

G H Raisoni Institute of Engineering & Technology, Nagpur

An Awareness Program on

“National Education Policy 2020, Implementation and Prospectives”

An Awareness Program
On
National Education Policy
Implementation and Prospectives

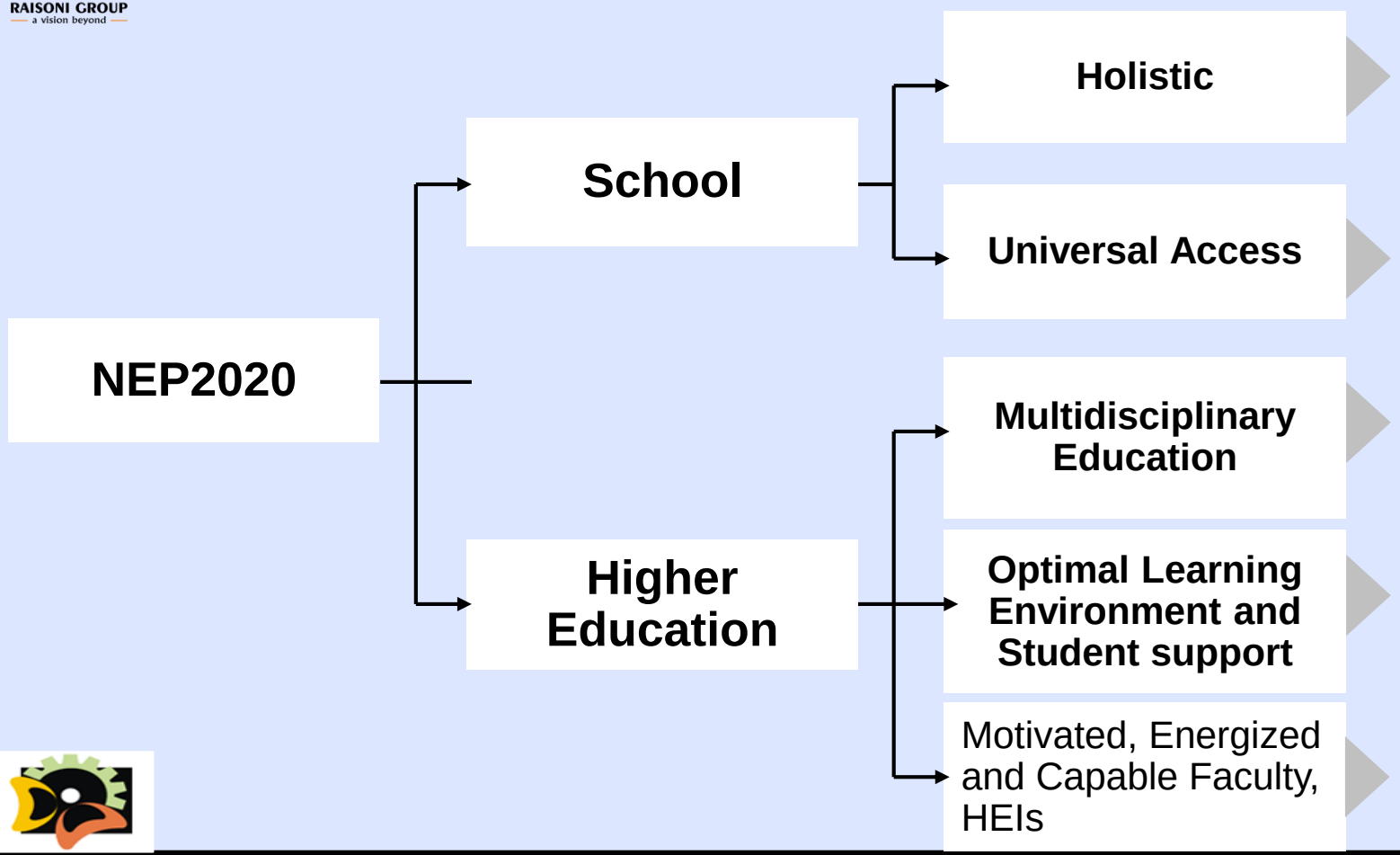
Presentation by
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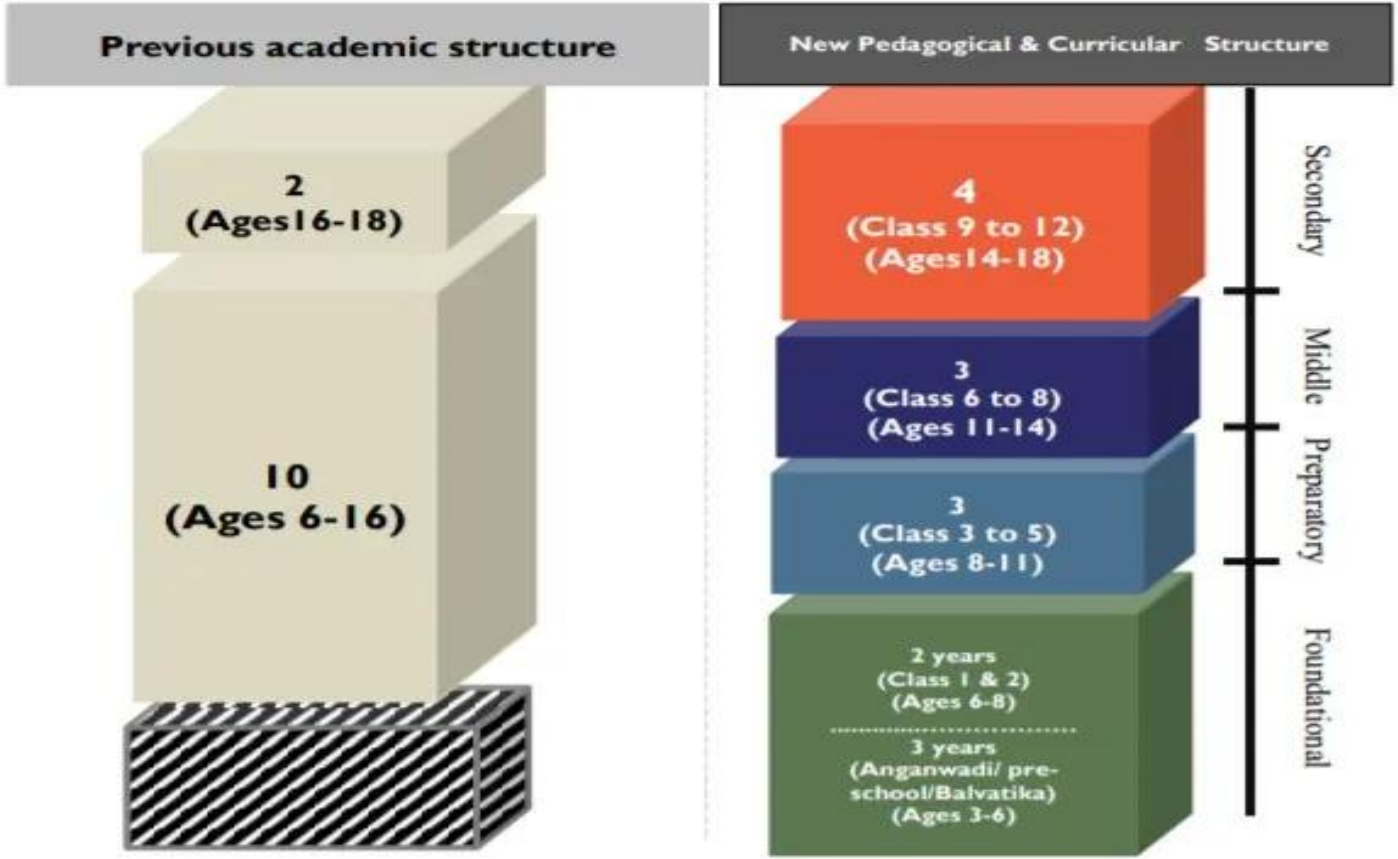
Evolution of Education Policy

- University Education Commission (1948-49)
- Secondary Education Commission (1952-53)
- Education Commission (1964-66) under Dr. D.S. Kothari
- National Policy on Education, 1968
- 42nd Constitutional Amendment,1976-Education in Concurrent List
- National Policy on Education (NPE), 1986
- NPE 1986 Modified in 1992 (Program of Action, 1992)
- T.S.R. Subramaniam Committee Report (27 May, 2016)
- Dr. K. Kasturirangan Committee Report (31 May, 2019)

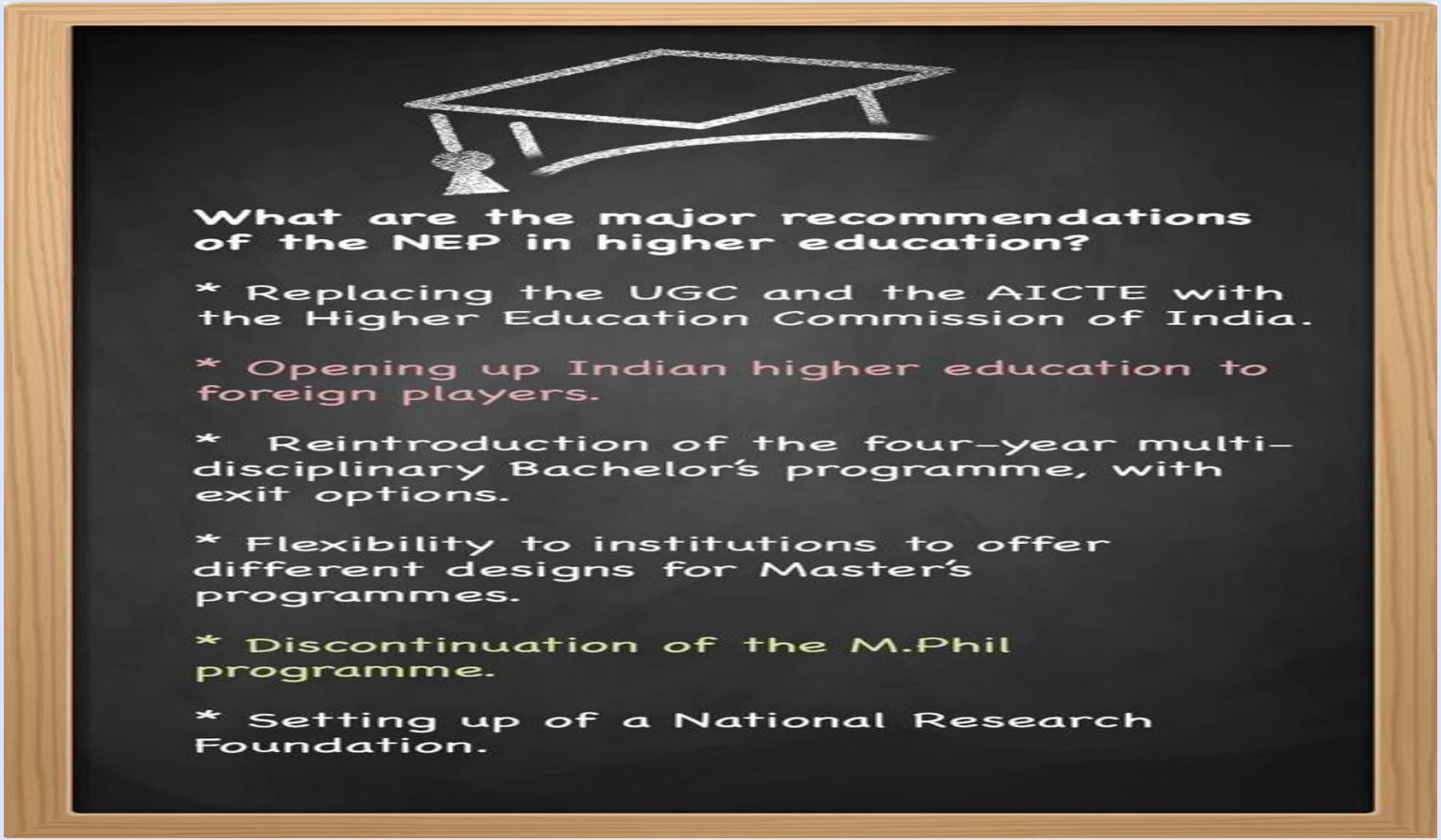
New Education Policy 2020 –A Landscape



New Education Policy 2020 –A Landscape



New Education Policy 2020 –A Landscape



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Higher Education

- Quality Universities and Colleges
- Restructuring and Consolidation
- Holistic and Multidisciplinary Education
- Learning Environments and Support for Students
- Vocational Education
- Equity and Inclusion
- Motivated, Energized and Capable Faculty

NEP 2020 is Transformative and Envisions

- **50 % Gross Enrolment Ratio by 2035**

Salient Features	Reference in NEP 2020
• **High quality** education opportunities, **integrated with effective skills** making education and skilling aspirational.	**Para 4.6, 4.7, 4.8 /p.no. 12-13, Para 23.10/ p.no. 58**
• **Removing distinction between general & vocational education**	**Para 18.6/pg 47, 10.13/ pg 37**
• **Multi-disciplinarity and holistic education** across sciences, commerce, management, technical education, social sciences, arts, sports.	**p.no. 5 principles of NEP and section 11**
• **Multiple Entry-Multiple Exit** (ME-ME) pathways	**Para 11.5/p.no. 37**
• Imaginative and **flexible curricular structures**	**Para 11.5/p.no. 37**
• Comprehensive credit-based Academic & Skill **Qualification frameworks.**	**Para 12.2/p.no. 39**
• **Assignment, Accumulation, Storage, and Transfer of Credits in ABC.**	**Para 18.6/ p.no. 47**
• **Educational acceleration and Recognition of Prior Learning (RPL)**	**Para 4.43, p.no. 19**
• **Internationalization** of education**, Digital/ Online** learning**, multilingualism, extensive use of technology.**	**Para 12.7 & 12.8/ p.no. 39**
• Provision for **lifelong learning –** any time, any where learning.	

Education in 2022-23, 23-24: Walking through major developments in India's academic policy

- Multidisciplinary Education and Institutes
- Academic Bank of Credit (ABC),
- Internationlisation of HE
- Implementation of the Common University Entrance Test (CUET)
- New Regulations for PhD program
- Emphasize Regional Language in Education including Technical Education- *Anuvadini* Software
- NETF- One Nation, One Data
- *JADUAI PITARA*

National framework for learning goals

✓National Higher Education Qualifications Framework (NHEQF): May 2023

✓National Skills Qualifications Framework (NSQF)

✓National Credit Framework (NCrF) developed

Jointly by UGC, AICTE, NCVET, NCERT, CBSE and NIOS along with DoSEL, DoHE, MoE, & MSDE: April 2023

UGC curriculum framework for 3/ 4 year, UG Program with revised CBCS: Dec. 2022

National Educational Alliance for Technology (NEAT 3.0)

Multi-/ Inter-/ disciplinary Education

Multi-disciplinary Education	Interdisciplinary Education
A unique educational approach that allows students to learn and explore distinct subjects or curricula from various disciplines. The curriculum would enable students to develop a holistic understanding of the subject approaches in terms of similarities and differences between them. Varied academic disciplines in the curriculum included to nurture the ability to critically think & have solutions to problems that are not easily acquired from everyday experience.	Combination of two or more academic disciplines into one. Interdisciplinary understanding brings the ability and confidence to navigate between disciplines to make inter linkages for developing new perspectives having a holistic appreciation of knowledge. **Disciplinary understanding** provides the base to create a rigorous interdisciplinary approach.

Multi-/ Inter-/ disciplinary Education

Critical thinking

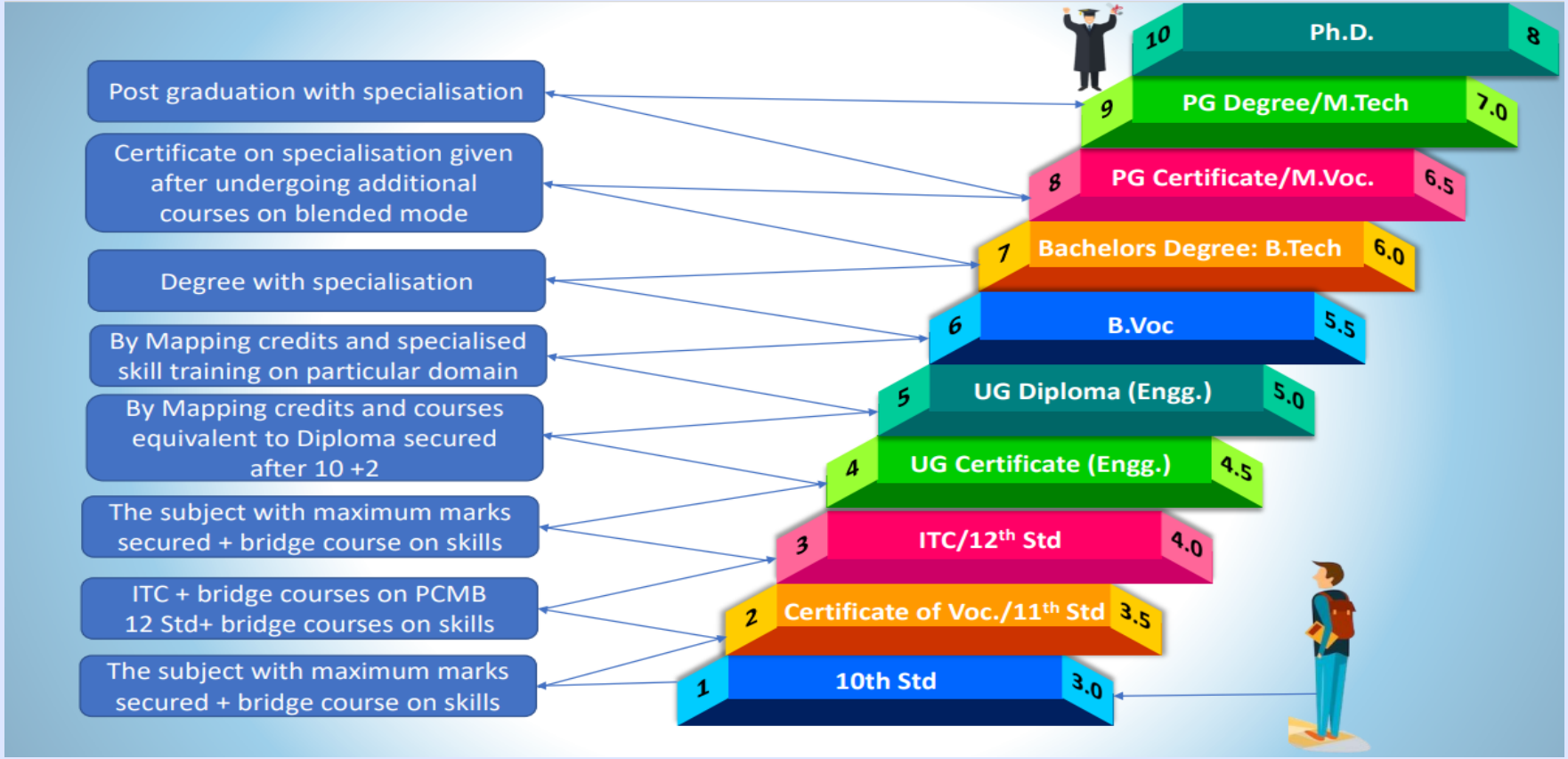
apply analytic thought to a body of knowledge, including the analysis and evaluation of policies, and practices, as well as evidence, arguments, claims, beliefs, and the reliability and relevance of evidence,
identify relevant assumptions or implications; and formulate coherent arguments,
identify logical flaws and holes in the arguments of others,
analyze and synthesize data from a variety of sources and draw valid conclusions and support them with evidence and examples.

Creativity or Creative Ability

create, perform, or think in different and diverse ways about the same objects or scenarios,
deal with problems and situations that do not have simple solutions,
innovate and perform tasks in a better manner,
view a problem or a situation from multiple perspectives,
think ‘out of the box’ and generate solutions to complex problems in unfamiliar contexts,
adopt innovative, imaginative, lateral thinking, interpersonal skills and emotional intelligence.

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Admission Path as per NEP for Engg. & Tech.



Credit Framework with Multiple Entry and Multiple Exit

Levels	Qualification Title	Credit Requirements		Semester	Year
		Minimum	Maximum		
4.5	One Year UG Certificate in Engg./ Tech.	40	44	2	1
5.0	Two Years UG Diploma in Engg./ Tech.	80	88	4	2
5.5	Three Years Bachelor's Degree in Vocation (B. Voc.) or B. Sc. (Engg./ Tech.)	120	132	6	3
	4-Years Bachelor's degree				

Credit Framework with Multiple Entry and Multiple Exit

Levels	Qualification Title	Credit Requirements		Semester	Year
		Minimum	Maximum		
6.0	(B.E./ B.Tech. or Equivalent) in Engg./ Tech. with Multidisciplinary Minor	160	176	8	4
6.0	4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech.- Honors and Multidisciplinary Minor	180	194	8	4

Credit Framework with Multiple Entry and Multiple Exit

Levels	Qualification Title	Credit Requirements		Semester	Year
		Minimum	Maximum		
6.0	4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech.- Honors with Research and Multidisciplinary Minor	180	194	8	4
6.0	4-Years Bachelor's degree (B.E./ B.Tech. or Equivalent) in Engg./ Tech.- Major Engg. Discipline with Double Minors (Multidisciplinary and Specialization Minors)	180	194	8	4

Coding of Courses on the basis of learning outcomes

0-99: Pre-requisite courses- pass or fail course with no credits, bridge courses

100-199: Foundation or introductory courses

200-299: Intermediate-level courses-subject-specific courses intended to meet the credit requirements for minor or major areas of learning

300-399: Higher-level courses- required for majoring in a disciplinary/ interdisciplinary area of study for the award of a 3 year degree

400-499: Advanced courses

500-599: Courses at first-year Master's degree level for a 2-year Master's degree programme

600-699: Courses for second-year of 2-year Master's or 1-year Master's degree programme

700 -799 & above: Courses limited to doctoral students.

Credit Specifications

- As per NCrF, the learner engaged time for 40 credits is 1200 hours
- Theory Courses: A minimum of 15 hours of teaching per credit is required in a semester.
- Laboratory Course: A min.of 30 hours in the laboratory activities per credit in a semester.
- Studio activities: A minimum of 30 hours in the studio activities per credit in a semester.
- Workshop-based activities: A minimum of 30 hours of workshop-based activities per credit in a semester.
- Seminar/ Group Discussion: minimum of 15 hours of participation in seminar/ Group Discussion activity per credit in a semester.
- Internship: one credit per one week of internship (or 30 hours of engagement),
- Field-based learning: Min. of 30 hours of learning activities per credit in a semester
- Community engagement and service: 30 hours of contact time per credit in a semester along with 15 hours of activities

The NEP curriculum framework offers

- The flexibility to move from one discipline of study to another;
- The opportunity for learners to choose the courses of their interest in all disciplines;
- The multiple entry and exit options with award of UG certificate/ UG diploma/ or three-year degree depending upon the number of credits secured;
- The flexibility for learners to move from one institution to another to enable them to have multi and/or interdisciplinary learning;
- The flexibility to switch to alternative modes of learning (offline, ODL, and Online learning, and hybrid modes of learning).

Multiple Entry and Exits

Students, opting exits at any level, are allowed to re-enter the degree programme within three years and complete the degree programme within the stipulated maximum period of seven years.

Students exiting the First Year programme after securing 40 credits will be awarded **UG Certificate** in the relevant Discipline /Subject provided they secure 4 credits in work based vocational courses offered during summer term or internship / Apprenticeship in addition to 6 credits from skill-based courses earned during first and second semester.

Students exiting the Second Year Programme after securing 80 credits will be awarded **UG Diploma** in the relevant Discipline /Subject provided they secure additional 4 credit in skill based vocational courses offered during first year or second year summer term.

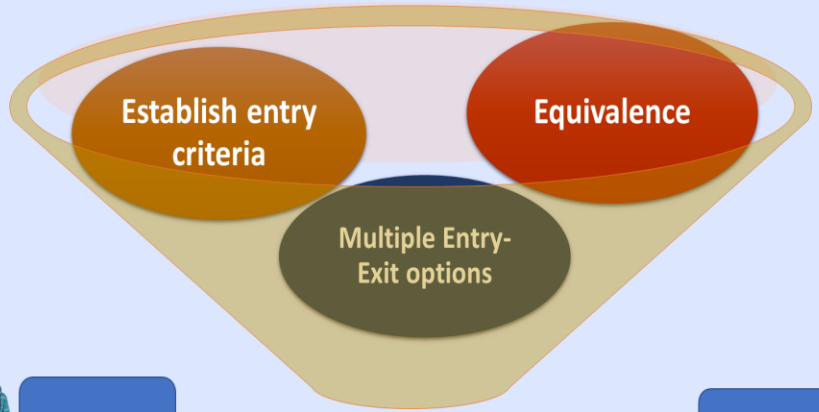
Students who want to undertake exit after 3-year UG programme will be awarded **UG Degree** in the relevant Discipline /Subject upon securing 120 credit

Lateral Entry

- The Programme curriculum design under CBCS should have flexibility for learners to move from one institution to another to enable them to have a multi and/or interdisciplinary learning.
- Lateral entry into the programme of study leading to the UG Diploma/ Three year UG Degree/ four year Bachelor's Degree with Honors /Research will be based on the validation of prior learning outcomes achieved.
- In case the lateral entrants is desirous of joining the four year degree programme different from his/her earlier Programme (i.e. with different combinations of Major and Minor), then the BoS of that HEI should decide the requirements of bridge courses, prerequisite courses and additional credit requirements for new combinations of Major and Minor which the lateral entrant must fulfil for the purpose of joining a new Programme.

NCrF- Mechanism for Transfer and Redemption of Credits

Credit Transfer is a mechanism to facilitate transfer of learner between disciplines and/or institutions





The regulator/ Autonomous institutions may define the admission criterion for redemption of the credits (for award, for eligibility, lateral entry) accumulated by student.

Curricular Framework

-Major/ Core, Minor, Open electives, AEC, VSC, Value Education, Internship, Research Project, Cocurricular Courses

Various Combinations of Major, Minor and Other courses

Major / Core- Focus of Degree -50% of Total Credits

Mandatory Core Courses -Th & Pr
Core Electives,
Vocational Courses and Skill based Education (VSC) (14-16 Credits)

✓Mandatory Internship/ Field Projects/ Apprenticeship/ Community Engagement Projects

✓Seminar, Research Project (12 Credits)

Minor- Bunch of Other Discipline Courses Leading to Minor Degree :18-02 Credits

Other Curricular Components

Open Electives or Multidisciplinary Courses (12 Credits)

Ability Enhancement Courses (AEC)- Modern Indian Language (MIL) & English language focused on language and communication skills. (08 Credits)

Value Education, ES, Professional Ethics, and Life Skills courses (04 Credits)

IKS: Generic, Major, Minor (04 Credits)

Cocurricular Courses on Sports, Fine/ Applied/ Visual/ Performing Arts and Cultural Activities (08 Credits)

Honors and Minor Degree Programs in Engg. & Tech. (Pre-NEP, 2020-21, 23-24)

Besides regular B. Tech. wherein students specialize in single stream, **B. Tech. with Honors** enables students to take up five-six extra courses (18 to 20 credits) **in the same specialization in addition to 160 Credits**.

B. Tech Major Discipline with Minors- students would take up five-six additional courses (18 to 20 credits) in another specialization offered **in addition to 160 Credits in Major**.

Seven Minor Degrees in Emerging Areas: AI and Machine Learning, Blockchain, Cyber Security, Data Science, IoT, Robotics, Virtual and Augmented Reality

Engg Curricular Framework: UG

Minor

- Multidisciplinary Minor From Disciplines different from that of Major
- Emerging Specialization Minor as per AICTE Guidelines
- Major and Multidisciplinary Minor Courses to be introduced from First Year

Other Changes

- Engineering Specific Program Core (Applied Sciences, Gen. Engg.) to be designed in tune with Major,
- Credit Based Fees Structure
- Slotted Time Table

Engg Curricular Framework: UG

Regular B Tech / B E Program, Single Multidisciplinary Minor

- **7 Verticals**: 1. Major or Programme Core, 2. Engg. and Sci Sub, 3. Multidisciplinary Minor, 5. Open Electives, 6. Vocational and Skill Enhancement Courses, 7. AEC, VEC & IKS, 8. Cocurricular Courses, OJT, FP, CEP, RP

B Tech Single Major, Double Minor (Multidisciplinary Minor and Emerging Specialization Minor)

- **8 Verticals**: 1. Major or Programme Core, 2. Engg. and Sci Sub, 3. Multidisciplinary Minor, 4. Emerging Specialization Minor, 5. Open Electives, 6. Vocational and Skill Enhancement Courses, 7. AEC, VEC & IKS, 8. Cocurricular Courses, OJT, FP, CEP, RP

Honours B Tech Degree, Single Multidisciplinary Minor

- **7 Verticals**: 1. Major or Programme Core, 2. Engg. and Sci Sub, 3. Multidisciplinary Minor, 5. Open Electives, 6. Vocational and Skill Enhancement Courses, 7. AEC, VEC & IKS, 8. Cocurricular Courses, OJT, FP, CEP, RP

Double Major B Tech Program

- **7 Verticals**: 1. Major -I, 2. Engg. and Sci Sub, 3. Major II, 5. Open Electives, 6. Vocational and Skill Enhancement Courses, 7. AEC, VEC & IKS, 8. Cocurricular Courses, OJT, FP, CEP, RP

Multidisciplinary Engineering Prog.: Semester-wise Indicative Credit Distribution - One Major, One Minor

Semester		I	II	III	IV	V	VI	VII	VIII	Total Credits
Basic Science Course	BSC/ESC	06-08	10-12		--	--	--	--	--	16-20
Engineering Science Course		11-12	04-05		--	--	--	--	--	15-17
Programme Core Course (PCC)	Program Courses	--	02	05-07	14-16	14-16	08-10	04	04	49-57
Programme Elective Course (PEC)		--	--	--	--	03-04	10-12	08 -10	08-09	29-35
Multidisciplinary Minor (MD M)	Multidisciplinary Co.	02	-	02	02	02	02	02	02	14
Open Elective (OE)		--	--	04	03	03	--	--	--	10
Vocational & Skill Enhancement Course (VSEC)	Skill Courses	--	02	--	02	--	02	--	--	06
Ability Enhancement Co.(AEC01)	Humanities Social Science and Managem.	03	--	--	--	--	--	--	--	03
Modern Indian Language(AEC02)		--	--	04	--	--	--	--	--	04
Indian Knowledge System (IKS)			02		--	--	--	--	--	02
HSSM: Value Education Course (VEC)		--	--	04	--	--	--	--	--	04
Internship	Experiential Learning	--	--	--	--	--	--	08	--	08
Project		--	--	--	--	--	--	04	04	08

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Additional Features Multidisciplinary Engg. Curr.

1. Students who are earning a minimum total 160 credits (also min. from each course category) will be offered a major degree from the respective programme only. These candidates have the following additional options.

a) Single Minor (Interdisciplinary or Multidisciplinary) OR Major with Honor's OR Major by Research with additional credits = 18-22 (Minimum credit required 18)

b) Double Minor (Interdisciplinary or Multidisciplinary) OR Major with Honor's OR Major by Research with further additional credits = 18-22 (Minimum credit required 18)

c) Value added courses over and above listed for minimum credits: as per his/her choice and no restriction to numbers.

2. Institute can also offer additional few (3-5) Mandatory Non-Credit courses as Value added courses.

3. Internship of six months shall be offered either in VII or VIII semester. Courses during Internship period shall be offered in online modes.

4. Additional credits (06-08) in the form of skill-based courses, internship, mini projects shall be offered in 8 weeks' vacation period after every year for exit options

Choice of Major

- The subject that represents the main focus of a degree.
- Degree will be awarded in that discipline.
- Students may be allowed to change Major within the broad discipline at the end of the II semester by giving her/him sufficient time to explore interdisciplinary courses during the first year.
- Credit Coverage of FY in case of Change of Major in SY
- The HEIs may create 10% additional seats over and above the sanctioned strength to accommodate the request for a change of major.

- Students should secure min. of 50% of total credits through core courses in the Major discipline in all Three /Four Years for the award of Major Degree.

✓Single Major and Minor Department/Subject/ Discipline Specific : Computer Engineering Core with Music as Minor

✓Double Major, Faculty Specific

✓Multidisciplinary/ School Specific Core and Minor

✓Interdisciplinary Core and Minor

Engg Curricular Framework: UG

Interdisciplinary Core

Core competence in constituent disciplines

- Econometrics as Core Subject- - Choice of Economics, Mathematics and Statistics together
- Nanotechnology,
- Bioinformatics, Chemoinformatics
- Environmental Engineering/ Sciences,
- Mechatronics,
- Chemical Technology
- Production Engineering- Mech. Engg. and Management
- Liberal Arts
- Bachelor of Design
- Biochemical Engineering: Biotech. and Chem. Engg.
- Bionics

Multidisciplinary/ School Specific Cor

Varied but interrelated academic disciplines in curriculum

- Life sciences- e.g. Choice of Microbiology, Biochemistry and Biotechnology together,
- Physical Sciences-Phy, Elect., Mat. Sci., Energy, Nuclear Physics
- Mathematical and Computer Sciences,
- Data Science,
- Social Sciences: History, Philosophy, Sociology
- Humanities,
- Performing Arts: Music, Acting, Folk Arts
- Mechanical+ Chemical Engg.
- Comparative Language and Literature/ School of Indian Languages
- Education: Ed., Phy. Ed., Sp. Education

Choice of Multidisciplinary Minor

- **Chosen** to gain in-depth multi-/ inter-disciplinary understanding through theoretical and practical experiences, as well as an adequate knowledge base
- Students who take a sufficient number of courses in a discipline or an interdisciplinary area of study other than the chosen **Major/ Core** will qualify for a **Minor Degree** in that discipline or in the chosen interdisciplinary area of study.
- A student may declare the choice of the minor and vocational stream at the end of the second semester, after exploring various courses.
- Offered in I, II, and III : 18-20 Credits

Engg Curricular Framework: UG

Multidisciplinary FYUP-Features

- **Award of Major and Minor Degree**
- **UG Degree Programmes with Single/ Interdisciplinary/Multidisciplinary Major:** 50% credits from the Major discipline
- **UG Degree Programmes with Double Major:** 40% credits from the second major discipline
- **4-year UG Degree (Honours):** Advanced Courses in Major in 4th Year
- **4-year UG Degree in Engineering and Technology**
- **4-year UG Honours Degree in Engineering and Technology**
- **4-year UG Major and Minor Degree in Engineering and Technology**

4-year UG Degree (Honours with Research)

- Research Methodology at VII Sem.
- to undertake research in Major at the final year UG level-12 credits

✓Min. eligibility for students: CGPA -7.5 or 75% at three year degree

✓Eligible for admission to Ph D research with CGPA -7.5 or 75% at 4 Yr

❖Eligibility for college/ Departments: already recognized for conducting the Ph.D. programme by the affiliating University or fulfillment of necessary compliances- at least two permanent faculty members who are recognized as Ph.D. supervisors

Multidisciplinary /Open Electives (OE) (12 Credits)

- Generic (GE) or open electives (OE) : pool/ basket of courses which is meant to provide multidisciplinary or interdisciplinary education to students
- Offered in First Year- Two Semesters: With exposure to basic courses in four disciplines, a student can decide to continue the chosen major or change the major and minor areas of interest at the end of the second semester.
- **Any Courses with two-four credits**

✓Engineering Sciences

✓Natural and Physical Sciences

✓Mathematics, Statistics, and Computer Applications

✓Library, Information, and Journalism, mass media Sciences

✓Business management, accountancy, finance, financial institutions, fintech

✓Anthropology, Economics, History, Linguistics, Political Science, Psychology, Social Work, Sociology, Philosophy, International Relations, Political Economy and Development,

✓Archaeology, History, Comparative Literature, Arts & Creative expressions,

✓Cognitive Science, Environmental Science, Gender Studies, Global Environment & Health, Sustainable Development, Women's and Gender Studies

GE/OE –contd.

- In case a student opts for DSEs beyond his/her subject/ discipline/ faculty (or school) specific course(s) of study, such DSEs shall be treated as GEs for that student.
- Will be offered in second year as well to advance Multi/ Interdisciplinary Understanding.
- **Specific Career Choice:** a student who desires to make Entrepreneurship as a part of his career, can pick the appropriate combination of courses of Generic Electives, Skill and Vocational Courses, Value Education Courses, and Internship /Apprenticeship.
- As per the AICTE's Approval Process Handbook-2020-21, all Engg. and Tech. programmes shall offer Elective Courses in the Emerging Areas viz., Artificial Intelligence (AI), Internet of Things (IoT), Blockchain, Robotics, Quantum Computing, Data Sciences, Cyber Security, 3D Printing and Design, Augmented Reality/ Virtual Reality (AR/VR).

Vocational and SKILL COMPONENT

1.

Vocational Courses and Skills facilitation -Promotion of Employability

- Occupational skill connected to Major and Minor
- Cognitive skills- foundational and higher order
- Hands on Training
- Agility in Adoption of and adaptability to changing technology-skill readiness for Jobs in future

- National Skills Qualifications Framework (NSQF).
- Various Sector Skill Councils (SSCs)
- Qualification Packs (QPs),
- National Occupational Standards (NOSs)
- Assessment mechanisms in their respective domains, in alignment with the needs of the industry.

❖ Besides vocational courses, some of the advanced lab courses in Chem./ Physics/ Electronic Technical English (content writing, digital marketing, soft-skill training) or similar skill-ba courses under other subjects will also be considered as skill-based courses.

Engg Curricular Framework: UG

- Enables learning of student not only via traditional face-to-face teaching but also Digital online media.
- Provides for blended learning models for components of Education, Training and Skilling Ecosystem (learning value chain)

Theory/ Lectures theoretical and conceptual knowledge	Soft / Life Skills/ Employability Skills Mentorship	Showing Demonstrations	Practical Skills Lab Work	Tutorial, Assignments, Drill and Practice	Assessment/ Evaluation/ Examinations	On the job training Internship, Apprenticeship
1	2	3	4	5	6	7

- Segregates modes of Face-to-Face teaching and learning, & Online Course/ Online Course Module, Methodology of on-line Training
- Delves into the ratios of learning hours to be prescribed between online/ offline, & Material Type etc.
- Contains a specific section for blended modes of learning and assessments
- Provides for the components of an effective blended learning system
- Details the key features and functionality that should be part of any modern Learning Management System
- Provides for Key Features Assessment Engine

Vocational Subjects/ Exit Skill Modules

- Retail Management
- Advertising,
- Communicative English
- Tax Procedure and Practice,
- Tourism and Travel Management, Hospitality
- Banking, Financial Services and Insurance,
- Logistics
- Web design and animation,
- Media and Entertainment
- Insurance, Capital market, Mutual Funds
- Data Mining
- Beauty & Wellness
- Jewellery Designing
- Electronic Equipment Maintenance,
- Mobile, TV and Computer Maintenance,
- Analytical Instrumentation Operations, Repairs
- Repair and maintenance of optical instruments, Glass blowing
- Solar System Maintenance,
- Organic Farming, Protected Cultivation, Production of Horticulture Crops, Floriculture, Green House Technology
- Bakery Products, Dairy Technology, Food Processing
- Soaps and Detergents, Cosmetic Formulations,
- Home, Institute and Industry Care Products
- Robotics
- Data Science and Machine Learning using Python

Assessment of Skill Component

- **NSQF level descriptors**: Professional Theoretical Knowledge, Professional and Technical Skills/ Expertise, Employment Readiness & Entrepreneurship Skills & Mind-set, Broad Learning Outcomes.
- The Skill component of the course will be generally assessed by the respective Sector Skill Councils (SSC).
- In case, there is no SSC for a specific trade, the assessment may be done by an allied Sector Council or the Industry partner or a recognized Skill University.
- Skill Assessment Board by “Certified Assessors” as per the provisions enumerated in MoE Skill Assessment Matrix for Vocational Advancement of Youth (SAMVAY).

Internship, and Apprenticeship

- UGC Guidelines for HEIs to offer Apprenticeship/Internship embedded Degree Programme.
- All four year UG students must complete a 2-6 credit requirement of Internship / Project in each year where they are engaged in 4-6 weeks of structured summer internship in research institutions/ industries.
- AICTE portal : https://internship.aicte-india.org to support students to find internships as well as to help organizations to find the best Interns on PAN India
- The apprenticeship/internship can also be done within the ambit of National Apprenticeship Training Scheme (NATS) operated by Bureau of Apprenticeship Training (BOAT) under Ministry of Education.
- MoU with The industry associations like FICCI, CII, NASSCOM, Commercial and noncommercial organizations or enterprises, Banks and Industries to design, ovide and assess the Apprenticeship/internship Programme.

Community Engagement and field Projects

- The field-based learning/project should attempt to provide opportunities for students to understand the different socio-economic contexts.
- It should aim at giving students exposure to development-related issues in rural and urban settings.
- UGC and AICTE guidelines on ‘Regional Case Study Course or Social Entrepreneurship Course’, with 02 Credits.

Indian Knowledge System

- Either offered under VAC or Major/ Minor Courses as Modules
- Philosophy, architecture, grammar, mathematics, astronomy, metrics, sociology, economy and politics, ethics, geography, logic, military science, weaponry, agriculture, mining, trade and commerce, metallurgy, mining, shipbuilding, medicine, poetics, biology and veterinary science.
- When the student selects Chemistry/ Material Science/ Metallurgical Engineering as DSC/SSC/FSC, then the courses of these subjects in first/ second year could include modules/ units on Rasa Ratna Samuccaya by Vāgbhaṭa that details the complex Metallurgy, steel-making and zinc-smelting

IKS Modules in Major and Minor

Major/ Minor	IKS Modules
Philosophy	Brahmasutra Bhashya by Sankaracharya, Sri Bhashya by Ramanujacharya, Gita Bhashya by Madhwacharya, Mulamadhyamakarika by Nagarjuna, and Pramana Samucchaya by Dignaga
Astronomy	Aryabhatiya and Varahamihira's Brithat Samhita and planetary movements, solar-centric world, shape and diameter of the Earth
Pharmacy, Medicine and Surgery	Sushruta's Sushruta Samhita, surgical procedures, Health and Well-being, plants & herbs in Ayrveda, Kshemasarma's Kshemakutulam on Dietetics and Well-being
Architecture/ Civil Engg.	Narada's Shilpasartra, Mayamuni's Mayamata
Ship-building	Bhoja's Yuktikalpataru
Mathematics and Computing;	the discovery of zero, decimal system of numerals, and approximation algorithms for computation of Pi, Shulba Sutras on Geometry, Lilavati of Bhaskarcharya
Languages, Linguistics	Panini's Ashtadhyayi

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Ability Enhancement Courses (AEC)

- As per section 22.4. of NEP 2020, language is inextricably linked to art and culture.
- Modern Indian Language (MIL) & English language focused on language and communication skills.
- To acquire and demonstrate the core linguistic skills, including critical reading and expository and academic writing skills, that help students articulate their arguments and present their thinking clearly and coherently and recognize the importance of language as a mediator of knowledge and identity.
- To enable students to acquaint themselves with the cultural and intellectual heritage of the chosen MIL and English language, as well as to provide a reflective understanding of the structure and complexity of the language/literature related to both the MIL and English language.
- Offered in First Two Years- four Semesters

Value-Added Courses (VAC) Common to All UG Students (4 credits)

- Understanding India: knowledge and understanding of contemporary India with its historical perspective, the basic framework of the goals and policies of national development, and the constitutional obligations with special emphasis on constitutional values and fundamental rights and duties. **The course would also focus on developing an understanding of IKS.**
- Environmental science/education
- Digital and technological solutions: Courses in cutting-edge areas that are fast gaining prominences, such as AI, 3-D machining, big data analysis, machine learning, drone technologies, and Deep learning.

VAC- contd.

- The HEIs may introduce other innovative value-added courses relevant to the discipline or common to all UG programmes
- Universal human values (UHV) courses
- Global Citizenship Education and Education for sustainable development
- Courses on Life skills
- Combination of courses on Constitution, Gender, Diversity, and Inclusion , Ethics and Values and Soft Skills
- Offered in First Year- two Semesters

Cocurricular Courses (8 Credits)

- Health & Wellness, Yoga education, sports, and fitness
- Physical Education, NCC, NSS
- Activities related to Yoga/ Sports and Games
- Involvement in popularization programmes such as scientific temper
- Innovative compositions and creations in dance/music/theatre and visual arts.
- A Small project work concerning the achievements of India in different fields

- Involvement in campus publication or other publications
- Publication of articles in newspapers, magazines
- Community work such as promotion of values of National Integration, Environment, Human rights and duties, Peace, Civic sense etc.
- Activity exploring different aspects of Indian civilizations
- Study groups/seminar circles on Indian thoughts and ideas

❖ Evaluation of Co-curricular and Extension Activities/ Courses shall be as per the procedure prescribed by the University. Offered in First Year.

Massive Open Online Course (MOOC) platform

- The University Grants Commission (Credit Framework for Online Learning Courses through SWAYAM) Regulations, 2021- MOOC
- Up to 40 per cent of the total courses being offered in a particular programme in a semester through the online learning courses offered through the SWAYAM platform- https://swayam.gov.in/
- 4 Quadrants – (1) video lecture, (2) specially prepared reading material that can be downloaded/printed (3) self-assessment tests through tests and quizzes and (4) an online discussion forum for clearing the doubts.
- National Programme on Technology Enhanced Learning (NPTEL)- https://onlinecourses.nptel.ac.in/
- The Academic Council may allow the concerned Faculty Dean to approve the online credit courses of SWAYAM platform for credit transfer on the recommendation of the Head of the Dept. and Chairman, BoS.

Online learning courses- Monitoring and Assessment

- The schedule of the SWAYAM based online credit courses shall be aligned with the conventional education semester.
- Coordinator for monitoring the process of transfer of credit earned by the student at their parent institution.
- The final evaluation of a course shall be based on internal assessment and semester end examination and
- The internal assessment (with a maximum of 30% marks) based on instruments such as discussion forums, quizzes, assignments, sessional examinations.
- The term end proctored examination for all the SWAYAM based credit courses shall be conducted either by the SWAYAM Board

Teacher Education

- All multidisciplinary universities and colleges - will aim to establish, education departments which besides running B Ed Programme will be carrying out cutting-edge research in various aspects of education
- All stand-alone TEIs will be required to convert to multidisciplinary institutions by 2030, since they will have to offer the 4-year integrated teacher preparation programme.
- The 4-year integrated B.Ed. will be a dual-major holistic Bachelor's degree, in Education as well as in specialized subjects.
- All fresh Ph.D. entrants, irrespective of discipline, will be required to take credit-based courses in teaching/education/pedagogy/writing related to their chosen Ph.D subject during their doctoral training period.

Engg Curricular Framework: UG

Teaching-Learning, Outcome Based Education and Evaluation Reforms

Engg Curricular Framework: UG



Classroom Teaching, Lab work / class projects/ assignments/



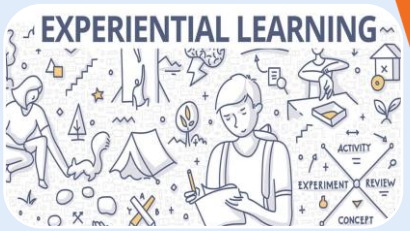
Technical / Vocational education, training, skilling,

project work, field visits, Ind attachm



Online/ digital/

Blended learning



Internship/ apprenticeship/ experiential learning,

On the Job Training (OJT).



Examinations/ class tests/ quizzes/ ssessments.



Sports and games (e.g. national & international achievers), physical activities,

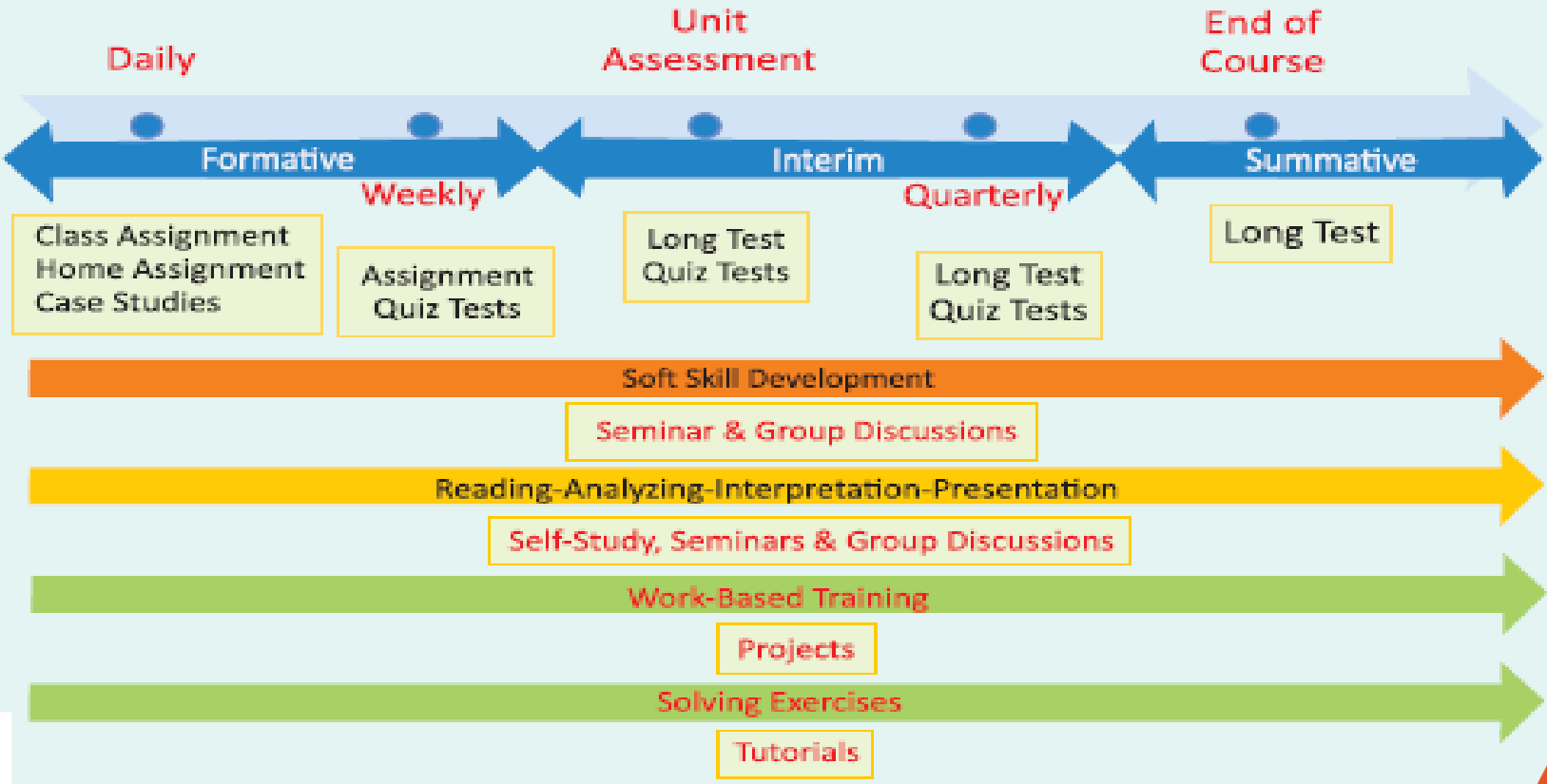
performing arts, music, yoga,



Social work/ community work (e.g. contribution to adult education etc)/

NCC/ shramdan,

Assessment Management Plan



Learning Outcomes for UG Degree

- i) have demonstrated knowledge and understanding in a field of study
- ii) can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation;
- iii) have the ability to gather and interpret relevant data (usually within their field of study) to inform judgments that include reflection on relevant social, scientific or ethical issues;
- iv) can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences;
- v) have developed those learning skills that are necessary for them to continue to undertake further study with a high degree of autonomy.

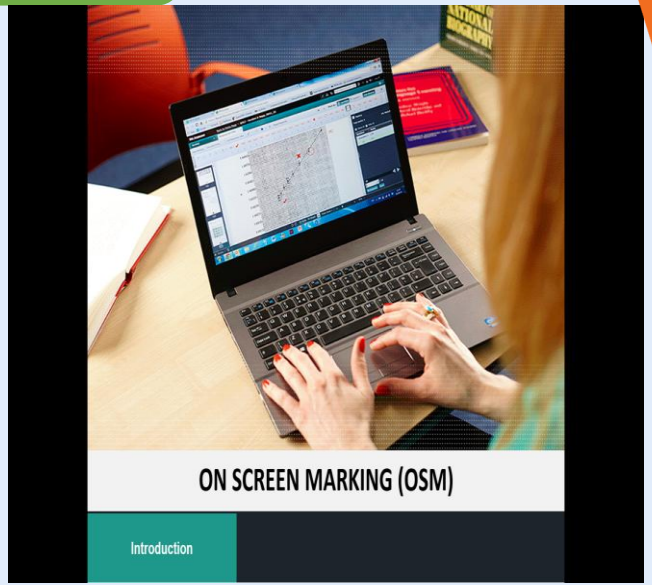
Learning Outcomes for PG Degree

- i) have demonstrated knowledge and understanding;
- ii) can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;
- iii) have the ability to integrate knowledge and handle complexity, and formulate judgments with incomplete or limited information;
- iv) can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously;
- v) have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

Assessment Management Plan

New Technology in Examination system

1. Make-up Exam for Slow Learners
2. Generation of question paper from Question Bank for **On Demand Examination**
2. **Educational acceleration** for gifted students
3. Examination on Tab- no need of question paper and answer book
4. On screen evaluation system on mobile or laptop
5. **Recognition of Prior Learning (RPL)** for workforce who have acquired the knowledge and skills informally- Design of Assessment ystem



Letter Grades and Grade Points

Semester GPA/ Program CGPA Semester/Program	% of Marks	Alpha-Sign / Letter Grade Result
9.00-10.00	90.0-100	O (Outstanding)
8.00-<9.00	80.0-<90.0	A+ (Excellent)
7.00-<8.00	70.0-<80.0	A (Very Good)
6.00-<7.00	60.0-<70	B+ (Good)
5.50-<6.00	55.0-<60.0	B (Above Average)
5.00-<5.50	50.0-<55.0	C (Average)
4.00-<5.00	40.0-<50.0	P (Pass)
Below 4.00	Below 40	F (Fail)
Ab (Absent)	-	Absent

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Internationalization of Higher Education and Global Citizenship Education (GCE)

- India should be promoted as a global study destination providing premium education at affordable costs thereby helping to restore its role as a Vishwa Guru.
- Sharing of best academic and research practices through interactions between diverse education systems, and
- Developing global citizens through mobility of students and scholars.
- Collaboration/ linkages between foreign universities and Indian universities /institutions for promoting exchange of faculties for teaching and student exchanges
- Establishing international partnerships for research and the feasibility of carrying credits across institutions in multiple countries.

NEP RECOMMENDATION

- Global Citizenship Education (GCE) will be provided to empower learners-
  - to become aware of and understand global issues;
  - to become active promoters of more peaceful, tolerant, inclusive, secure, and sustainable societies
- GCE is a response to increasing interconnectedness and contemporary global challenges. (11.8 NEP 2020)
- The concept of global citizenship is embedded in the Sustainable Development Goals through SDG 4: Insuring Inclusive and Quality Education for All and Promote Life Long Learning, which includes global citizenship as one of its targets;

Dual Degree Programme with foreign HEIs

- Curriculum to be designed jointly by both the Indian HEI and foreign HEI in the same disciplines or subject areas and at the same level.
- The degrees for such programmes shall be conferred by the Indian and Foreign HEIs, separately and simultaneously, upon completion of degree requirements of both the institutions.
- Conventional Mode
- The students must earn at least 30 per cent of the total credits from each of the Indian and Foreign HEIs.

Joint Degree Programme with foreign HEIs

- Curriculum to be designed jointly by the collaborating Indian and Foreign HEIs.
- The students must earn at least 30 per cent of the total credits from each of the Indian and Foreign HEIs.
- The Degree is awarded by the Indian HEI and the collaborating Foreign HEI with a single Certificate.
- Each HEI shall issue a transcript for their respective courses, with a remark indicating that the student has taken certain modules at the partner institution.

Twinning Degree Programme

- Collaborative arrangement whereby students enrolled with an Indian HEI may undertake their programme of study partly in India, complying with relevant UGC Regulations, and partly in the Foreign HEI.
- The degree under Twinning arrangement shall be given solely by the Indian HEI.
- Each institution shall issue a transcript for their respective courses, with a remark indicating that the student has taken certain modules at the partner institution, wherever applicable.
- The idea behind Twinning programme is holistic development of the learners with the help of cultural exchanges and social cohesion.

Optimal Learning Environments and Support for Students and Teachers

- Ensuring that learning environments are engaging and supportive for all students to succeed

✓University must also be committed to holistic development of students, and create strong internal systems for supporting diverse student cohorts in academic, social and interpersonal domains – both inside and outside formal academic interactions in the classroom.

✓Faculty must have the capacity and training to be able to approach students not just as teachers in the classroom, but also as mentors and guides.

- Curriculum and pedagogy in higher education will move away from rote learning of facts and mechanical procedures. They will help young people prepare to contribute both as active citizens of a democracy and as successful professionals in any field.

Swami Vivekananda on Education

- Education is not the amount of information that we put into your brain and runs riot there, undigested, all your life.
- We must have life-building, man-making, character-making assimilation of ideas.
- If education is identical to information, the libraries are the greatest sages of the world and encyclopedias are the greatest Rishis.
- If you have assimilated five ideas and made them your life and character, you have more education than any man who has got by heart a whole library.
- Education is not just the acquisition of knowledge, as preparation for life in this world or for life beyond schooling, but for complete realisation and liberation of the self.

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Thank You!