Design your own degree @IUST

May 29, 2025

Outline

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4. Courses and Courses Basket Mapping
5. Majors
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Why Design Your Own Degree

Why Design your own degree?

- **Customization**
  - Students design their academic journeys based on their interests, aptitudes, and career aspirations
  - Break traditional boundaries between subjects
  - blend arts, sciences, commerce → well-rounded education, multidisciplinary education.
- **Pedagogy** → Project based collaborative problem solving
  - *Active learning* → students work on real-world problems to acquire knowledge and skills.
  - Promote → critical thinking, analytical skills, deeper understanding of subjects by placing students in practical situations.
  - *Projects* → interdisciplinary learning, collaboration, creativity, communication skills
  - Peer learning, understand diverse perspectives, develop team skills.

Why Design your own degree?

- Increased emphasis on internships, projects, and fieldwork
- Interdisciplinary and transdisciplinary learning
- Skill development $\rightarrow$ essential for the future workplace $\rightarrow$ critical thinking, digital literacy, leadership
- Flexible/Innovative evaluation mechanisms
- Integration of Technology $\rightarrow$ better learning experiences using online resources, digital collaboration tools, simulation software
- Flexibility in duration and exit options $\rightarrow$ educational journey is tuned to individual student needs.
- Many similarities between NEP2020 and DYOD

IUST advantage

- Already running many undergraduate courses/integrated Masters courses like B.Tech, FYUGP programs, IMBA
- Good infrastructural resources in Technology/Engineering/Science
- Human resources across multiple domains in science/engineering/humanities
- Established and nationally recognised ecosystem of innovation and entrepreneurship $\rightarrow$ CIED, DIC
- Recent increased emphasis on skilling $\rightarrow$ Kalam Academy of skilling

DYOD@IUST - Basic Modalities

Program Implementation Committee

1. Dean Academic Affairs (Chairperson)
2. Coordinator, Design Innovation Centre, IUST (Member).
3. Dr. Farooq Hussain Bhat (Member)
4. Dr. Ruheela Hassan Sheikh (Member)
5. Dr. Muzafar Rasool (Member)
6. Dr. Mohammad Asif Bashir Naqshbandi (Member)
7. Dr. Asif Ali Banka (Member Secretary)

DYOD@IUST - Basic Modalities

Board of Studies

1. Dean Academic Affairs (Chairperson)
2. Coordinator, Design Innovation Centre, IUST (Convener/Member).
3. **Prof. Shobha Bagai**, Cluster Innovation Centre, **Delhi University** (AC Nominee).
4. **Prof. Amit Apte**, Chair, Data Science, **IISER Pune** (AC Nominee).
5. Dr. Farooq Hussain Bhat (VC Nominee)
6. Dr. Ruheela Hassan Sheikh (VC Nominee)
7. Dr. Muzafar Rasool (VC Nominee)
8. Dr. Mohammad Asif Bashir Naqshbandi (VC Nominee)
9. Dr. Asif Ali Banka (VC Nominee)
10. **Co-opted members**

Conducted 2 BOS meetings in 2024, in January and October.

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Academic Scheme

Academic Scheme

- The BS program through DYOD is a four year UG program to be coordinated by Design Innovation Centre (DIC@IUST).
- **Nomenclature: $\rightarrow$ BS[1] in a Major discipline $\rightarrow$ through DYOD mode.**
- **Duration:** 4 years (8 semesters) for BS (Hons / Research) in Regular mode.
- Students would *Major* in a specific domain (ten subject areas have been identified as of now)
- **More than 50% of total credits need to be earned in the Major discipline to qualify for BS in the Major discipline.**
- **Semester break-up**

Semester	Courses	Department
1,2,3	All domains	DIC
4	Bridge Semester	Majoring department
5,6,7,8	Major	Majoring department

[1]The nomenclature is proposed on the recommendations of the Expert Committee to Review the Notification on the Specification of Degrees and Suggest New Degree Nomenclature(s) formed by UGC

Course Baskets

Basket number	Theme	Acronym	Basket code
1.	**Natural Sciences** Includes: Physical, Chemical, and Biological Sciences	NS	S
2.	**Mathematical Sciences**: Includes Pure and Applied Mathematics	MS	M
3.	**Computing and Data Science**: Includes Data Science, Computing, Artificial Intelligence	CDS	C
4.	**Humanities and Social Sciences**: Includes Humanities, Arts and Social Sciences	HSS	H
5.	**Engineering and Technology**	ET	T
6.	**Earth, Environment and Sustainability**	EES	E
7.	**Design, Innovation and Business**: Includes Design, Creativity, Innovation and Business Management	DIB	D
8.	**Wellness, Health and Personal development**: Includes Wellness, Mental Health, Physical Fitness and Nutrition	WHP	W

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Semester-wise Structure

Academic Scheme-Semester-I

Course code	Course	Credits
DIC101M	Joy of Mathematics: From zero to infinity	3
DIC101H	Inclusive Learning With Liberal Arts	3
DIC101C	Data Science and AI for all	3
DIC101D	Design Thinking	2
DIC101W	Art of effective communication	3
DIC101S	Science as Art of Enquiry	3
DIC101E	Sketch and Build your Prototype	2
DIC101P	Project I	2
		21

Academic Scheme-Semester-II

Course code	Course	Credits
DIC101S	Physics as Fun: Unveiling the Magic I	3
DIC103M	Enjoying Calculus	3
DIC110H	Global Literature	3
DIC10*	Three courses from five baskets: C,T,E,D,W	8/9
DIC102P	Project II	2
		19/20

* Choice between baskets, total six baskets covered. One course offered per basket

Academic Scheme-Semester-III

Course	Credits
Six courses. [2] At-least 3 baskets to be covered, at-most 2 courses per basket enrolled	17/18
Project III	3
Total	20/21

[2] multiple courses offered within one basket

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Courses and course basket mapping

Basket 1: Natural Sciences

S.no	Course name
1.	Physics as Fun: Unveiling the Magic I
2.	Molecules of Life
3.	Chemistry in Everyday Life
4.	From Atoms to Molecules: Demystifying Matter
5.	Understanding Biodiversity
6.	Immunology: From Health to Disease
7.	Science as the Art of Enquiry
8.	Physics As Fun: Unveiling The Magic II

Basket 2: Mathematical Sciences

S.no	Course name
1.	The Joy of Maths: From zero to infinity
2.	Maths and Art
3.	Enjoying Calculus
4.	Numerical Methods using Python Programming
5.	Linear Algebra using Python Programming
6.	Probability Theory

Basket 3: Computing and Data Science

S.no	Course name
1.	Data Science and AI for All
2.	AI Unveiled: Python powered intelligence
3.	Computation for society
4.	Social Media and Education
5.	Computation for solving real world problems
6.	System Design for Data Driven Applications

Basket 4: Humanities and Social Sciences

S.no	Course name
1.	Inclusive Learning With Liberal Arts
2.	Lessons from History
3.	Poetry, Prose and Drama - An Introductory journey
4.	Art and Aesthetics
5.	Islamic Ethics
6.	An Introductory Course in Economics
7.	Methods of Engaging with Community
8.	Kashmiri Folk Tales
9.	Ethics in the Public Domain
10.	Global Literature
11.	Micro and Macro Premises of Economics

Basket 5: Engineering and Technology

S.no	Course name
1.	Sketch and Build your Prototype
2.	Exploring Neighbourhood with Space Technology
3.	Smart Materials and their Novel Applications
4.	Microcontroller Programming and Project Development
5.	Troubleshooting your PC
6.	Web Designing
7.	CNC Programming

Basket 6: Earth, Environment and Sustainability

S.no	Course name
1.	Introduction to Environmental Sustainability
2.	Introduction to Climate Change and Resilience
3.	From Walking to Flying: Navigating Sustainable Transportation Solutions
4.	Innovations in global urbanization and climate solutions
5.	Disaster proof future: innovative strategies
6.	Basics of Hydrology
7.	Drivers of Climate Change
8.	Earth's Role in a Sustainable Future
9.	Remote Sensing in Climate Science

Basket 7: Design, Innovation and Business

S.no	Course name
1.	Design Thinking
2.	Theory of Change
3.	Manager's Toolkit for Everyday Life
4.	Entrepreneurship and Innovation
5.	Principles of Product Design
6.	Critical Thinking and Logic
7.	Palette and Purpose

Basket 8: Wellness, Health and Personal development

S.no	Course name
1.	The Art of Effective Communication
2.	Fun To Know Food
3.	Life Saving Heroes
4.	Eat Smart, Live Well: Your Path to Wellness
5.	Disaster proofing your world
6.	Self-Improvement and Personal Effectiveness

Sample Course Content

COURSE: Inclusive Learning With Liberal Arts

Course Contents:

Module 1: Introduction to the Liberal Arts

Week 1: What are the liberal arts? Why are they important?

Week 2: Different approaches to the liberal arts

Week 3: The value of a liberal arts education

Module 2: Foundations of the Humanities

Week 4: What is literature?

Week 5: The study of history

Week 6: The arts and the liberal arts

Module 3: Foundations of the Social Sciences

Week 7: What is economics?

Week 8: The study of government and politics

Week 9: Sociology and the study of society

Week 10: Anthropology and the study of culture

Module 4: Foundations of Philosophy

Week 11: What is ethics?

Week 12: Metaphysics and the study of reality

Week 13: Epistemology and the theory of knowledge

Sample Course Content

COURSE: Design Thinking

Course Objectives: To learn to identify needs and problems of people, tinker, test and iterate in teams to work towards solutions, empathize and experiment, and seamlessly use the results of this process to get innovative solutions.

Course Outcomes:

- Understand: Learn different mindsets that enable problem solving - Creative confidence, Growth mindset, Embracing ambiguity, Optimism.
- Analyze and apply: Learn the methods to identify needs and problems of people and communities, frame a design challenge around these problems and work in teams towards solution.
- Apply and evaluate: Learn how to implement a project, assess resources, staff the project, create a pitch, monitor and evaluate.
- Design: Learn how to ideate - come-up with multiple solutions, brainstorm, build rapid prototypes, learn from failure, iterate, take feedback.

Sample Course Content

COURSE: Design Thinking

Course Content:

Module 1: Mindsets: Creative confidence, Growth Mindset, Make it, Learn from failure, Empathy, Embrace ambiguity, Optimism.

Module 2: Methods: Frame a design challenge, Create a project plan, Build a team, Interviews, Immersion, Analogous inspiration, Draw it, Resource flow.

Module 3: Ideation: Share, Select, Find themes, Create insight statements, Brainstorm, Storyboard, Rapid prototyping, Feedback, Iterate

Module 4: Implementation: Live prototyping, Roadmap, Resource assessment, Build partnerships, Staff your project, Funding strategy, Keep iterating, Create a pitch, Sustainable revenue, Monitor and evaluate, keep getting feedback

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Majors

Majors

Integration with existing FYUGP BS (Hons/Research) courses:

- English → Department of English Language and Literature
- Islamic Studies → Department of Islamic Studies
- Mathematical Sciences → Department of Mathematical Sciences
- Physics → Department of Physics
- Chemistry → Department of Chemistry
- Arabic Language and Literature → Department of Arabic Language and Literature

New courses, BS (Hons/Research) in:

- Media Studies → Department of Journalism and Media Studies
- Data Science → Department of Mathematical Sciences
- Artificial Intelligence → Centre of Artificial Intelligence
- Economics → Department of Economics

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Early exit options

Early exit and admission

- 3 years (6 semesters) BS in the Major discipline after completion of three years of study, contingent upon having acquired a minimum of 50 percent credits in the Major discipline
- 2 years (4 semesters) Diploma in the Major discipline
- 1 year (2 semesters) Certificate Course $\rightarrow$ Certificate in Critical Thinking after completing one year of the program

Admission

- Students shall be admitted in BS(DYOD) through CUET

Thank You