1. To understand the foundational principles of food as medicine.
2. To identify real-world nutritional challenges and propose practical solutions.
3. To analyze the political and social aspect of food, including food security policies and their impact

Learning Outcomes:

1. To develop basic entrepreneurial skills to create innovative nutrition-based ventures.
2. Gain hands-on experience in designing and implementing nutrition interventions.
3. Work collaboratively in teams and engage with communities and experts effectively.

Foundations of Food as Medicine

Historical perspective of food as medicine: Revitalizing traditional food practices to improve health outcomes, disease management and prevention through diet.

Activities:

- Develop a list/quiz on nutrition required during infancy, childhood, adolescence
- Workshop: Explore traditional Indian medicinal diets (e.g., turmeric milk, khichdi). Create a "functional food plate" using local ingredients and present its health benefits.
- Case Study: Analyze successful nutrition interventions in India, such as combating anaemia through iron-rich diets.

Nutrition for Cognitive and Mental Health

Impact of macro- and micronutrients on brain development and learning, dietary pattern during the Stress and other mental health issues. Mindful eating and emotional well being: Strategies for promoting mental clarity and emotional resilience through nutrition. , impact of social norms and peer influence in shaping food habits

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(For the Session 2025, 2026,2027)

Course Code: UFDDPC-403

Course Title: Food as Medicine: Traditional and Modern Practices

Credits: 04

Maximum Marks:100

Contact Hours: 15 hours per credit

Internal Evaluation: 30

External Evaluation:70

Activities:

- Study the apps in eating behaviour
- Experiential Learning: Conduct a simple dietary assessment in a community or school to identify nutrient gaps
- Reflective Workshop: Design a balanced meal plan for schoolchildren to develop a "Mindful Eating Plan" and document its impact over a week
- Community Engagement: Discuss dietary habits and mental health awareness in small focus group discussion

Social and Political Impact of Food

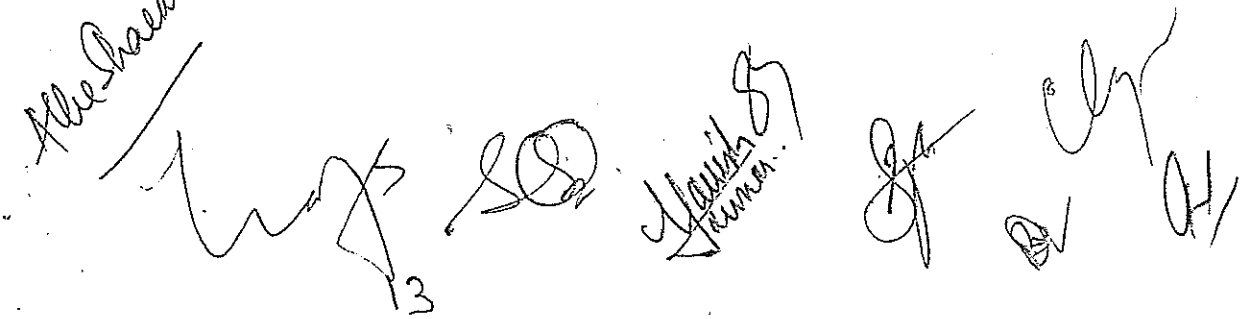
Mid day meal scheme and its social impact, Case Studies of Women as Food Leaders, Rural women forming food cooperatives and dairy collectives (eg Amul)

Activities:

- Field Visit: Observe a mid-day meal program or similar nutrition initiative
- To study initiatives like community gardens, farmers' markets
- Future of Women as Food Leaders & Change-Makers research in rural areas of Jammu
- Social Campaigns: Use storytelling and real-life examples to inspire dietary changes in a non-judgmental way
- Role play on food is central to social gatherings, celebrations, and family traditions, influencing dietary choices and habits

Entrepreneurship in Nutrition

- **Innovation in Food-Based Solutions:**
  Identifying gaps in the nutrition market.
  Basics of product development and prototyping.
- **Business Planning:**
  Essentials of building a sustainable business model.
  Marketing and branding for food-based ventures.
- **Social Entrepreneurship:**
  Creating impactful community nutrition programs.



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Semester: 4th
(For the Session 2025, 2026,2027)

Course Code: UFDDPC-403

Course Title: Food as Medicine: Traditional and Modern Practices

Credits: 04

Maximum Marks:100

Contact Hours: 15 hours per credit

Internal Evaluation: 30

External Evaluation:70

Activities:

- Ideation Workshop: develop basic prototype like nutrient rich snacks and beverages
- Project Work: Draft a business plan for a food-based startup or community initiative.
- Explore Culinary tourism You tube and various aspects of enterprenurship with food

Suggested Readings and Resources

Books

1. Caldecott, T. (2011). Food as medicine: The theory and practice of food. Frog Books.
2. DK Publishing. (2013). Healing foods: Eat your way to a healthier life. DK Publishing.
3. Lesser, M. (2006). Nutrition and mental health: A comprehensive overview of diet, lifestyle, and mental health. Health Press.
4. Morningstar, A. (1995). Ayurvedic nutrition and cooking. Lotus Press.
5. Saarela, M. (Ed.). (2011). Functional foods: Concept to product (2nd ed:). Woodhead Publishing.

Research Papers and Articles

1. Fernstrom, J. D. (2000). The role of nutrition in cognitive and mental health. Clinical Nutrition Insights, 2(6), 1-5.
2. Mid-Day Meal Scheme: A study on its impact on nutrition and education in India. (2010). Economic and Political Weekly, 45(21), 52-59.
3. Probiotics and gut-brain communication: The link to mental health. (2019). Frontiers in Psychiatry, 10, 456. https://doi.org/10.3389/fpsyt.2019.00456
4. Ayurveda and functional foods: Applications and scope. (2018). Journal of Traditional and Complementary Medicine, 8(4), 343-350.

Online Resources

1. National Institute of Nutrition (India). (n.d.). Dietary guidelines for Indians. Retrieved from https://www.nin.res.in
2. Food and Agriculture Organization (FAO). (n.d.). Food systems and nutrition. Retrieved from http://www.fao.org

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)

Semester: 4th
(For the Session 2025, 2026,2027)

Course Code: UFDDPC-403

Course Title: Food as Medicine: Traditional and Modern Practices

Credits: 04

Maximum Marks:100

Contact Hours: 15 hours per credit

Internal Evaluation: 30

External Evaluation:70

3. Ayush Research Portal (Government of India). (n.d.). Research on Ayurveda, Siddha, and traditional medicine. Retrieved from http://ayushportal.nic.in
4. World Health Organization. (2014). WHO traditional medicine strategy: 2014-2023. Retrieved from https://www.who.int/health-topics/traditional-medicine

Case Studies

1. Government of India. (n.d.). Anemia Mukt Bharat Program. Retrieved from https://www.nhm.gov.in
2. Fortification of edible oils in Rajasthan. (2019). Fortify Health India. Retrieved from https://www.fortifyhealth.org
3. Mid-Day Meal Scheme in Tamil Nadu. (2018). Tamil Nadu Government. Retrieved from https://www.tn.gov.in

Pedagogy:

The entire course is a kind of project work which will be pre reads, discussion activities and explorations of foods from the surroundings and how can the food be used as asource of medicine and bringing change in the society. Mentor will provoke students to think innovatively about the naturally existing qualities of food and their uses.

Different groups of students will be allotted different projects and to be carried out that will require different task at their own like field visits and explorations from the surrounding as well through online mode along with general guidance/supervision

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Course Code: UFDDPC-403

Course Title: Food as Medicine: Traditional and Modern Practices

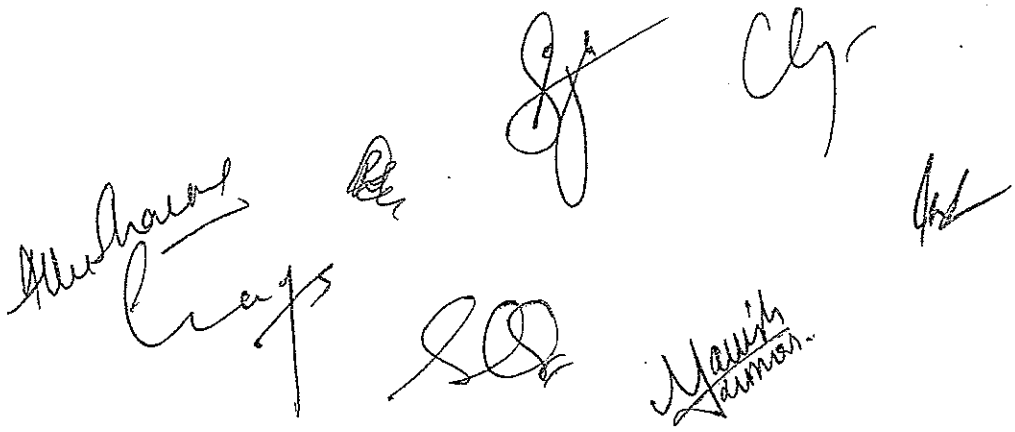
Credits: 04
Contact Hours: 15 hours per credit

Maximum Marks:100
Internal Evaluation: 30
External Evaluation:70

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills in application, effective communication, and teamwork.

The remaining 70% of the grade shall be accessed through a transdisciplinary major project, which will span an entire semester. The evaluation of the major project would be comprehensive, considering various factors including the depth and accuracy of the project's content, the applied methodology, research rigor, the effective use of IT tools and data analysis, as well as the meaningful findings and practical implications derived from the project. The assessment shall also include testing innovativeness, communication and problem solving



University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Semester IV
(For the session 2025, 2026 and 2027)

Course Code: UFDDPC-404

Course Title: Exploring Tourism in J&K: An Entrepreneurial Perspective

Credits: 04
Contact Hours: 15 per credit
Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Course Objectives

Jammu & Kashmir has tremendous potential in tourism sector owing to its natural beauty, cultural significance, diversity and variety of locations. Tourism has been a major contributor to region economy and also contributes to employment. Innovation in the tourism industry with the use of new ideas, products, and methods to improve customer experiences, efficiency, and economic growth can generate a variety of entrepreneurial opportunities.

This course will

1. Equip students with entrepreneurial skills specific to the tourism industry.
2. Provide insights into the cultural, historical, and natural attractions of Jammu & Kashmir.
3. Develop strategies to leverage sustainable tourism in the region.
4. Address challenges of the tourism sector by proposing innovation business solutions

By the end of the course, students will:

- Develop viable tourism business plan tailored to Jammu & Kashmir.
- Understand the region's tourism potential and challenges.
- Integrate sustainable and community-centric practices into tourism ventures.
- Leverage modern marketing and technology tools for success of the proposed solution

Understand the Basics of Tourism

- Components of Tourism Industry
- Types of Tourism
- Tourism Value Chain: Understanding Stakeholders in the Tourism Sector
- Travel Motivations
- Tourist Typologies
- Legal, Regulatory and Policy Framework in Tourism Sector

Mapping the Tourism Resources

The students will be encouraged to identify, understand and map the various types of tourism resources for each district in Jammu & Kashmir. They will focus on the following

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Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

- Natural Resources (Landscapes, Waterbodies, Forest and Wildlife)
- Cultural Resources (Historical Monuments, Art & Craft, Festivals & Events, Cuisine)
- Adventure Tourism Resources
- Rural & Agro Tourism Resources
- Health & Wellness Tourism Resources
- Pilgrimage and Spiritual Tourism Resources

Innovation in Tourism

The students will be encouraged to identify and understand various global innovations that have transformed tourism and hospitality sector at the global level. The insights derived will help them develop their major project

- Sharing Economy in Tourism (e.g. AirBnB, Uber, Experience sharing)
- Eco Tourism and Sustainable Tourism Innovations
- Digital and Technology Driven Innovations (e.g. VR, AR, AI Driven Models, Blockchain)
- Cultural and Experiential Tourism Innovations (e.g. Authentic local experiences)
- Gastronomy and Hospitality Innovations (e.g. Cloud Kitchens, Farm to Table Experiences, Automated Dining Experiences)
- Health and Wellness Innovations (e.g. wellness retreat, sleep tourism, digital detox vacations)

Entrepreneurship in Tourism

Based on the learning from the above, students will

- Developing a Comprehensive Business Plan for a Tourism Startup
- Prototyping Innovative Tourism Products or Services
- Pitching a Tourism Venture to Potential Investors

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Credits: 04
Contact Hours: 15 per credit

Maximum Marks: 100
Internal Evaluation: 30
External Evaluation: 70

Pedagogy

This course will follow and experiential based learning pedagogy, wherein the students will immerse themselves in real world tourism opportunities and challenges. While working in groups they will identify problems, challenges and opportunities which are being faced by the tourism stakeholders in J&K. They will also be interacting with industry leaders, do field visits to understand the tourism resources. Different groups of students will be allotted different projects and to be carried out that will require different task at their own like field visits and explorations from the surrounding as well through online mode along with general guidance/supervision

Reference Books

- "Smart Tourism: Exploring the Role of Technology in Tourism" – Zheng Xiang, Alastair M. Morrison
- "Responsible Tourism: Using Tourism for Sustainable Development" – Harold Goodwin
- "Sustainable Tourism on a Finite Planet" – Megan Epler Wood
- "Marketing for Hospitality and Tourism" – Philip Kotler, John T. Bowen & James Makens
- "Tourism: Principles, Practices, Philosophies" – Charles R. Goeldner & J.R. Brent Ritchie
- "The Business of Tourism" – Chris Holloway & Claire Humphreys

Web Resources

Students are advised to visit websites, follow social media handles of the following organizations to get updated on latest policies and trends

- UNWTO (United Nations World Tourism Organization) ;
- WTTC (World Travel & Tourism Council);
- PATA (Pacific Asia Travel Association);
- IATO (Indian Association of Tourism Operators)
- Ministry of Tourism, Government of India
- Ministry of Culture, Government of India
- State Government Tourism Websites
- Global Sustainable Tourism Council
- Skift, Hospitality Net, Trip Advisor
- Lonely Planet

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Course Title: Exploring Tourism in J&K: An Entrepreneurial Perspective

Credits: 04

Contact Hours: 15 per credit

Maximum Marks: 100

Internal Evaluation: 30

External Evaluation: 70

Mode of Evaluation:

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30% of the overall grade, on the basis of continuous performance monitoring through tests/ quizzes/ presentations/ class participation/ small live projects emphasizing on development of skills. The external assessment shall be based on a major project which will account for 70% of the overall grade.

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Semester IV
(For the session 2025, 2026, 2027)

Course code: UFDDPC-405

Credit: 04
Contact hours: 15 per credit

Course Title: Exploring the world of cinema through Smartphone
Maximum marks: 100
Internal Evaluation: 30
External Evaluation: 70

Learning Outcomes

The course will enhance the student's ability to:

- ✓ Understand the value of cinema, various aspects of film making, its scope and the available market.
- ✓ Learn professional script- writing for various types of films (short films, documentaries films, feature films etc.)
- ✓ Be acquainted with their creativeness and aptitude for exploring the possibility of carrier in film Industry.

The tangible learning outcomes will be observed when

- ✓ Students will learn how to craft a compelling narrative that communicates their chosen issue to a wide audience.
- ✓ Students will complete projects that involve analyzing and interpreting various topics/themes through the use of filmmaking tools.
- ✓ Students will engage in group projects, demonstrating their ability to collaborate effectively with peers.
- ✓ Students will write self-assessment reports reflecting on their strengths and areas for improvement, while considering how their use of smartphone technology has enhanced their creative process and teamwork.

➢ Topics for Discussion

- ✓ Role of cinema in evolution of Society, narrations building, Components of Film making: Screenwriting, cinematography, production design, sound design, editing, visual effects, and post-production
- ✓ Film techniques: Camera angles, color, sound effects, music, and working with actors.
- ✓ Essential Steps for film making: The Idea, The Script, The Storyboards, The Cast and Crew, The Locations, The Filming, The Post-Production
- ✓ Step-by-step guide to creating your movie script- Write your logline. Create an outline, Build a treatment, Write your screenplay, Format your screenplay, Edit your screenplay, Action lines, Camera angles, Character names, Dialogue descriptions, Dialogue, Locations, Off-screen or off-camera, Scene headings, Voiceover

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- ✓ Steps for using camera in film making- Shot list, Crane shot, First assistant camera, Pre-production, Development, Film editing, Distribution, Types of camera shots and angles used in film making- Medium shot, POV shot, Shoulder level shot, Long shot, Low angle shot, Two shot, Aerial shot, Tilt, Tracking shot
- ✓ Stages of Production- Development, Pre-production, Production, Post-production, Distribution
- ✓ Steps to Post productions- Editing the Content, Sound Editing and Adding Music, Adding Visual Effects, Sound Mixing, Color Grading, VFX
- ✓ Common Tools Used for Post Production- Adobe Premiere Pro, Final Cut Pro, Apple Logic Pro X and Adobe Audition, etc.
- ✓ Gaming, Graphic Designing, Animation & VFx, Photography, Print Media, Industrial Design
- ✓ Range of products of entertainment industry- Movies, cartoon making, Digital painting, TV shows, Radio shows, News, Music, Newspapers and magazines, Books, Video games, Streaming, Live performances, youtube, OTT channels
- ✓ Govt. Schemes for promotion of this industry, National and International Awards

➢ Activities:

- Analysis of video in film- making, script- writing, screen plays, camera elements, direction, acting and post- production using Smartphone.
- Visit to local production houses, Doordarshan, All India Radio, interview with experts associated with film making.
- Documentation of information concerning local cinema players and their achievements in last 2-3 decades.

➢ Mode of Evaluation-

Major project: The students shall be divided into 4 to 5 groups and evaluated on the basis of 10-12 minutes product (short documentary film) on their chosen themes using smartphone.

Minor Project: student shall be allotted various task of film-making such as Script-writing, dialogues, acting, editing etc. and evaluated accordingly.

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Resources

Top 20 Best Websites for Filmmakers (https://www.actionvfx.com/blog/20-best-websites-for-filmmakers-in-2023)
ActionVFX
ProductionCrate
Pond5
RawFilm
Shutterstock
PremiumBeat
Adobe Creative Cloud
Red Giant
Autodesk
Blackmagic Design
Color Grading Central
FilmConvert
StudioBinder
Celtx
Frame.io
No Film School
Film Riot
ProVideo Coalition
IMDb pro
CineD

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Semester IV
(For the session 2025, 2026 and 2027)

Course Code: UFDDPC-406
Credits: 02
Contact Hours: 15 per credit

Course Title: Marvels of the World
Maximum Marks: 50
Internal Evaluation: 15
External Evaluation: 35

Course Objectives:

1. Provide students with a comprehensive understanding of key technological innovations, such as space exploration, renewable energy, and the blockchain.
2. Explore the practical applications of these technologies across various industries, including healthcare, finance, and sustainable development.
3. Analyze the societal, ethical, and environmental implications of technological advancements.
4. Develop critical thinking and problem-solving abilities through projects, case studies, and debates focused on real-world technological challenges.
5. Cultivate collaboration and communication skills through team-based projects, presentations, and peer discussions.

Learning Outcomes:

By the end of the course, students will be able to:

1. Understand and explain key concepts in space exploration, blockchain, and renewable energy.
2. Assess the impact of technological innovations on society, the economy, and the environment.
3. Evaluate the ethical and governance challenges posed by emerging technologies and propose potential solutions.
4. Communicate complex technological ideas clearly and effectively through written reports, presentations, and debates.
5. Collaborate effectively in teams, demonstrating skills in research, problem-solving, and project management.
6. Synthesize course concepts and apply them to analyze and address modern challenges in technology and society.

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Introduction to Marvels

- Concept of Marvel
- Characteristics of a Marvel
- Gemini

Space Exploration (Mars Rovers, James Webb Telescope)

- **Mars Rovers:** Overview of missions (Curiosity, Perseverance) and their role in exploring Mars.
- **James Webb Telescope:** Overview of the telescope and its mission to explore deep space.

Videos:

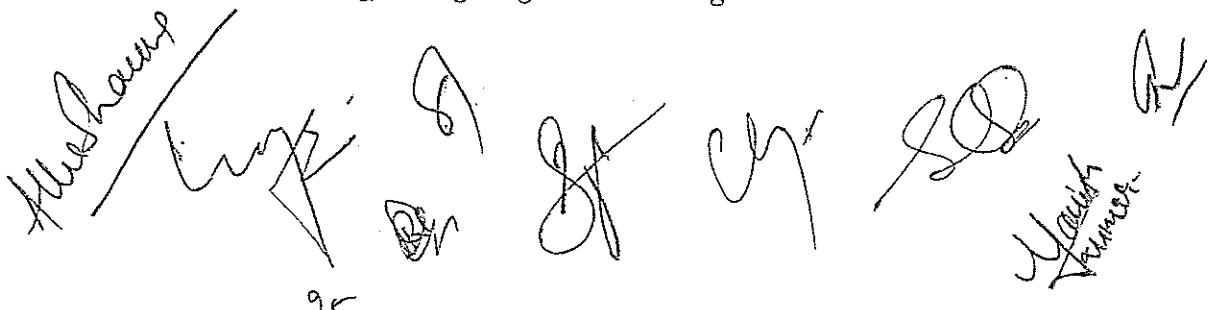
Curiosity Rover: Journey to Mars
NASA's Perseverance Rover on Mars
James Webb Telescope: Unveiling the Universe

Renewable Energy Innovations

- **Introduction to Renewable Energy:** Types of renewable energy sources (solar, wind, hydropower, geothermal).
- **Innovations in Renewable Energy:** Advances in solar cells, wind turbines, and energy storage solutions.
- **Sustainable Development and Green Technology:** Role of renewable energy in mitigating climate change.

Videos:

Solar Energy Innovations
Wind Energy and the Future of Sustainability
The Role of Renewable Energy in Fighting Climate Change



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Artificial Islands and Floating Cities

- **Concept of Artificial Islands:** Design and construction of artificial islands.
- **Floating Cities:** Potential of floating cities for addressing rising sea levels and urbanization.
- **Environmental and Engineering Challenges:** Considerations for sustainability and livability.

Videos:

Building Artificial Islands
Floating Cities: The Future of Urbanization
The Maldives: Artificial Islands in Action

Blockchain

- **Introduction to Blockchain:** How blockchain works, key features (decentralization, immutability).

Videos:
How Blockchain Works
Blockchain: Beyond Cryptocurrencies

Pedagogical Approaches:

The pedagogical approach for the course **Marvels of the World** emphasizes active and engaged learning through interactive methods like debates, discussions, and case studies. Students will collaborate on group projects and presentations, developing teamwork, communication, and problem-solving skills. The course integrates multimedia resources, such as videos and virtual tours, to provide practical insights into topics like AI, space exploration, and renewable energy. Reflective practices, including journaling and peer feedback, encourage personal engagement and critical thinking. Additionally, students will conduct research projects and explore real-world case studies, enhancing their creativity and analytical abilities while connecting technological innovations to practical applications.

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Maximum Marks: 50
Internal Evaluation: 15
External Evaluation: 35

Mode of Evaluation:

The evaluation mode for this course will consist of both internal and external assessments, providing a well-rounded approach to student performance.

Internal assessment (15 marks) will be divided into two components: **Technology Analysis (7.5 marks)**, where students will present a report on a technological innovation, analyzing its societal impact and future potential; **Class Participation and Debate (7.5 marks)**, which will evaluate students' involvement in class discussions, debates, and group activities, promoting critical thinking and effective communication skills.

External assessment (35 marks) will focus on a group-based research project designed to promote collaboration and practical application of course concepts. The assessment will be divided into two components. The first component, the Project Presentation (20 marks), will require each group to present their research findings, demonstrating a clear understanding of the selected topic, application of theoretical concepts, and innovative solutions to a modern technological challenge. The presentation will be evaluated based on clarity, depth of analysis, teamwork, and communication skills. The second component, the Project Report Submission (15 marks), will involve submitting a comprehensive written report detailing the research process, findings, and conclusions. The report will be assessed on the quality of independent research, coherence, structure, and the integration of innovative approaches. This assessment aims to evaluate both the collaborative and analytical capabilities of students while encouraging creative problem-solving.

Recommended Readings:

Space Exploration:

National Aeronautics and Space Administration (NASA). Mars Exploration Rover Missions.

James Webb Space Telescope Overview (NASA).

Renewable Energy:

Boyle, Godfrey. Renewable Energy: Power for a Sustainable Future, 3rd Edition. Oxford University Press, 2012.

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Blockchain:

Nakamoto, Satoshi. Bitcoin Whitepaper: A Peer-to-Peer Electronic Cash System. .

Tapscott, Don, and Alex Tapscott. Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies is Changing the World. Penguin, 2016.

University of Jammu
Four Year Innovative Undergraduate Programme
Design Your Degree
Semester IV
(For the session 2025, 2026, 2027)

Course code: UFDDPA-407

Course Title: The Art and Science of Predictions

Credit: 04

Maximum marks: 100

Contact hours: 15 per credit

Internal Evaluation: 30

External Evaluation: 70

Learning Outcomes: The objectives of the course on "Art and Science of Predictions" include:

- execution of matrix operations and use them to manipulate and analyse data;
- utilizing eigenvalues, eigenvectors, and matrix factorizations in machine learning and data analysis tasks;
- implementation and interpretation of dimensionality reduction techniques like PCA in data science;
- applicationof statistical methods to real-world problems.
- to foster analytical thinking and problem-solving skills.
- to equip students with tools for data analysis and interpretation.

Prerequisites: Basic knowledge of Calculus and Statistics; Introductory knowledge of programming (Python).

Predictive Foundations – Making Sense of Data with Matrices

Imagine you own a small shop that sells three different types of products. We can represent the sales oflast twelve months in the form of rectangular grid where rows represent products and columns represent months. This mathematical entity is called Matrices.

Detailed Content:

a. **The Magic of Matrices:**

Recall how to add, multiply, and manipulate matrices to uncover hidden insights. Special types of matrices are like secret tools that make calculations easier.

b. **Solving Puzzles with Matrices:**

Computer use matrices to break them down complex problems into smaller, manageable pieces. We'll explore how to solve systems of equations using simple steps like Gaussian elimination.

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c. **The Power of Inverses and Determinants:**

Inverses and determinants are like the "undo" buttons and "checkers" of matrices. They help us reverse calculations and understand if a problem has a unique solution.

Hands-On Activities:

i. **Image Processing with Python**
ii. **Finding Redundant Data in Machine Learning**
iii. **Secret Messages with Cryptography**

From Chaos to Clarity: Simplifying Complex Data

Using powerful tools like eigenvalues, eigenvectors, and matrix decompositions, you'll learn how to simplify complex datasets.

Detailed Content:

a. Finding the Hidden Core of Data

Discover how to uncover the most important patterns in your data. These "hidden gems" help simplify complex datasets, making them easier to analyze. (Behind tools like PCA for reducing clutter in data!)

b. Breaking Down Data into Key Insights

Learn how to split messy, complicated data into smaller, meaningful pieces. This technique powers recommendation systems (like Netflix suggestions) and helps spot trends in social media or text.

c. Reshaping Data for Clearer Analysis

Transform raw data into a cleaner, more usable format. Think of it like stretching or rotating a cluttered table to highlight what truly matters—perfect for preparing data for machine learning.

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Hands-On Activities:

i. **Image Recognition with PCA**
ii. **Google's PageRank Algorithm**
iii. **Movie Recommendation System with SVD**

Exploring the Potential of Data for Prediction

As an example you will learn how to predict **sales revenue**of a small shop where multiple factors influence sales, such as **product prices, marketing efforts, and customer demographics**. These factors exist on different scales, including **nominal, ordinal, interval, and ratio** data. By the end of this module, you will understand how tochoose suitable models, and evaluate performance to make accurate revenue predictions.

Detailed Contents

- To model the relationship by identifying changes in the predictors affect the outcome, which is essential for uncovering cause and effect relationships.
- Simplify complex datasets by grouping variables that are highly correlated, which can reveal hidden patterns and structures.
- To group similar data points together, helping you find natural clusters or patterns within your data.

Forecasting the Future Through times series data

Imagine a bakery tracks daily bread sales for a year to predict future demand. Using time series data, it adjusts production based on trends, holidays, and seasonal patterns to minimize waste and maximize profit.

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Maximum marks: 100
Internal Evaluation: 30
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Detailed Contents

- Decomposition in time series data separates trend, seasonality, improving forecasting accuracy, decision-making, and resource optimization for better business planning.
- Time series techniques to analyze trends, seasonality, and improving forecasting accuracy, demand prediction, inventory management, and decision-making for optimized business operations and resource allocation.

Hands-On Activities:

Sales Forecasting: Predict future product sales using historical monthly sales data.

Energy Consumption Forecasting: Forecast electricity demand based on past patterns.

Website Traffic Prediction: Predict website visits based on past traffic data to plan marketing or server capacity.

Stock Price Prediction: Use past stock prices to forecast future trends and volatility.

Assessment Methods

1. **Projects**: Real-world data analysis and case studies.
2. **Class Participation**: Interactive sessions and group discussions.

Pedagogy: Mentor must introduce each topic with the help of real-life situations/problems so as to give complete understanding of the concept and enabling the students to find solutions to the problems at their own by "How to Solve it" approach. Mathematical concepts must come to the students in a natural way instead of imposing on them.

Recommended Textbooks

1. **Mathematics**

Primary Textbook: "Linear Algebra and Its Applications" by Gilbert Strang, Cengage India Private Limited, 2005.

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Supplementary Textbooks:

- "Matrix Computations" by Gene H. Golub and Charles F. Van Loan, Johns Hopkins University Press, 2013.
- "Practical linear algebra for data science" by M. X. Cohen, O'Reilly Media, Inc. 2022.

Software: Python (NumPy, pandas, scikit-learn), or R for coding exercises

2. **Statistics**
   - *Mathematical Statistics and Data Analysis, 3rd Edition* by John A. Rice, Cengage India Private Limited, 2013.
   - *The Elements of Statistical Learning: Data Mining, Inference and Prediction, 2nd Edition* by Trevor Hastie, Robert Tibshirani, and Jerome Friedman, Springer, 2017.
3. **Supplementary Materials**
   - Statistical software manuals and online tutorials.
   - Research papers and case studies.

Mode of Evaluation

The assessment structure for this program consists of two components: internal assessment and external assessment. The internal assessment, shall account for 30 per cent of the overall grade, on the basis of continuous performance monitoring through minor projects, group discussions, presentations/tests/quizzes, class participation, team work and 70% of the grade shall be assessed through a Major Project, which will span an entire semester. The evaluation of the major project would be comprehensive, considering various factors like identification of problem, methodology applied, tools used, data analysis and practical implication of the project. The project may involve choosing a specific war/local issue and conduct a detailed analysis of its long-term economic impacts, presenting their findings in a comprehensive research paper and oral presentation.

Dir/Conven Design your degree

UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A ++' GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(25/Oct./Adp./ 125)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the syllabi and courses of study of **B.Tech. (Artificial Intelligence & Mathematical Innovations) of Four Year Under Graduate Programme (Design Your Degree)** of Semester V **(as given in the annexure)** for the examinations to be held in the years as per details given below:-

Subject	Semester	For the examinations to be held in the year
B.Tech. (Artificial Intelligence & Mathematical Innovations)	Semester- V	December 2025, 2026 and 2027

The Syllabi of the courses are also available on the University website: www.jammuuniversity.in

Sd/-
DEAN ACADEMIC AFFAIRS

No. F.Acd/II/25/ 12079-035
Dated: 04/11/2025

Copy to:

1. Director/Convener, Board of Studies in Design Your Degree
2. All members of the Board of Studies.
3. C.A. to the Controller of Examinations
4. Director, CITES&M, University of Jammu for directing the concerned to upload the notification on University Website.
5. Director, Computer Centre, University of Jammu
6. Joint Registrar/Deputy Registrar/Asst. Registrar (Conf. /Exams. UG)

31/10/25
Joint Registrar (Academic)
31/10
31/10/25

B. Tech. IT (Artificial Intelligence & Mathematical Innovations)

SEMESTER-V

S. No.	Course No.	Course Title	Credits	Marks			Hours/Week			Total Marks
				100		50				
				Mid Semester	End Semester Exam	Project Cumulative	L	P/EL	T	
1	UMJDTT-501	Understanding Computer System Architecture & Circuits	6	40	60	50	4	2	0	150
2	UMJDTT-502	The Logic Behind Machines: Theory of Computation	6	40	60	50	4	2	0	150
3	UMJDTT-503	Information exchange in computing devices: Data Communication & Computer Networks	6	40	60	50	4	2	0	150
4	UMJDTT-504	Instructing computing devices: Operating System	6	40	60	50	4	2	0	150
5	UMJDTT-505	Building Blocks of Computing: Groups, Graphs, and Trees	6	40	60	50	4	2	0	150

***L- Lecture, *T- Tutorial, *P/EL- Practical / Experiential Learning**

B. Tech. IT (Artificial Intelligence & Mathematical Innovations)

SEMESTER-VI

S. No.	Course No.	Course Title	Credits	Marks			Hours/Week			Total Marks
				100		50				
				Mid Semester	End Semester Exam	Project Cumulative	L	P/EL	T	
1	UMJDTT-601	Linear Logic: The Art of Optimization	6	40	60	50	4	2	0	150
2	UMJDTT-602	Exploring Database Management Systems	6	40	60	50	4	2	0	150
3	UMJDTT-603	Architecting the Web: Modern Web Application Engineering	6	40	60	50	4	2	0	150
4	UMJDTT-604	Computer Graphics and Visualization using Java	6	40	60	50	4	2	0	150
5	UMJDTT-605	Data Structure Design using Object Oriented Programming (C/C++)	6	40	60	50	4	2	0	150

***L- Lecture, *T- Tutorial, *P/EL- Practical / Experiential Learning**

B. Tech. IT (Artificial Intelligence & Mathematical Innovations)

SEMESTER-VII

S. No.	Course No.	Course Title	Credits	Marks			Hours/Week			Total Marks
				100		50				
				Mid Semester	End Semester Exam	Project Cumulative	L	P/EL	T	
1	UMJDTT-701	Computer and Brain: Knowledge Discovery and Artificial Intelligence with Python / MATLAB	6	40	60	50	4	2	0	150
2	UMJDTT-702	Elective	6	40	60	50	4	2	0	150
3	UMJDTT-703	Robotics Process Automation & Drones	6	40	60	50	4	2	0	150
4	UMJDTA-704	AI in Neuro & Cognitive Computing	6	40	60	50	4	2	0	150
5	UMJDTA-705	Numerical methods: from approximation to perfection	6	40	60	50	4	2	0	150

***L- Lecture, *T- Tutorial, *P/EL- Practical / Experiential Learning**

Elective:
1- Quantum Computation
2- Crypto Currency & Block Chain Technologies
3- 3D Printing & Design
4- Cloud Computing
5- Cyber Security & Cyber Forensics

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SEMESTER-VIII

S. No.	Course No.	Course Title	Credits	Marks			Houre/Week			Total Marks
				100		50				
				Mid Semester	End Semester Exam	Project Cumulative	L	P/EL	T	
1	UMJDTA-801	Advance, Generative AI & Agents	6	40	60	50	4	2	0	150
2	UMJDTT-802	The Science of Chance	6	40	60	50	4	2	0	150
3	UMJDTT-803	Computer Vision	6	40	60	50	4	2	0	150
4	UMJDTT-804	IoT Sensor Networks & Data Analytics	6	40	60	50	4	2	0	150
5	UMJDTT-805	Major Project / Industrial Internship (AI/ML/PYTHON/MATLAB)	6	40	60	50	4	2	0	150

***L- Lecture, *T- Tutorial, *P/EL- Practical / Experiential Learning**

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Course Code: UMJDTT-501

Course Title: Understanding Computer System Architecture & Circuits

Credits: 06

Contact Hours: 12 per Credit

Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course provides a comprehensive understanding of computer architecture and organization, bridging theoretical foundations with practical applications. Students will explore the evolution of computer systems, digital circuit design, microprocessor programming, memory hierarchies, and advanced processor features. Through simulations, assembly programming, and hands-on projects, learners will gain the ability to analyze system performance, design hardware-software solutions, and apply modern architectural concepts such as parallelism, cache optimization, and system interfacing to real-world computing problems.

LEARNING OUTCOMES:

By the end of this course, students will be able to:

1. Understand and explain the principles, components, and performance metrics of computer architecture, including CPU, memory, I/O systems, and instruction set design.
2. Design and analyze digital circuits, microprocessor-based systems, and memory hierarchies using simulation tools and assembly programming.
3. Evaluate and apply advanced processor features such as cache mapping, branch prediction, parallel architectures, and system interfacing techniques.
4. Integrate theoretical concepts with practical applications through hands-on projects and simulations to solve real-world computing problems.

MODULE 1: Computer Architecture Fundamentals

History and evolution of computer systems. Overview of architectures: Von Neumann vs. Harvard. Basic components: CPU, memory, I/O systems, system buses. Instruction Set Architecture (ISA): RISC vs. CISC, instruction types, addressing modes. Performance metrics: MIPS, CPI, FLOPS, Amdahl's Law.

Hands-On Activities:

1. Identify and compare architectures of different real-world processors.
2. Measure CPU performance metrics using benchmarking tools.

MODULE 2: Digital Logic and Circuit Design

Boolean algebra and logic gates. Combinational circuits: adders, subtractors, multiplexers, encoders, decoders. Sequential circuits: flip-flops, registers, counters. Logic families: TTL, CMOS characteristics, power dissipation. Design and simulation of arithmetic and control circuits.

Hands-On Activities:

1. Simulate combinational and sequential circuits using software like Logisim or Multisim.
2. Design and test arithmetic units (e.g., 4-bit adder, ALU).

MODULE 3: Microprocessor Architecture and Programming (8085)

Internal architecture and pin configuration. Address, data, and control buses. Instruction set of 8085. Basics of Assembly language programming. Stack, subroutines, and interrupts.

Hands-On Activities:

1. Write and execute basic assembly programs for 8085 using an emulator.
2. Interface simple input/output devices with the 8085 in a simulation environment.

MODULE 4: Memory Systems and CPU Organization

Types of memory: RAM, ROM, EPROM, EEPROM. Memory hierarchy: Registers, cache, main memory, secondary storage. Cache memory: Mapping techniques (direct, associative, set-associative), coherence protocols (MESI). Memory technologies: SRAM, DRAM, ROM. Memory optimization: Prefetching, write-through vs. write-back policies. Concept of virtual memory. CPU organization: Single-cycle and multi-cycle data path, control unit design (hardwired vs. microprogrammed).

Hands-On Activities:

1. Simulate cache mapping and replacement policies.
2. Analyze performance impact of memory hierarchy using tools like GEM5 or SimpleScalar.

MODULE 5: Advanced Architectures and System Interfacing

Instruction-level parallelism: Superscalar processors, out-of-order execution. Branch prediction: Static and dynamic techniques, branch target buffers. SIMD and MIMD architectures: Introduction and applications. System interfacing: Memory-mapped vs. isolated I/O, DMA, interrupts (PIC, APIC). Modern interfaces: PCIe, USB, SATA, I^2C, SPI. Parallel architectures: Multi-core, SMP, NUMA, many-core systems. Interconnection networks: Bus, crossbar, Network-on-Chip (NoC).

Hands-On Activities:

1. Analyze multi-core performance using parallel processing benchmarks.
2. Simulate I/O interfacing scenarios.

PROJECTS DURING THE SEMESTER:

1. Design a Cache Simulator to evaluate hit/miss rates under various mapping and replacement policies.
2. 8085 Microprocessor-Based Traffic Light Controller simulation.
3. Benchmarking and Analyzing Multi-Core CPU Performance using parallel algorithms.
4. Simulation of a Virtual Memory Paging System with different replacement policies.

PEDAGOGY:

Mentor should introduce each topic through practical, real-world scenarios such as processor performance in gaming, IoT device interfacing, or multi-core server optimization. Students should approach problems using a "How Computers Really Work" methodology, enabling them to derive hardware and software solutions naturally through experimentation rather than rote memorization.

RECOMMENDED TEXTBOOKS

Primary Textbooks:

1. M. Morris Mano and Charles R. Kime, Logic and Computer Design Fundamentals, Pearson.
2. David A. Patterson and John L. Hennessy, Computer Organization and Design, Morgan Kaufmann.
3. Supplementary Textbooks:
4. Ramesh S. Gaonkar, Microprocessor Architecture, Programming, and Applications with the 8085, Prentice Hall.
5. William Stallings, Computer Organization and Architecture: Designing for Performance, Pearson.
6. John L. Hennessy and David A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann.

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Course Code: UMJDTT-502

Course Title: The Logic Behind Machines: Theory of Computation

Credits: 06
Contact Hours: 12 per Credit

Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course introduces the theoretical foundations of computation, focusing on formal languages, automata theory, and the principles underlying compiler design. Students will study regular expressions, finite automata, context-free grammars, pushdown automata, and Turing machines, along with the concepts of decidability and unsolvable problems. Emphasis is placed on connecting mathematical models of computation to real-world applications through simulations, hands-on activities, and mini-projects, enabling learners to model, design, and analyze computational systems effectively.

LEARNING OUTCOMES:

1. To apply mathematical foundations, algorithmic principles and computer science theory to the modeling and design of computational systems.
2. To demonstrate knowledge of basic mathematical models of computation and describe how they relate to formal languages.
3. To understand the limitations of computers and know about unsolvable problems.
4. To understand different phases, intermediate representations, algorithms and principles of working of a compiler

MODULE – I REGULAR EXPRESSIONS AND LANGUAGES:

Sets, relations, functions; strings, alphabets, and languages, Regular expressions and their algebra, Regular grammar and languages, Closure properties, Finite automata (FA), Mealy and Moore machines, Applications of regular expressions

Hands-On Activities:

i. Simulate and test regular expressions for pattern matching
ii. Convert regular expressions to equivalent finite automata

MODULE – II FINITE AUTOMATA

Non-Deterministic and Deterministic Finite Automata, Equivalence of Regular Expression and Finite automata, Equivalence of ε-NFA and NFA, Equivalence of NFA and DFA, Pumping Lemma for Regular Languages, Applications of finite automata.

Hands-On Activities:

i. Design DFAs for language recognition
ii. Validate input strings against NFAs and DFAs using simulation tools

MODULE – III CONTEXT FREE GRAMMAR

Grammar and its classification, Production rules and derivation, Context free Languages, Closure properties for context free languages, Pushdown Automata, Backus-Naur Form, Chomsky Normal Form, Griebach Normal Form, Pumping Lemma for Context free languages, Applications of Context Free Grammar.

Hands-On Activities:

i. Convert CFGs to CNF and GNF
ii. Design PDAs for balanced parentheses and palindromes

MODULE – IV TURING MACHINES

Description, Transition diagram, Roles of Turing machine, Church-Turing Thesis, Modular Construction of complex Turing machines, Extensions of Turing machines, Non-Deterministic Turing Machines. Universal Turing Machine, Turing acceptable and Turing decidable languages.

Hands-On Activities:

i. Design a TM for binary addition or palindrome checking
ii. Explore simulations of Universal Turing Machines

MODULE – V FUNCTION THEORY

Recursive Function Theory and Unsolvable Problems Partial, total and constant functions, Primitive recursive functions; Unbounded minimalization and μ-recursion; Decidable and Undecidable Problems, The Halting Problem, Reduction to Another Undecidable Problem, Undecidability of Post Correspondence Problem.

Hands-On Activities:

i. Analyze problems for decidability
ii. Discuss proof sketches for undecidability using reduction techniques

PROJECTS DURING THE SEMESTER:

i. Design a lexical analyzer using regular expressions and finite automata
ii. Construct a PDA for parsing a simple expression grammar
iii. Analyze the halting problem for different machine models

PEDAGOGY:

Mentor must introduce each topic by connecting it to real-life computing scenarios such as language design, compilers, and problem-solving in computer science. Concepts like automata, grammars, and Turing machines should be taught through visual tools, simulators, and relatable analogies to enable intuitive understanding. Students should be encouraged to discover patterns, construct machines, and explore computational boundaries using the "How to Solve it" approach. Abstract theoretical ideas must unfold organically through engaging examples rather than as rigid formal definitions.

RECOMMENDED TEXTBOOKS:

1. H. R. Lewis and C. H. Papadimitriou - Elements of the Theory of Computation, Prentice Hall of India.
2. J. E. Hopcroft, R. Motwani and J. D Ullman - Introduction to Automata Theory, Languages and Computation, Pearson Education Asia.
3. Michael Sipser, Introduction to the Theory of Computation, Second Edition, Thomson, 2006.
4. Jeffrey Shallit, A Second Course in Formal Languages and Automata Theory, Cambridge University Press, 2008.
5. K. L. P. Mishra and N. Chandrasekaran - "Theory of Computations (Automata, languages and Computation)", Prentice Hall.
6. Rogers H., Theory of Recursive Functions and effective computing, Mcgraw-Hill
7. J.C.Martin–Introduction to Languages and Theory of Computation, Tata Mcgraw Hill.

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Course Code: UMJDTT-503

Credits: 06
Contact Hours: 12 per Credit

Course Title: Information exchange in computing devices: Data Communication & Computer Networks
Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course provides a comprehensive introduction to computer networks, covering data communication principles, networking models, protocols, and system architectures. Students will explore physical and data link layer technologies, routing algorithms, Internet protocols, and transport layer services, along with applications such as DNS, HTTP, and secure communication. Emphasis is placed on practical skills through simulations, socket programming, and security implementations, enabling learners to design, analyze, and secure modern computer networks.

LEARNING OUTCOMES:

1. To study the basic taxonomy and terminology of the computer networking model and architecture.
2. To study the fundamentals of data communication and protocols.
3. To study network design and performance issues.
4. To explore the basic knowledge of cryptography and network security.

MODULE - I FUNDAMENTALS OF COMMUNICATION

Fundamentals of Communication, Modulation, Data Encoding, OSI reference model, TCP/IP model, network standardization, Inter-networking. Physical layer, Switching Technique, Transmission media, Co-axial, Twisted Pair and Fiber Optic Cables, Transmission Impairments, Electromagnetic Spectrum, Radio waves, Microwaves, Satellites, Wireless Mobile Telecommunications Technology.

Hands-On Activities:

i. Use spectrum analyzers to explore signal frequencies
ii. Set up basic wired and wireless transmission models

MODULE - II DATA TRANSMISSION AND MEDIA ACCESS METHODS

Data Link layer, Design issues, Frame, Error detection and correction, Flow Control, Elementary Data link protocols, Character-oriented and Bit-oriented Protocols, Sliding window protocols. Channel allocation methods, TDM, FDM, ALOHA, Carrier sense Multiple access protocols, Collision free protocols, IEEE standard 802 for LANS, Ethernet, Token Bus, Token ring.

Hands-On Activities:

i. Simulate sliding window and stop-and-wait protocols
ii. Implement CSMA/CD and compare with ALOHA in NS2/NS3

MODULE - III NETWORK ESTABLISHMENT CONCEPTS

Network Layer, Store and Forward Packet Switching, Connectionless and Connection-oriented services, Virtual Circuit, Routing Algorithms, Shortest path, Flooding, Link State, Distant vector, Hierarchical, Broadcast and Multicast Routing. OSPF, BGP, Congestion, Congestion control algorithms.

Hands-On Activities:

i. Visualize routing algorithms using simulation tools
ii. Analyze congestion using network traffic simulators

MODULE – IV INTERNET PROTOCOLS

TCP/TP Protocol, IP Addresses, Classes of IP Addresses, Subnets, IPv6, Network layer in the Internet, Internet Control Protocols, ARP, RARP, BOOTP, DHCP, Transport Layer, Protocol Stack, TCP and UDP, Transport Services Primitives, Sockets, Socket Programming concept.

Hands-On Activities:

i. Develop basic TCP and UDP socket programs in Python
ii. Configure IP addressing and subnetting on local networks

MODULE – V NETWORK APPLICATION AND NETWORK SECURITY

Application layer, Name service (DNS), Domain Hierarchy, Name servers, Name resolutions, Traditional applications, Telnet, FTP, SMTP, MIME, World wide web-HTTP, HTTP Methods. Cryptographic Algorithms, DES, AES, RSA, Key exchange methods, Authentication Protocol, Digital Signatures.

Hands-On Activities:

i. Simulate secure message exchange using RSA
ii. Set up DNS and FTP servers in a virtual lab environment

PROJECTS DURING THE SEMESTER:

i. Design a secure file transfer protocol using TCP and encryption
ii. Analyze routing efficiency in dynamic topologies
iii. Implement DNS resolver with local caching

PEDAGOGY:

Mentor must introduce each topic by relating it to everyday technologies like email, web browsing, mobile communication, and IoT devices to foster intuitive understanding. Networking concepts such as protocols, transmission methods, and addressing should emerge naturally through real-life problem scenarios like online video streaming or secure file transfer. Emphasis should be laid on simulation-based learning and hands-on lab experiments using packet tracers, socket programming, or protocol analyzers. Students should be guided to build mental models of layered architectures and data flows by following a "How to Solve it" approach, empowering them to design, troubleshoot, and optimize networks.

RECOMMENDED TEXTBOOKS:

1. Andrew S. Tanenbaum, "*Computer Networks*", 5 e, 2013, Pearson Education Asia.
2. Behrouz A. Forouzan, "*Data Communications and Networking*", 4e, 2004, Tata McGraw Hills.
3. William Stallings. "*Data and Computer Communication*", 7e, 2016, Pearson Education Asia.
4. Prakash C. Gupta, "*Data Communications and Computer Networks*", PHI
5. Michael A. Miller, "*Data and Network Communications*", 2e, Delmar Thomson Learning.
6. James F. Kurose and Keith W. Ross, "*Computer Networking*", 3e, Pearson Education.
7. William A. Shay, "*Understanding Data Communications and Networks*", 2e, Thomson Asia Pvt. Ltd.

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Course Code: UMJDTT-504

Credits: 06
Contact Hours: 12 per Credit

Course Title: Instructing computing devices: Operating System
Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course introduces the principles and mechanisms of modern operating systems, focusing on process management, memory management, file systems, and I/O handling. Students will learn key concepts such as scheduling, synchronization, deadlocks, virtual memory, and system calls, while also gaining practical exposure to Unix/Linux environments and shell programming. Through simulations, coding exercises, and hands-on projects, learners will develop the ability to analyze and implement core OS functionalities and understand their role in real-world computing systems.

LEARNING OUTCOMES:

1. To learn the fundamentals of Operating Systems.
2. To learn the mechanisms of OS to handle processes and their communication.
3. To learn the mechanisms involved in memory management in OS.
4. To brief the students about basic concepts of Unix & Linux and programs using shell programming.

MODULE – I INTRODUCTION TO OPERATING SYSTEMS

Evolution of operating systems, Operating systems concepts, Types of operating systems, Different views of the operating system, Operating system services, System calls, Types of system calls. Operating system Structure, Layered Approach, Microkernels, Virtual machines.

Hands-On Activities:

i. Use system calls like fork, exec, wait in a Linux environment
ii. Identify OS structures in various Linux distributions

MODULE - II PROCESS MANAGEMENT

Process concept, Operation on processes, Inter-process communication, Mutual exclusion, Introduction to Process scheduling, Scheduling algorithms, Process Synchronization, Inter process Synchronization, Critical section problem, Semaphores, Monitors, Message passing. Deadlocks, System Model, Deadlock characterization, Deadlock prevention, Deadlock avoidance.

Hands-On Activities:

i. Simulate process scheduling algorithms
ii. Implement producer-consumer problem using semaphores in C/Linux

MODULE - III MEMORY MANAGEMENT

Memory management, Swapping, Contiguous memory allocation, Relocation & protection, Memory management, Paging, Segmentation, Intel Pentium Segmentation, Intel Pentium Paging, Virtual memory, Demand paging, Performance of demand paging, Page replacement algorithms: FIFO, Optimal, LRU, Counting based page replacement.

Hands-On Activities:

i. Analyze page faults using simulation tools
ii. Write code to simulate LRU and FIFO algorithms

MODULE - IV FILE & I/O MANAGEMENT

File & I/O Management Files system structure, File system implementation, Directory Implementation. Allocation Methods, contiguous allocation, linked allocation, Indexed allocation Disk organization, Disk space management, Disk scheduling, Disk Management, RAID Structure.

Hands-On Activities:

i. Simulate file allocation techniques
ii. Analyze disk scheduling with real input-output logs

MODULE – V INTRODUCTION TO LINUX/UNIX

Directory tree, file types, file permissions, Common UNIX commands: ls, cat, mv, cp, grep, chmod, etc., Shell programming basics: Variables, control structures, loops, Filters and text-processing tools, Introduction to VI editor

Hands-On Activities:

i. Write shell scripts for batch file operations and log processing
ii. Explore directory and permission structures in Linux

PROJECTS DURING THE SEMESTER:

i. Simulate a simple shell with process and file management commands
ii. Design and analyze scheduling algorithms using real or synthetic data
iii. Develop a memory management visualizer for paging and segmentation

PEDAGOGY

Mentor must introduce operating system concepts through relatable, real-world computing experiences such as multitasking on smartphones, file management, and memory usage in common applications. Abstract concepts like process scheduling, memory management, and system calls should be demonstrated using simulations and practical examples within Linux/UNIX environments. Students should be encouraged to experiment through shell scripting, process tracing, and memory allocation exercises. Teaching should follow the "How to Solve it" approach, enabling learners to internalize the design and functioning of an OS by building intuition and problem-solving skills, rather than memorizing definitions and mechanisms.

RECOMMENDED TEXTBOOKS:

1. Silberschart, Galvin, Gagne, "Operating System Concepts", 9th Edition, WSE Wiley, 2016.

2. Andrew. S. Tanenbaum, "Modern operating systems", 4th Edition, Pearson Prentice Hall, 2018

3. Milan Milenkovic, "Operating system-concepts and design", 2nd Edition, McGraw Hill International Edition, 2005

4. A. S. Godbole, "Operating systems", 3rd Edition, Tata McGraw hill, 2017.

5. Deitel H. M., "Operating System", 3rd Edition, Pearson Publications, 2012.

6. Madnick& Donovan, "Operating Systems", Tata McGraw Hill, 2003.

7. Sumitabha Das, "UNIX Concepts and Application", 4th Edition, Tata McGraw Hill, 2017.

8. Richard L. Petersen, "The Complete Reference Linux", 6th Edition, Tata McGraw Hill, 2010

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Course Code: UMJDTT-505

Course Title: Building Blocks of Computing: Groups, Graphs, and Trees

Credits: 06
Contact Hours: 12 per Credit

Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course introduces the foundations of algebraic structures and graph theory with applications in computing and communication. Students will explore groups, subgroups, and their role in cryptography, while learning to model and analyze systems using graphs. Key topics include shortest paths, graph coloring, isomorphism, trees, spanning trees, and Huffman coding. Through problem-solving, simulations, and hands-on activities, learners will develop the ability to apply mathematical principles to encryption, scheduling, network design, and data compression in real-world scenarios.

LEARNING OUTCOMES:

i. Identify and verify the properties of groups and subgroups, and apply them to cryptographic principles.
ii. Represent real-world systems as graphs, analyze connectivity and related properties, and test for isomorphism.
iii. Apply algorithms such as Dijkstra's for shortest paths and use graph coloring techniques for scheduling and resource allocation.
iv. Understand tree properties and traversal methods, and apply Huffman coding for efficient data compression.
v. Implement Prim's and Kruskal's algorithms to find minimum spanning trees for cost-effective network design
vi.

MODULE – I INTRODUCTION TO ALGEBRAIC STRUCTURES & GROUPS

- Building Blocks of Operations: Discover how sets and binary operations form the backbone of mathematical structures used in computing.
- Group Power: Step into the world of groups—sets where closure, associativity, identity, and inverses rule the game.
- Abelian Harmony: Experience the simplicity of commutative groups and their role in symmetric systems.

- Cyclic Spins: See how cyclic groups revolve around a single generator, powering encryption and coding.
- Permutation Playgrounds: Explore permutation groups and their magic in rearranging data without losing structure.
- Subgroup Secrets: Identify subgroups and understand how smaller structures inherit group power.
- From Math to Machines: Apply group theory to cryptography, error detection, network security, and pattern recognition.

Hands-On Activities:

i. Operation Lab: Code addition modulo n and string concatenation; verify closure, associativity, identity, and inverse properties.
ii. Group Detective: Given a set and operation table, check if it forms a group; identify which property fails if it doesn't.
iii. Cyclic Explorer: Generate all elements of a cyclic group from one generator and visualize the cycle.
iv. Permutation Playground: List all permutations of a set and verify group properties under composition.
v. Crypto Mini-Challenge: Implement a simple RSA-like encryption using modular arithmetic and cyclic group concepts.

MODULE - II Foundations of Graph Theory-Representations and Traversals

- Webs and Maps: Explore what graphs are and how we represent them (adjacency, incidence).
- Walking the Bridges: Discover Euler's Relation and tackle Eulerian paths.
- Spot the Twins: Learn how to recognize when two graphs are truly the same (isomorphism).
- Testing Strength: Identify points of fragility—connectivity, cut vertices, and bridges.
- Strategic Watching: Get the basics of covering sets.
- Epic Journeys: Seek out Euler and Hamilton paths and circuits.

Hands-On Activities:

i. Map a real network (classroom, bus routes) as a graph.
ii. Solve your own "Bridge of Königsberg" puzzle.
iii. Detect isomorphism between pairs of graphs.
iv. Remove nodes/edges to test network resilience.
v. Find Euler/Hamilton paths in sample graphs.

MODULE - III Structural Insights—Connectivity, Coverings, and Equivalence

- Connectivity Analysis: Delve into vertex- and edge-connectivity to gauge network robustness.
- Cut Vertices & Bridges: Understand how single elements can fragment a graph.

- Covering Sets & Domination: Learn to select minimal sets of vertices or edges that "watch over" entire networks.
- Graph Isomorphism: Master algorithms to confirm graph identity, from degree sequences to sophisticated matching.

Hands-On Activities:

vi. Compute connectivity measures on various graph families and real-world networks.
vii. Identify cut vertices and bridges in communication and transportation graphs.
viii. Find minimal vertex and edge covers for surveillance and resource placement tasks.
ix. Apply isomorphism-testing techniques to distinguish non-identical structures with similar metrics.

MODULE - IV Algorithms and Applications—Shortest Paths to Planarity

- Shortest Routes: Master Dijkstra's algorithm to find the quickest path through a network.
- The Salesman's Quest: Dive into the Travelling Salesman Problem, exploring challenges in finding optimal tours.
- Scheduling Success: Translate jobs and tasks into graphs to solve scheduling challenges efficiently.
- Matchmaking and Independence: Understand graph matching and independent sets to pair up elements or find conflict-free groups.
- Color Your World: Apply graph coloring strategies to solve real-world problems like resource allocation and scheduling.
- Planar Insights: Uncover the beauty of planar graphs and grasp Euler's formula's elegant balance.
- Hidden Obstacles: Explore Kuratowski's theorem to recognize graphs that can't be drawn on a plane without crossings.

Hands-On Activities:

x. Implement Dijkstra's algorithm on sample maps to find shortest paths.
xi. Experiment with small Travelling Salesman instances to understand complexity.
xii. Create task graphs and develop job schedules respecting dependencies.
xiii. Solve simple matching problems and identify independent sets in graphs.
xiv. Apply graph coloring to timetable or resource allocation scenarios.
xv. Visualize planar graphs and verify Euler's formula.
xvi. Detect non-planar graphs using Kuratowski's criteria.

MODULE - V Trees—Structure, Codes, and Connections

- Roots and Branches: Understand what trees are—their definitions and key properties shaping hierarchical structures.

- Walking the Tree: Explore tree traversal methods—preorder, inorder, and postorder—and see how they reveal different views of data.
- Secret Codes: Dive into prefix codes and Huffman coding, learning how trees help compress data efficiently and uniquely.
- Bridging Networks: Learn what spanning trees are and why they form the backbone of connecting all nodes without cycles.
- Building Minimal Links: Master Prim's and Kruskal's algorithms to craft minimum spanning trees, finding the least-cost way to connect everything.

  Hands-On Activities:

  i. Perform preorder, inorder, and postorder traversals on sample trees.
  ii. Build a Huffman tree from character frequencies and encode/decode messages.
  iii. Identify spanning trees in sample graphs.
  iv. Implement Prim's and Kruskal's algorithms to find minimum spanning trees on weighted graphs.

PEDAGOGY

Each topic in this course begins with relatable real-life scenarios or practical problems, providing students with an intuitive grasp of core concepts. Emphasizing a "learning by doing" philosophy, students actively build their mathematical understanding through hands-on activities, interactive coding simulations, and collaborative classroom problem-solving. This approach ensures theory is naturally connected to application, fostering deeper insight and confidence in the subject.

RECOMMENDED TEXTBOOKS:

i. Gallian, J. A., Contemporary Abstract Algebra (10th ed.), Cengage Learning, 2018.
ii. Rosen, Kenneth H., Discrete Mathematics and Its Applications, 8th ed., McGraw-Hill Education, New York, NY, 2019.
iii. Epp, S. S., Discrete Mathematics with Applications (5th ed.), Cengage Learning, 2019.
iv. Liu, C. L., & Mohapatra, D. P., Elements of Discrete Mathematics: A Computer-Oriented Approach (3rd ed.), Tata McGraw Hill, 2008.
v. West, Douglas B. Introduction to Graph Theory, 2nd ed., Prentice Hall, Upper Saddle River, NJ, 2000.

vi. Software and Tools:
   a. Python (networkx, matplotlib, itertools)
   b. Gephi or Graphviz (for visualization)
   c. Spreadsheet tools like Excel for combinatorics
   d. C++ or Java for algorithm implementation

UNIVERSITY OF JAMMU
Four Year Innovative Undergraduate Program
(Design Your Degree)
B. Tech. IT (Artificial Intelligence & Mathematical Innovations)
Semester VI
(For the session 2025, 2026, 2027)

Course Code: UMJDTT-601
Credits: 06
Contact Hours: 12 per Credit

Course Title: Linear Logic: The Art of Optimization
Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course explores the principles and applications of linear optimization, emphasizing problem formulation, modeling, and solution techniques. Students will learn linear programming through graphical and simplex methods, apply transportation and assignment models to real-world problems, and gain insights into game theory for strategic decision-making. With hands-on practice using computational tools such as MATLAB and Geo Gebra, learners will develop the ability to optimize resources, design efficient systems, and solve practical problems in areas like logistics, planning, and strategic management.

LEARNING OUTCOMES: The objectives of the course on "Linear Logic: The Art of Optimization" include:

1. formulation and solution of linear programming problems using graphical and simplex methods;
2. solution of real-life problems using transportation and assignment models;
3. developing a solid understanding of game theory;
4. application of computational tools like MATLAB and GeoGebra to model and solve optimization problems.

MODULE - I FROM PROBLEM TO PLOT

Concept of optimization, Linear Programming: Introduction, Formulation of a Linear Programming Problem (LPP), Requirements for an LPP, Advantages and limitations of LP. Graphical solution: Multiple, unbounded, and infeasible solutions.

Hands-On Activities:

i. Graphical solution of LPP using Geo Gebra
ii. Identifying feasible region and optimal solution using Geo Gebra

MODULE - II SIMPLEX MADE SIMPLE

Principle of the simplex method: standard form, basic solution, basic feasible solution. Computational Aspect of Simplex Method: Cases of unique feasible solution, no feasible solution, multiple solutions, unbounded solution, and degeneracy. Two Phase and Big-M methods.

Hands-On Activities:

i. Implementing Simplex method using MATLAB
ii. Model motion planning problems when dynamics are linear (e.g., minimum-energy trajectories).

MODULE –—III PRIMAL MEETS DUAL

Duality in LPP, primal-dual relationship. Meaning of sensitivity (post-optimality) analysis. Changes in Objective Function. Changes in Resources. Addition of a New Variable. Addition of a New Constraint.

Hands-On Activities:

i. Solve a primal/dual problem in Excel
ii. Run Solver → check the Sensitivity Report

MODULE –—IV ASSIGN & CONQUER

Unbalanced and degenerate transportation problems, transhipment problems, and maximization in a transportation problem. Assignment Problem: Solution by the Hungarian method, Unbalanced assignment problem, Maximization in an assignment problem, Crew assignment, and Travelling salesman problem.

Hands-On Activities:

i. MODI method for optimal transportation solution using MATLAB
ii. Maximization in Assignment: Matchmaking, recommendation engines, strategic resource use.

MODULE –—V GAME THEORY

Game Theory: Two-person zero sum games, maxmin-minmax principle, games without saddle points (Mixed strategies), graphical solution of $2 \times n$ and $m \times 2$ games, dominance property, arithmetic method of n× n games, general solution of m × n rectangular games.

Hands-On Activities:

i. Use graphing tools (GeoGebra or Desmos) to solve 2×n and m×2 games.
ii. Application in real-life scenarios (e.g., cybersecurity, bidding wars).

PROJECTS DURING THE SEMESTER:

i. Optimizing Food Distribution for a Campus Canteen Using LPP and Transportation Models
ii. Efficient Ride Allocation for a Campus Shuttle Service Using Assignment and Game Theory
iii. Designing Minimum-Cost Marketing Strategies for Local Startups Using Simplex and Duality

PEDAGOGY:

Mentor must introduce each topic with the help of real-life situations/problems so as to give complete understanding of the concept and enabling the students to find solutions to the problems at their own by "How to Solve it" approach. Mathematical concepts must come to the students in a natural way instead of imposing on them.

RECOMMENDED TEXTBOOKS

Primary Textbooks:

1. H. A. Taha, Operations Research-An Introduction, Macmillan Publishing Company Inc., 2006.
2. A. Ravindran, D.T. Phillips, and J.J. Solberg, Operations Research: Principles and Practice, 2nd Edition, John Wiley and Sons, 1987.

Supplementary Textbooks:

1. F.S. Hiller, and G.J. Liebermann, Introduction to Operations Research, Tata McGraw Hill, 2000.
2. K. Swarup, P.K. Gupta, and M. Mohan, Operations Research, Sultan Chand & Sons, New Delhi, 2001.

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Semester VI
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Course Code: UMJDTT-602

Course Title: Exploring Database Management Systems

Credits: 06

Contact Hours: 12 per Credit

Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course provides a comprehensive introduction to database management systems, covering concepts of DBMS architecture, relational models, normalization, concurrency control, and SQL programming. Students will learn to design ER models, transform them into relational schemas, and write optimized SQL queries for real-world applications. Through hands-on activities and projects, learners will gain practical skills in database design, implementation, and security, preparing them to build and manage efficient data-driven systems.

LEARNING OUTCOMES:

1. Understand DBMS architecture and operations
2. Design ER-models and transform them into schemas
3. Write and optimize SQL queries

MODULE –I DATABASE CONCEPTS

File-based vs DBMS, architecture, Schemas, data independence, centralized & client-server DBMS,

Hands-On Activities:

1. Create sample databases using MySQL/PostgreSQL
2. Simulate database file structures

MODULE - II RELATIONAL DATA MODEL

ER to relational mapping, relational algebra/calculus, Joins and queries using relational models

Hands-On Activities:

1. Build ER diagrams using draw.io or MySQL Workbench
2. Query practice with JOINs and nested queries.

MODULE – III NORMALIZATION

Functional dependencies, keys, 1NF to 5NF, BCNF, MVDs

Hands-On Activities:

1. Normalize unstructured tables
2. Design fully normalized schema in DBMS

MODULE - IV CONCURRENCY CONTROL

Transactions, deadlocks, concurrency, Locking, timestamp ordering, recovery

Hands-On Activities:

1. Simulate concurrent transactions
2. Implement two-phase locking in SQL scripts

MODULE – V SQL

SQL syntax, joins, views, inbuilt functions, Roles, privileges, data integrity

Hands-On Activities:

1. SQL programming challenges on HackerRank or DB Fiddle
2. Build a secure, role-based SQL database

PROJECTS DURING THE SEMESTER:

1. Student Record Management System
2. Role-based Hospital DBMS
3. E-commerce Order Tracking DB

PEDAGOGY:

Mentor must introduce each database concept by linking it to real-life applications such as library management systems, hospital records, e-commerce platforms, or social media analytics. Concepts like ER modeling, relational design, normalization, SQL querying, and transaction management should be taught through a balance of theory and hands-on implementation using industry-standard tools like MySQL or PostgreSQL. Students should compare different database models and query languages to understand trade-offs in design and performance. Emphasis should be placed on visualization of schemas, query execution plans, and concurrency scenarios. Through the "How to Solve it" approach, learners should be encouraged to identify the most appropriate database structures and operations for a given problem, focusing on efficient, secure, and scalable solutions rather than rote query writing.

RECOMMENDED TEXTBOOKS:

1. Bipin C. Desai, An Introduction to Database Systems
2. Ramez Elmasri & Shamkant B. Navathe, Fundamentals of Database Systems
3. C. J. Date, An Introduction to Database Systems

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Course Code: UMJDTT-603

Course Title: Architecting the Web: Modern Web Application Engineering

Credits: 06
Contact Hours: 12 per Credit

Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course offers an in-depth exploration of modern web development, covering the foundations of web architecture, frontend and backend integration, state management, performance optimization, and security practices. Students will gain hands-on experience in building full-stack, responsive applications using frameworks and tools such as React, Node.js, Docker, and Graph QL, while also learning DevOps and cloud deployment techniques. Advanced topics like PWAs, micros ervices, server less computing, and emerging trends prepare learners to design scalable, secure, and future-ready web applications.

LEARNING OUTCOMES:

1. Understand web architecture, frontend/backend integration, and security practices.
2. Build full-stack, responsive web applications using modern technologies.
3. Use DevOps, CI/CD, and cloud deployment in real-world projects.
4. Explore modern web architectures like PWAs, Microservices, Serverless, and GraphQL.

MODULE – I FOUNDATIONS OF WEB ARCHITECTURE AND FRONTEND BASICS

Evolution: Static to SPA to PWA, Client-server model, HTTP/HTTPS, DNS, HTML5, CSS3, JavaScript (ES6+), DOM, async programming, Responsive design: Flexbox, Grid, media queries, Tooling: npm, Webpack/Vite, Babel, Git

Hands-On Activities:

1. Build a responsive webpage using HTML, CSS, and JS
2. DOM manipulation and async interaction using Promises
3. Set up a project with npm and Webpack

MODULE – II WEB TECHNOLOGIES, APIS, AND BACKEND FUNDAMENTALS

Frontend: React/Vue/Angular; Backend: Node.js, PHP, Flask, REST API: CRUD, JWT, OAuth 2.0, SQL vs NoSQL; ORM tools, SSR vs CSR, Microservices overview, API docs: Swagger/OpenAPI

Hands-On Activities:

1. Create a RESTful API using Express.js or Flask
2. Integrate MongoDB or PostgreSQL
3. API authentication using JWT

MODULE – III FULL-STACK DEVELOPMENT AND STATE MANAGEMENT

Component design: Virtual DOM, props, state, State management: Redux, Context API, Routing and SPA patterns, Full-stack frameworks: Next.js, GraphQL basics, WebSockets, real-time messaging.

Hands-On Activities:

1. Build a small React+Node full-stack app
2. Implement WebSocket-based chat feature
3. Use Apollo for GraphQL integration

MODULE – IV PERFORMANCE, SECURITY, AND DEVOPS PRACTICES

Performance: lazy loading, CDN, caching, Security: XSS, CSRF, input validation, CORS, Testing: Jest, Cypress, CI/CD: GitHub Actions, Docker, Logging & Monitoring: ELK stack, Prometheus

Hands-On Activities:

1. Create CI/CD pipeline with GitHub Actions
2. Dockerize a web app
3. Write unit & integration tests with Jest

MODULE – V ADVANCED ARCHITECTURES AND EMERGING TRENDS

Microservices, serverless (AWS Lambda, Firebase), Scalability: Load balancing, autoscaling, Terraform, PWAs, Edge computing, Jamstack, WASM, AI/ML integration, Kafka, Ethics: Privacy, accessibility, sustainability

Hands-On Activities:

1. Convert app to PWA using service workers
2. Deploy microservice to cloud (e.g., Vercel or Firebase)
3. WASM demo using Rust or C++ modules in JS

PROJECTS DURING THE SEMESTER:

1. Build an e-commerce full-stack PWA
2. Design a scalable chat app using microservices and GraphQL
3. Develop a dashboard with Docker-based deployment and monitoring
4. Create a serverless blog with authentication and GraphQL API

PEDAGOGY:

Mentor must introduce each web development concept by anchoring it to real-world scenarios such as designing an e-commerce portal, a social networking site, or a live data dashboard. Frontend and backend topics should be taught through progressive, hands-on projects. Emphasis should be placed on version control, collaborative coding, performance optimization, and deployment practices. Through the "How to Solve it" approach.

RECOMMENDED TEXTBOOKS:

1. Stoica & Tanenbaum, Distributed Systems: Principles and Paradigms
2. MacDonald, Pro ASP.NET Core 3
3. Martin Fowler, Patterns of Enterprise Application Architecture
4. Mozilla MDN: https://developer.mozilla.org
5. Google Web Fundamentals: https://web.dev

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Course Code: UMJDTT-604

Course Title: Computer Graphics and Visualization using Java

Credits: 06

Contact Hours: 12 per Credit

Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course introduces the principles and practices of computer graphics, focusing on both 2D and 3D graphics programming using Java. Students will learn fundamental algorithms for drawing, transformations, clipping, and rendering, while exploring color models, projections, and shading techniques. Through hands-on coding, visualization exercises, and mini-projects, learners will develop the ability to build interactive visual applications, apply geometric transformations, and implement animation and visualization techniques for real-world scenarios.

LEARNING OUTCOMES:

1. Understand fundamental concepts of computer graphics and visualization.
2. Learn 2D and 3D graphics programming using Java.
3. Implement foundational graphics algorithms and transformations.
4. Build interactive Java-based visual applications.
5. Apply visualization techniques for rendering, clipping, and animation.

MODULE - I FUNDAMENTALS OF COMPUTER GRAPHICS

Introduction to Computer Graphics and its applications, Raster vs Vector graphics, Color models: RGB, CMYK, HSV, Java 2D API and Graphics2D class, Drawing shapes (lines, ovals, rectangles), Raster graphics concepts: Pixels, resolution, frame buffers, Basic scan conversion algorithms for line and circle drawing

Hands-On Activities:

1. Drawing shapes using Java 2D API (drawLine, drawRect, drawOval)
2. Color manipulation using RGB models
3. Implement and visualize DDA and Bresenham algorithms in Java

MODULE - II GRAPHIC PRIMITIVES

Concept of graphic primitives: points, lines, circles, ellipses, Algorithms: DDA, Bresenham (line/circle), Midpoint ellipse, Area filling: Boundary fill, Flood fill, Scan-line fill, Aliasing and filtering: Sampling, halftoning, anti-aliasing techniques

Hands-On Activities:

1. Java implementation of area filling algorithms
2. Visual demonstration of aliasing and anti-aliasing
3. Real-time shape drawing and user interaction

MODULE - III GEOMETRIC TRANSFORMATIONS

2D and 3D transformations: Translation, Scaling, Rotation, Shearing, Reflection, Homogeneous coordinate system, Matrix representation and composite transformations

Hands-On Activities:

1. Implement 2D transformations with GUI controls
2. Animate geometric objects undergoing multiple transformations
3. Visualize composite transformations using Java Graphics2D

MODULE - IV VIEWING & CLIPPING TRANSFORMATIONS

Projections: Parallel, Orthographic, Oblique, Isometric, Perspective projections: Vanishing points, 1-point, 2-point, 3-point, Clipping techniques: Cohen–Sutherland, Cyrus–Beck

Hands-On Activities:

1. Visualize various projections using Java 3D
2. Implement Cohen–Sutherland line clipping
3. Create a simple viewport to clip and render a 3D object

MODULE - V THREE-DIMENSIONAL OBJECT REPRESENTATION

Polygon meshes and plane equations, Curves and surfaces: Bezier curves, Hermite interpolation, Hidden surface removal: Z-buffer, scan-line, Painter's algorithm, Shading models: Flat, Gouraud, Phong

Hands-On Activities:

1. Render Bezier curves and control points
2. Simulate 3D object rotation with shading
3. Implement Z-buffer-based hidden surface removal in Java

PROJECTS DURING THE SEMESTER:

1. Interactive Paint Application using Java 2D and raster graphics algorithms
2. 3D Wireframe Visualizer with projection and transformation support
3. Graph Coloring Simulator with user input and visual feedback
4. Bezier Curve Editor with real-time rendering and control-point manipulation
5. Polygon Clipping Tool for visualizing line and area clipping in 2D/3D scenes

PEDAGOGY:

Mentor must link each computer graphics concept to real-world uses such as drawing tools, interactive dashboards, or simple games. Topics like coordinate systems, transformations, and animation should be taught through progressive Java-based projects using AWT, Swing, and JavaFX. Visualization should involve relatable datasets to make concepts tangible. The "How to Solve it" approach should guide problem breakdown, coding, debugging, and performance tuning, with emphasis on collaboration and version control.

RECOMMENDED TEXTBOOKS:

1. Foley, J.D., et al., Computer Graphics: Principles and Practice, Addison-Wesley
2. Hearn, D. & Baker, M.P., Computer Graphics with OpenGL, Pearson Education
3. Hill, F.S., Computer Graphics Using OpenGL, Pearson Education
4. Rogers, D.F., Procedural Elements for Computer Graphics, McGraw-Hill
5. Watt, A., 3D Computer Graphics, Addison-Wesley

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Semester VI
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Course Code: UMJDTT-605

Course Title: Data Structure Design Using Object-Oriented Programming C\C++

Credits: 06

Contact Hours: 12 per Credit

Maximum Marks : 150
Mid Semester Exam : 40
End Semester Exam : 60
Project Cumulative : 50

COURSE DESCRIPTION: This course provides a comprehensive study of data structure design and implementation using both C and C++. Students will learn to apply object-oriented principles to develop modular, reusable, and efficient data structures, while comparing procedural (C) and class-based (C++) approaches. Topics include linear and non-linear structures such as arrays, linked lists, stacks, queues, trees, graphs, and heaps, along with their real-world applications. Through hands-on coding and mini-projects, learners will gain practical skills in problem-solving, memory management, and the integration of custom and STL-based data structures into application design.

Learning outcomes:

1. Understand and apply fundamental data structures using C and C++ programming.
2. Implement object-oriented concepts for designing modular and reusable data structures.
3. Compare C-based and C++ class-based design methodologies.
4. Solve computational problems using linear and non-linear data structures.
5. Develop mini-projects integrating custom data structures with real-world use cases.

MODULE - I FOUNDATIONS OF DATA STRUCTURE DESIGN WITH C AND C++

C basics: structs, pointers, dynamic memory (malloc/free), C++ basics: classes, objects, constructors/destructors, designing data structures: arrays and structs in C vs. classes in C++, Memory management: dynamic allocation in C vs. C++

Hands-On Activities:

i. Implement dynamic arrays in both C and C++
ii. Compare memory leaks and management using malloc/free vs. new/delete

MODULE -–II OBJECT-ORIENTED PROGRAMMING FOR DATA STRUCTURES

Core OOP principles: encapsulation, inheritance, polymorphism, Designing ADTs using C++ classes, Access specifiers and class hierarchies, Struct-based vs. class-based design comparisons

Hands-On Activities:

i. Create stack and queue as ADTs in C++
ii. Demonstrate function and operator overloading for data types

MODULE - III DESIGNING LINEAR DATA STRUCTURES

Linked lists: singly and doubly linked lists, Stack: array-based and linked-list-based implementations, Queue: linear, circular, and linked-list-based, OOP design: encapsulation, polymorphism in stack/queue operations

Hands-On Activities:

i. Build linked lists using structs and classes
ii. Compare performance and use-cases of different queue implementations

MODULE - IV DESIGNING NON-LINEAR DATA STRUCTURES

Binary trees and binary search trees (BSTs), Graph representations: adjacency matrix vs. list, Heaps: min-heap and max-heap as priority queues, Use of inheritance and polymorphism in tree and graph designs

Hands-On Activities:

i. Implement tree traversals (inorder, preorder, postorder)
ii. Simulate BFS/DFS using graph classes in C++
iii. Use heaps for task scheduling

MODULE - V REAL-WORLD DATA STRUCTURE APPLICATIONS

Design patterns in DS: Iterator, Strategy, Composite, Sorting and searching algorithms using OOP, Introduction to Standard Template Library (STL), Boost, modern C++ features

Mini-project planning: social network, scheduler, etc.

Hands-On Activities:

i. Implement sort/search functions with performance comparison
ii. Use STL for advanced DS design and manipulation

PROJECTS DURING THE SEMESTER:

1. Build a custom task scheduler with priority queues and linked lists
2. Create a graph-based social network explorer
3. Develop an STL-enhanced application like a mini-database manager

PEDAGOGY:

Mentor must introduce each data structure by anchoring it to real-life problem contexts such as task scheduling, social networks, or file systems. Concepts like stacks, queues, trees, and graphs should be taught using both C and C++ implementations, allowing students to compare procedural and object-oriented design approaches. Emphasis should

be placed on visualization, modular coding, and hands-on practice to strengthen problem-solving abilities. Through the "How to Solve it" approach, students should be encouraged to identify the most suitable data structure for a given scenario and design efficient, reusable code structures naturally—rather than learning them in isolation.

RECOMMENDED TEXTBOOKS:

1. Yashavant Kanetkar, Let Us C, BPB Publications (2016)
2. E. Balagurusamy, Object-Oriented Programming with C++, McGraw Hill (2007)
3. Supplementary Textbooks:
4. Michael T. Goodrich, R. Tamassia, Data Structures and Algorithms in C++, Wiley (2014)
5. Y. Langsam, M. Augenstein, A. Tenenbaum, Data Structures Using C and C++, Prentice Hall
6. Mark Allen Weiss, Data Structures and Algorithm Analysis in C++, Pearson Education

UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A ++' GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section
Email: academicsectionju14@gmail.com

NOTIFICATION
(25/Oct./Adp./124)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the syllabi and courses of study of **Bachelor in Business Administration (BBA) Four Year Under Graduate Programme (Design Your Degree)** of Semester V **(as given in the annexure)** for the examinations to be held in the years as per details given below:-

Subject	Semester	For the examinations to be held in the year
Business Administration (BBA) FYUGP (Design Your Degree)	Semester- V	December 2025, 2026 and 2027

The Syllabi of the courses are also available on the University website: www.jammuuniversity.in

Sd/-
DEAN ACADEMIC AFFAIRS

No. F.Acd/II/25/ 12005-018
Dated: 04/11/25

Copy to:

1. Director/Convener, Board of Studies in Design Your Degree
2. All members of the Board of Studies.
3. C.A. to the Controller of Examinations
4. Director, CITES&M, University of Jammu for directing the concerned to upload the notification on University Website.
5. Director, Computer Centre, University of Jammu
6. Joint Registrar/Deputy Registrar/Asst. Registrar (Conf. /Exams. UG)

31/10/25
Joint Registrar (Academic)

31/10/25

UNIVERSITY OF JAMMU

COURSE STRUCTURE OF BACHELOR IN BUSINESS ADMINISTRATION (BBA) UNDER DESIGN YOUR DEGREE (DYD)

SEMESTER V (30 credits)						
S.NO	Course Code	Course Title	No. of Credits	Course type	L-T-P/EL	Total Marks
1	UMJDBT-501	Principles and Practices of Management and Organization Behaviour	6	Major	4-0-2	150
2	UMJDBT-502	Financial Accounting	6	Major	4-0-2	150
3	UMJDBT-503	Marketing Management	6	Major	4-0-2	150
4	UMJDBT-504	Business Economics	6	Major	4-0-2	150
5	UMJDBT-505	Legal and Ethical Issues in Business	6	Major	4-0-2	150

SEMESTER VI (30 credits)						
S.NO	Course Code	Course Title	No. of Credits	Course type	L-T-P/EL	Total Marks
1	UMJDBT-601	Human Resource Management	6	Major	4-0-2	150
2	UMJDBT-602	Operations Management	6	Major	4-0-2	150
3	UMJDBT-603	Financial Management	6	Major	4-0-2	150
4	UMJDBT-604	Business Environment and Public Policy	6	Major	4-0-2	150
5	UMJDBT-605	Innovation and Entrepreneurship	6	Major	4-0-2	150

*L- Lecture, *T- Tutorial, *P/EL- Practical / Experiential Learning

UNIVERSITY OF JAMMU

COURSE STRUCTURE OF BACHELOR IN BUSINESS ADMINISTRATION (BBA) UNDER DESIGN YOUR DEGREE (DYD)

SEMESTER VII (30 credits)						
S.NO	Course Code	Course Title	No. of Credits	Course type	L-T-P/EL	Total Marks
1	UMJDBT-701	Strategic Management	6	Major	4-0-2	150
2	UMJDBT-702	Consumer Behaviour	6	Major	4-0-2	150
3	UMJDBT-703	HRD Systems & Strategies	6	Major	4-0-2	150
4	UMJDBT-704	Financial Markets and Services	6	Major	4-0-2	150
5	UMJDBT-705	Logistics and Supply Chain Management	6	Major	4-0-2	150

SEMESTER VIII (Hons) (30 credits)						
S.NO	Course Code	Course Title	No. of Credits	Course type	L-T-P/EL	Total Marks
1	UMJDBT-801	Project Management	6	Major	4-0-2	150
2	UMJDBT-802	Business Research Methods	6	Major	4-0-2	150
3	UMJDBT-803	Marketing of Services	6	Major	4-0-2	150
4	UMJDBT-804	International Financial Management	6	Major	4-0-2	150
5	UMJDBT-805	Negotiation Skills	6	Major	4-0-2	150

SEMESTER VIII (Research) (24 credits)						
S.NO	Course Code	Course Title	No. of Credits	Course type	L-T-P/EL	Total Marks
1	UMJDBT-801	Project Management	6	Major	4-0-2	150
2	UMJDBT-802	Business Research Methods	6	Major	4-0-2	150
3	UMJDBP-806	Research Project	12	Major	0-0-12	300

*L- Lecture, *T- Tutorial, *P/EL- Practical / Experiential Learning

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Course Code: UMJDBT-501

Credits: 06
Contact Hours:60

Course Title: Principles and Practices of Management and Organization Behaviour
Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

Course Description

This course aims to provide an integrated overview of **management principles** and **organizational behaviour (OB)** concepts essential for effective functioning in modern organizations. It covers foundational topics of management and core managerial functions, and essential OB topics including personality, motivation, leadership, group dynamics, and organizational culture. The course emphasizes understanding human behavior in a workplace setting and how management practices influence employee performance, satisfaction, and productivity. Through case studies, group discussions, and practical examples, students will develop critical thinking and decision-making skills relevant to real-world business contexts.

Course Objectives:

1. Understand the core concepts, nature, and significance of management in organizations.
2. Comprehend the fundamental managerial functions: planning, organizing, staffing, directing, and controlling.
3. Analyze individual and group behavior within organizations to identify factors that influence perception, attitude, personality, motivation, and performance of individuals.
4. Examine the role of leadership, organizational culture, and structure in shaping employee behavior and organizational effectiveness.

Course Outcomes:

On successful completion of this course, students will be able to:

1. Define and explain the principles and functions of management.
2. Apply management functions to managerial scenarios.
3. Critically assess individual and group behaviour in organizational contexts using appropriate analytical tools.

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Course Code: UMJDBT-501

Course Title: Principles and Practices of Management and Organization Behaviour

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

4. Identify motivational strategies and leadership styles suitable for different organizational scenarios and design interventions for managing change and resolving conflicts.

Course Contents

Module I: Introduction to Management

Management thoughts; Management levels; Management skills, Social responsibility of managers, Managerial Ethics.

Module II: Functions of Management

Planning; Organising; Staffing; Directing; Controlling.

Module III: Organisational Behaviour

Organizational behaviour models: Cognitive framework, Behaviouristic framework and Social cognitive framework; Individual Behaviour: Perception, Attitude, and Personality.

Module IV: Group Behavior and Organisational Dynamics

Group Behaviour: Motivation, Leadership, Group dynamics, Stress and Conflict; Organisational dynamics: Organisational culture, Organisational change, Organisational power and politics.

Guidelines for Assessment and Evaluation

For

Semesters V - VIII of FYUGP (DYD)

1 Assessment and Evaluation Model

Features of this Model of Assessment and Evaluation are:

- Domain knowledge: Tested through class tests and end-sem examination.
- Creativity: Assignments, seminars, open-ended examination questions.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Bachelor In Business Administration (BBA)
Semester V
(For the session 2025, 2026 and 2027)

Course Code: UMJDBT-501

Credits: 06
Contact Hours:60

Course Title: Principles and Practices of Management and Organization Behaviour
Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

- Hands-on experience: Practical tasks and project work to build real-world problem-solving skills.

Following scheme of assessment and evaluation shall be followed for the last two years of FYUGP (DYD):

1.1 Continuous Internal Assessment (CIA) - 40 Marks

This ensures sustained engagement and assessment beyond the final exam. CIA shall have the following components:

- Class Tests and Quizzes (10 Marks): This shall focus on concepts clarity, analytical ability comprising 2 or 3 short written or online tests.
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- Seminar and Presentation (5 Marks): This shall have individual or group presentation to be evaluated for communication, originality, creativity, and depth.

1.2 Project and Semester Work - 50 Marks

A Project/Semester work of the course has to be a group activity and is required to be at the intersection of two or more courses of the semester. It is required that the project is application-based, design-oriented/research-oriented with the following evaluation criteria:

- Problem formulation - 10 Marks.
- Methodology/creativity - 15 Marks.
- Implementation/results - 15 Marks.
- Report and viva - 10 Marks.

The project shall be evaluated jointly by internal and external examiners with 50 percent marks to be allotted to each examiner separately in each of the above components of the project.

1.3 End-Semester Examination - 60 Marks

This is designed to test comprehensive domain knowledge and applications. The question paper shall have three sections:

- Section A - 20 Marks: Short answer questions to test fundamentals and breadth of domain knowledge.
- Section B - 20 Marks: Problem-solving and applications of the domain knowledge. The problems need to be conceptual numerical and case-based related to real world applications.

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Course Title: Principles and Practices of Management and Organization Behaviour

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

- Section C - 20 Marks: This is to be devoted to essay/analytical questions (choice-based) and have to be Open-ended, requiring synthesis, critical thinking, and creativity.

Suggested Readings (Latest Editions):

1. Luthans, F., Organizational Behaviour, Tata McGraw-Hill, New York.
2. Durai, P., Principles of Management, Text and Cases, Pearson Education, New Delhi.
3. Koontz, H., Essentials of Management, Tata McGraw-Hill, New Delhi.
4. Robbins, S.P., Sanghi, S. & Judge, T.A., Organizational Behavior, Pearson Education, New Delhi.
5. Aswathappa, K., Organizational Behaviour, Himalaya Publishing House, New Delhi.

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Course Code: UMJDBT-502

Course Title: FINANCIAL ACCOUNTING

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

Course Description:

This course intends to introduce basic accounting principles and practices. The students will have knowledge about the fundamental accounting processes such as journalizing, ledger posting, preparation of trial balance and final accounts in sole trading and company form of business. It also deals with providing an overview of accounting standards on sustainability accounting as value creation for business.

Course Objectives:

1. To provide an understanding of application of various principles and practice of accounting.

2. To demonstrate the knowledge on the process of accounting cycle and basic steps involved in accounting.

3. To apply the knowledge of systematic maintenance of books of accounts to real life business.

4. To estimate Annual Financial statements of Sole proprietorship and Company form of business.

Course Outcomes: On having completed this course student should be able to:

1. Identify the application of various principles and practice of accounting in preparation of accounting statements.

2. Demonstrate the knowledge on the process of accounting cycle.

3. Apply the knowledge of systematic maintenance of books of accounts to real life business.

4. Estimate Annual Financial statements of Sole proprietorship and Company form of business.

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Course Title: FINANCIAL ACCOUNTING

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

Course Contents:

Module I: Introduction to Accounting, Accounting system and process

Meaning, Need for accounting and accounting information system, Stakeholder using accounting information, Qualitative aspects of financial accounting, Accounting standards (outline), Branches of Accounting, Types of Business Organisations, Accounting concepts and conventions, Accounting concept of income and expenditure, Classification of capital and revenue- expenditure and income, accounting equation of assets equals capital and liabilities, accounting process, contingent assets and liabilities, Fictitious assets.

Module II: Recording transactions and Trial balance

Transactions -nature, Entry in Journal, Purchases, sales, Returns, Receivables, and payables, Inventory, Depreciation and amortizations, reserves, Intangible assets accounting, GST transactions, Entry in Ledger, Accounting accuracy through Trial balance, correction of errors.

Module III: Final Accounts

Preparation of Trading and Profit and Loss account, cash books, and Balance Sheet of sole trading concerns, importance of disclosures in final accounts.

Module IV: Company Final Accounts

Introduction to company – kinds, share capital, issue of shares, schedules to accounts, Financial Statements as per Companies Act- 2013, Provisions as to preparation of Financial Statements, Preparation of Income statement and Balance sheet (horizontal and Vertical).

Green Accounting and Sustainable Reporting- Need and objectives, Sustainability reporting need and methods, data collection, analysis for sustainable reporting to improve value of business, IFRS Financial sustainability disclosure standards.

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Semesters V - VIII of FYUGP (DYD)

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External Evaluation: 60
Project:50

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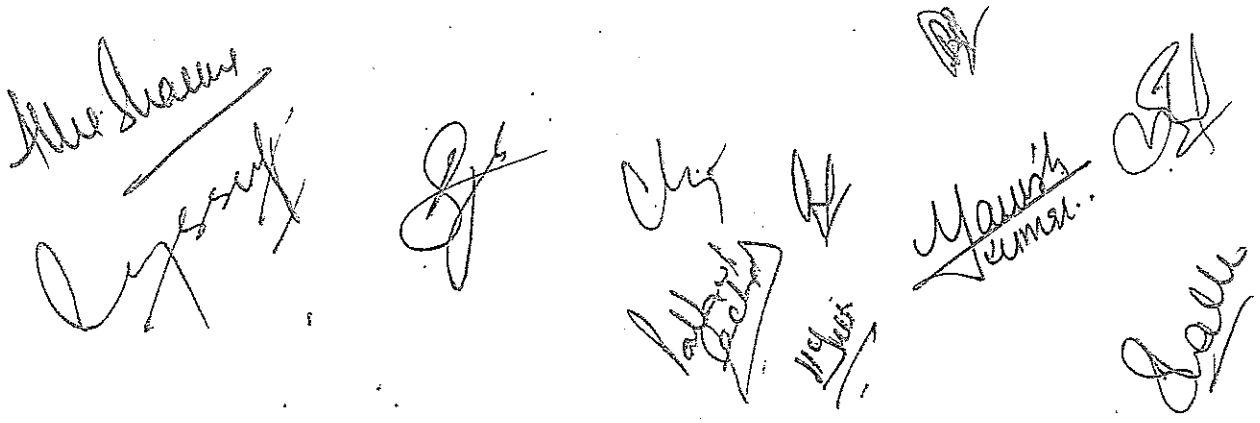

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Course Title: FINANCIAL ACCOUNTING

Credits: 06
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Maximum Marks: 150
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Suggestive Reading (Latest Editions):

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2. Gupta, A., Financial Accounting for Management: An Analytical Perspective, Noida, Pearson Education.

3. Maheshwari, S.N. & Maheshwari, S.K., Financial Accounting, Vikas Publishing House, New Delhi.

4. Bhattacharya, A.K., Essentials of Financial Accounting, PHI.

5. Accounting for Sustainability: www.ifac.org

6. Bartelmus, Peter & Seifert, E.K., Green Accounting, London, Routledge Publications.

7. IFRS sustainability standards: www.ifrs.org.

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Semester V
(For the session 2025, 2026 and 2027)

Course Code: UMJDBT-503

Course Title: MARKETING MANAGEMENT

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

Course Objectives:

1. To understand the marketing philosophies and environment.
2. To provide critical insights about the product and service development.
3. To acquaint the students with pricing, promotion and distribution mechanism.
4. To integrate various channel levels.

Learning Outcomes: After completing this course students will be able to:

1. analyse and interpret marketing environment and strategies.
2. formulate product and service strategies.
3. develop pricing structure and manage integrated marketing communication.
4. critically evaluate channel decisions.

Module I: UNDERSTANDING MARKETING

Marketing concepts; Company orientation towards market place; Marketing strategies and plan; Marketing and customer value; Corporate and division strategic planning; Customer experience; Marketing environment; Market segmentation, Targeting and Positioning; AI for marketing.

Module II: PRODUCT STRATEGY AND SERVICES

Product Levels; Product classification; Differentiation; Product life cycle; New product development; Product mix; Packaging and Labeling; Managing services; Service dominant logic; GAP Model; Service failures and recovery.

Module III: PRICING AND COMMUNICATION STRATEGY

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Course Title: MARKETING MANAGEMENT

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

Understanding pricing; Adapting the price; Setting the price; Managing communication; Advertising; Sales promotion; Events; Public relations; Personal communication: Direct and personal selling; Managing digital communication.

Module IV: CHANNEL MANAGEMENT

Channel management: Channel levels, Channel- management decision, Channel conflict; Managing retailing and wholesaling; Omnichannel retailing; Market Logistics.

Guidelines for Assessment and Evaluation

For

Semesters V - VIII of FYUGP (DYD)

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Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
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Course Title: MARKETING MANAGEMENT

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation: 60
Project:50

Suggestive Readings

1. Kotler, P. & Keller, K.J., Marketing Management, Pearson India.
2. Ramaswamy, V.S. & Namakumari, S., Marketing Management, Sage Publication.
3. Panda, T.K., Marketing Management: Text and Cases, Excel Books.
4. Kotler, P. & Armstrong, G., Principles of Marketing, Prentice Hall of India.

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Bachelor In Business Administration (BBA)
Semester V
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Course Code: UMJDBT-504

Course Title: Business Economics

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation:40
External Evaluation:60
Project:50

Course Title: Course Objectives:

- To equip students with economic tools for effective managerial decision-making.
- To analyze demand, cost, production, and market conditions from a managerial perspective.
- To understand the influence of market structures and macroeconomic environment on business strategies.

Course Learning Outcomes (CLOs):

By the end of this course, students will be able to:

- Apply economic principles to managerial decisions.
- Analyze demand and forecasting techniques in a business context.
- Interpret cost behavior and production efficiency.
- Make pricing and output decisions under various market conditions and macroeconomic scenarios.

Module I: Introduction to Managerial Economics and Demand Analysis

Nature, Scope, and Significance of Managerial Economics; Fundamental Concepts: Opportunity Cost, Marginal and Incremental Analysis, Time Perspective; Objectives of the Firm: Profit Maximization vs. Value Maximization; Demand Analysis: Determinants of Demand, Law of Demand; Elasticity of Demand: Price, Income, and Cross Elasticity; Demand Forecasting Techniques (Qualitative & Quantitative)

Module II: Production and Cost Analysis

Production Function: Short-run and Long-run; Laws of Production: Law of Variable Proportions, Returns to Scale; Isoquants, Isocosts and Optimal Input Combination; Cost Concepts: Fixed, Variable, Marginal, Average, Total Costs; Short-run and Long-run Cost Curves; Economies and Diseconomies of Scale; Break-even Analysis and Managerial Application

Module III: Market Structures and Pricing Strategies

Market Structures: Features and Pricing under Perfect Competition, Monopoly, Monopolistic Competition, Oligopoly (Kinked Demand Curve, Price Leadership), Pricing Strategies: Cost-based, Penetration, Skimming, Price Discrimination, Price-output Determination in Short and Long Run

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Credits: 06
Contact Hours:60

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Project:50

Module IV: Profit Management and Macroeconomic Environment

Profit Concepts: Accounting vs. Economic Profit; Theories of Profit: Risk and Uncertainty, Innovation Theory; Managerial Use of Profit Forecasting; Business Cycles: Phases, Causes, and Effects; Basic Macroeconomic Concepts: GDP, Inflation, Interest Rate, Exchange Rate; Impact of Fiscal and Monetary Policies on Business Decision-Making

Guidelines for Assessment and Evaluation

For

Semesters V - VIII of FYUGP (DYD)

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Credits: 06
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Course Title: Business Economics

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Contact Hours:60

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Internal Evaluation:40
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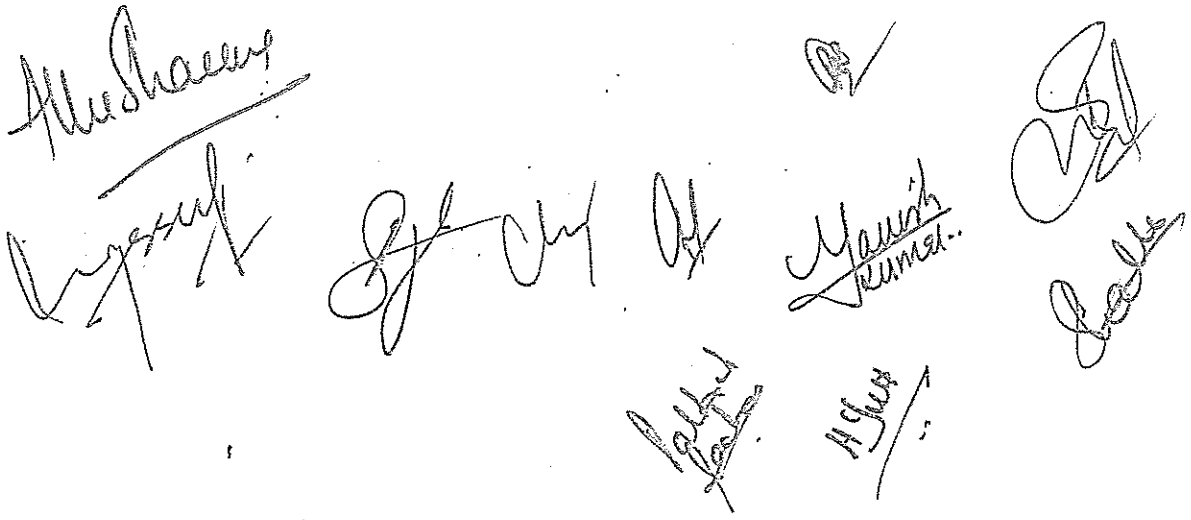
Project:50

Suggested Readings:

- Ahuja, H. L. (2022). *Managerial Economics* (9th ed.). New Delhi: S. Chand & Company Ltd.
- Atmanand. (2007). *Managerial Economics*. New Delhi: Excel Books.
- Dean, J. (1951). *Managerial Economics*. Englewood Cliffs, NJ: Prentice Hall.
- Dwivedi, D. N. (2020). *Managerial Economics* (8th ed.). New Delhi: Vikas Publishing House.
- Salvatore, D. (2020). *Managerial Economics in a Global Economy* (9th ed.). New York: Oxford University Press.
- Hirschey, M. (2015). *Managerial Economics* (13th ed.). Boston, MA: Cengage Learning.
- Keat, P. G., Young, P. K. Y., & Erfle, S. E. (2013). *Managerial Economics: Economic Tools for Today's Decision Makers* (7th ed.). New Jersey: Pearson Education.
- Mehta, P. L. (2016). *Managerial Economics: Analysis, Problems and Cases* (9th ed.). New Delhi: Sultan Chand & Sons.
- Petersen, C. H., & Lewis, W. C. (2004). *Managerial Economics* (4th ed.). New Delhi: Pearson Education.
- Samuelson, W. F., & Marks, S. G. (2015). *Managerial Economics* (8th ed.). Hoboken, NJ: Wiley India.
- Thomas, C. R., & Maurice, S. C. (2016). *Managerial Economics* (12th ed.). New York: McGraw-Hill Education.
- NPTEL Video Lectures (Online resource)



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Course Code: UMJDBT-505

Course Title: LEGAL AND ETHICAL ISSUES IN BUSINESS

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation:60
Project:50

Course Description:

This course intends to introduce the students to the key legal and ethical issues encountered in business. It covers the Indian Contract Act (1872) including contracts, agency, and remedies; and the Sale of Goods Act (1930) focusing on ownership transfer, conditions, warranties, and remedies. The course also provides overview about business ethics, including theories, workplace ethics, ethical decision-making, and corporate social responsibility. Additionally, it addresses ethics across functional areas like marketing, HR, finance, and technology, with special focus on diversity, inclusion, and workplace behaviour.

Course Objectives:

1. To familiarize students with the fundamental principles of contract law under the Indian Contract Act (1872) including formation, performance, discharge, and remedies.
2. To enable students to understand the legal framework of the Sale of Goods Act (1930). covering ownership transfer, conditions, warranties, and remedies in business transactions.
3. To develop an understanding of business ethics, its need, benefits, and the application of ethical theories in decision-making and corporate social responsibility.
4. To sensitize students to ethical behavior in the workplace and across various functional areas such as marketing, finance, human resources, and production.

Course Outcomes: On having completed this course, student should be able to:

1. explain the key concepts and provisions of the Indian Contract Act (1872) including contracts, agency, and remedies.

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Credits: 06
Contact Hours:60

Maximum Marks: 150
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Project:50

2. analyze the legal provisions of the Sale of Goods Act (1930) and apply them in practical business transactions.
3. evaluate ethical issues and dilemmas in business decision-making and assess corporate social responsibilities.
4. formulate ethical solutions for workplace situations and functional business challenges, considering diversity, inclusion, and fair practices.

Module I: THE INDIAN CONTRACT ACT (1872)

General principles; Offer and acceptance; Competence of contracting parties; Consent; Consideration; Void agreements; Performance of contracts; Discharge of contracts; Quasi-contracts; Remedies for breach of contract; Contracts of agency.

Module II: THE SALE OF GOODS ACT (1930)

General principles; Conditions and warranties; Transfer of ownership; Performance of contract of sale; Remedial measures; Auction sale.

Module III: INTRODUCTION TO BUSINESS ETHICS

Ethics and morals; Law vs. ethics; Business ethics: Need, benefits and theories; Three components of business: Economic, legal and ethical; Workplace ethics: Ethical corporate behaviour; Ethical leadership; Ethical decision making; Ethical dilemmas; Social responsibility of business.

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Module IV: WORKPLACE ETHICS AND ETHICS OF FUNCTIONAL AREAS

Factors Influencing ethical behavior at work; Diversity and inclusion in workplace; Accommodating different abilities and faiths; Sexual identification and orientation; Animal rights and the implication for business; Ethics in marketing and consumer protection; Ethics in accounting and finance; Ethics in HR, production and information technology.

Guidelines for Assessment and Evaluation

For

Semesters V - VIII of FYUGP (DYD)

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Project:50

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- Report and viva - 10 Marks.

The project shall be evaluated jointly by internal and external examiners with 50 percent marks to be allotted to each examiner separately in each of the above components of the project.

1.3 End-Semester Examination - 60 Marks

This is designed to test comprehensive domain knowledge and applications. The question paper shall have three sections:

- Section A - 20 Marks: Short answer questions to test fundamentals and breadth of domain knowledge.
- Section B - 20 Marks: Problem-solving and applications of the domain knowledge. The problems need to be conceptual numerical and case-based related to real world applications.
- Section C - 20 Marks: This is to be devoted to essay/analytical questions (choice-based) and have to be Open-ended, requiring synthesis, critical thinking, and creativity.

University of Jammu
Four Year Innovative Undergraduate Program
(Design Your Degree)
Bachelor In Business Administration (BBA)
Semester V
(For the session 2025, 2026 and 2027)

Course Code: UMJDBT-505

Course Title: LEGAL AND ETHICAL ISSUES IN BUSINESS

Credits: 06
Contact Hours:60

Maximum Marks: 150
Internal Evaluation: 40
External Evaluation:60
Project:50

Suggestive Reading (Latest Editions)

1. Maheshwari, S.N. & Maheshwari, S.K., A Manual of Business Laws, Himalaya Publishing House.
2. Gulshan S.S. & Kapoor, G.K., Business Laws including Company Law, New Age International Publishers.
3. Tulsian, P.C. & Tulsian, B., Business Law, McGraw Hill Education.
4. Fernando, A.C., Business Ethics: An Indian Perspective, Pearson Education of India.
5. Ghosh, B.N., Business Ethics and Corporate Governance, Tata McGraw Hill Education.
6. Weiss, J.W., Business Ethics: A Stakeholder and Issues Management Approach, Berrett-Koehler Publishers.