Curriculum

MBA
Public Policy and Management

July, 2025

School of Management Studies

Department of
Management Education

Deemed to be University under Distinct Category

NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH (NITTTR), BHOPAL
(Deemed to be University under Distinct Category)
Ministry of Education, Government of India
Shamla Hills, Bhopal – 462 002
Madhya Pradesh, India

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Preface

National Institute of Technical Teachers' Training and Research (NITTTR), Bhopal is a unique premier institution under the MoE, GOI for improving the quality of the higher education system in India, especially the technical education system of the country. It was established in 1965 as the Regional Training Institute (RTI) for the western region. Later in 2003, it was upgraded as NITTTR, and recently in 2024, NITTTR was granted the status of a Deemed University under Distinct Category.

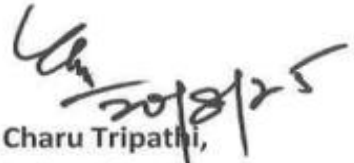
It is to mention here with great pride and immense pleasure that NITTTR Bhopal has launched 05 M. Tech. programmes in engineering, one MBA programme,2 MSc programmes. 09 PG Diploma and 03 diploma programmes from 2025-26. Two batches have already been passed out in the Diploma in Semiconductor Packaging (OSAT/ATMP). The institute has also developed the centre of excellence in Siemens with 11 High-Tech Laboratories, a Centre of Excellence for OSAT/ATMP and a Centre for Experiential learning (CEL) for providing hands-on experience to the learners. The PhD programme in Schools of engineering, sciences, management and creative education &liberal arts has already been launched.

The learner-centric outcome-based curricula have been developed for all 08 PG programmes. These curricula with multidisciplinary approach are aligned to the philosophy of NEP:2020 and NCrF, with provision of ME&ME, flexibility and holistic development, catering to nurture intellectual, emotional, psychological, social, moral and physical wellbeing of the learners to be good human being and ensuring success in profession of their choice in industry/research/academic/start-ups.

NEP recommends integrating vocational/technical education with general education and strengthening industry-academia collaboration in HEIs. Experiential learning is integrated in the curriculum to be practiced by the learners through hands-on experience at all high-tech labs and centres of excellence at the institute. Project/ problem based learner centric flexible learning environment is propagated for life-long learning, even from their workplace.

By formally embedding unique features and OBE principles into our M. Tech, MSc. and MBA programmes, NITTTR is committed to nurturing competent, responsible and forward-thinking, futuristic educators, technologists & researchers. This initiative complements our broader mission of fostering and integrating pedagogical excellence into engineering, science and management streams for quality-driven education.

The effective implementation of these curricula using advanced pedagogical methods and assessment reforms will provide high-quality, learner-centric education that will meet the expectations of industry, academia and research.



Prof. (Dr.) Chandra Charu Tripathi,
Project Director
NITTTR, Bhopal

2. Introduction:

The Master of Business Administration (MBA) in Public Policy and Management is a unique, forward-looking postgraduate programme designed to prepare future leaders and professionals for impactful careers at the intersection of governance, policy, and management. In a world characterized by complex challenges such as climate change, digital transformation, urbanization, inequality, and geopolitical shifts, there is a growing demand for professionals who can develop, implement, and manage effective public policies using robust managerial practices.

This programme integrates the core principles of business administration with public policy analysis, offering students a strong foundation in economics, law, governance, strategy, ethics, data analytics, and evidence-based decision-making. It emphasizes a multidisciplinary and practical approach, enabling learners to understand the socio-political context of policy decisions while mastering the tools and techniques needed for efficient public management.

The MBA-PPM curriculum is designed to:

- Equip students with conceptual clarity and analytical frameworks to understand policy environments.
- Develop managerial competencies for designing, executing, and evaluating policies and programs.
- Foster leadership and strategic thinking essential for addressing contemporary public sector challenges.
- Promote innovation, accountability, sustainability, and inclusive growth in policy processes.

With case studies, policy labs, internships, and live projects embedded into the programme, students gain hands-on experience in policy formulation and implementation across sectors such as health, education, urban development, finance, environment, and social welfare.

Graduates of this programme will be well-positioned to serve in national and international governmental agencies, non-profits, policy think tanks, multilateral institutions, public sector enterprises, and corporate social responsibility (CSR) divisions of private organizations. The programme also encourages entrepreneurial ventures in the social and policy innovation space.

The MBA in Public Policy and Management is not just an academic qualification—it is a mission-driven pathway for those aspiring to create meaningful, systemic change for the betterment of society.

3. Approach for Scientific Design & Development of Curriculum

The curriculum is designed after identifying the current job title of the industry where pass-out students will be absorbed. Later, different job skills required for the professionals are identified. These job skills are further mapped with the courses to be offered. Course outcomes for all the courses are also identified based on the job skills required for the professionals.

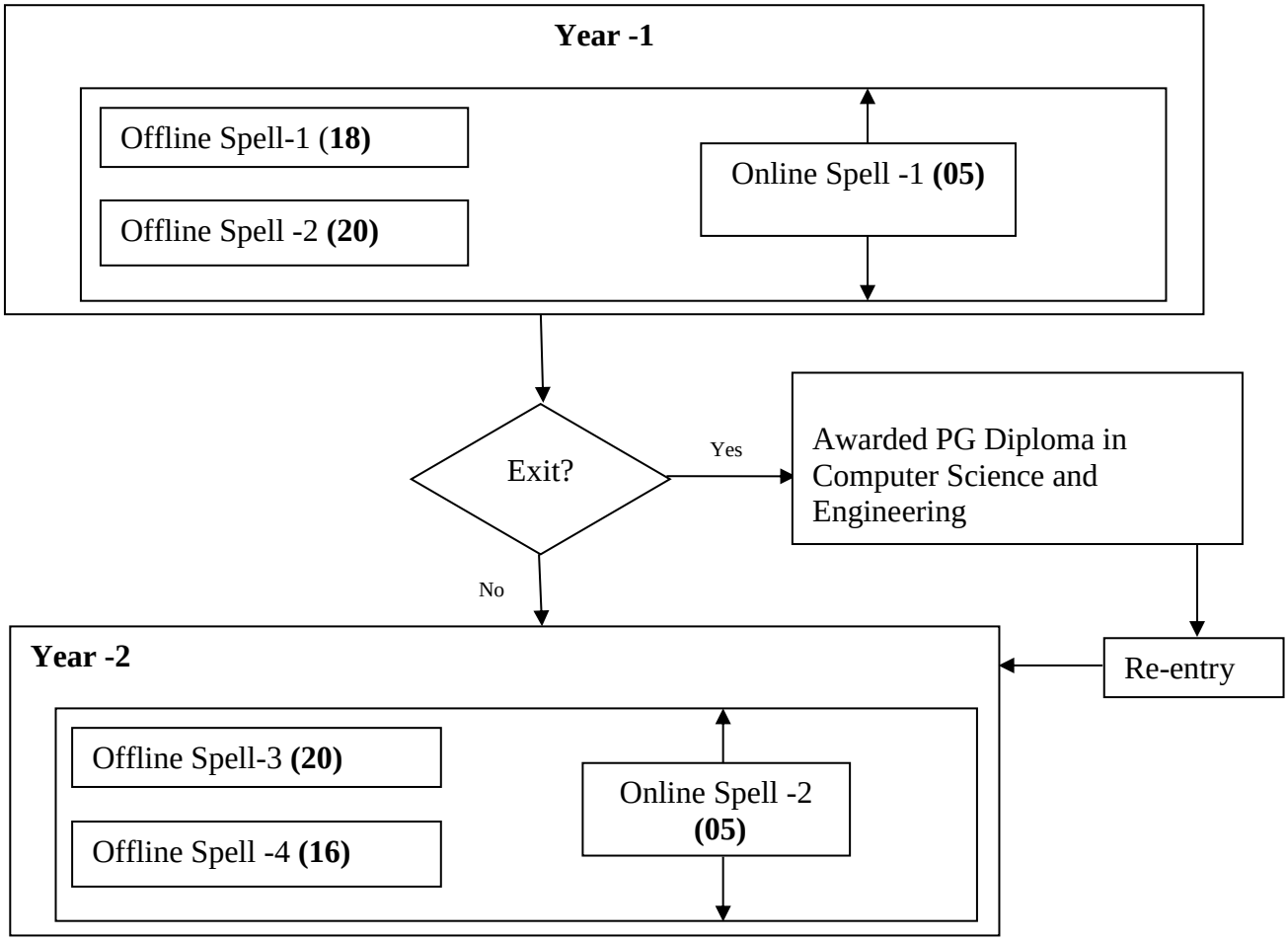
4. Unique Features of the Curriculum:

- The programme is aligned with the philosophy and requirements of NEP and NHEQF.
- Outcome-Based, learner centric curriculum with comprehensive and balanced mix of different category of courses as mentioned in Table-1.
- The duration of M.Tech. Programme is two academic years, (4 offline spells and 2 online spells running in parallel with offline spells). The online spell-1 will run parallelly with offline

spell 1 and 2. The online spell-2 will run parallelly with offline spell 3 and 4. The representation of offering of programmeis mentioned in Figure 1. Each offline spell is of 15 weeks duration. This includes one week end-term examination and 5 weeks of mandatory classroom/lab based study. The total credit and marks are mentioned in Table-2

- The provision for Recognition of Prior Learning is also included.
- Dynamic curriculum with option of inclusion of diversified courses as per the changing needs of the industry.
- Holistic and multidisciplinary educational programme
- Inter-disciplinary research based project, emphasis on project management and finance, creativity and innovation, concern for professional ethics, environment and society etc.
- Credit-based courses with an option of Multi- Entry and Exit and projects in community engagement, environmental education, and Bhartiya Knowledge System.
- Recognition of identified SWAYAM / NPTEL courses.

Figure -1 Representation of Offering of Programme



5. Vision & Mission Statements of the Institute:

Vision: To be the world class leader for integrated development of technical education and training systems catering to the changing needs while achieving highest level of client satisfaction, quality, professional values and contributing to technological, economic and social development of the country.

Mission: NITTTR Bhopal will act as a centre of excellence to: Intensify teacher education for improving quality and performance of technical institutions. Make the technical education a vibrant learning system for producing competent manpower to steer technological and economic development. Provide a wide spectrum of client driven services and products through various modes. Strengthen networking and synergic partnership with technical institutions; industries, field agencies, and premier national and international organizations. Promote creativity, innovations, research and development, professional management practices, concept of learning organization, benchmarking and economics of education amongst client systems. Enthuse the spirit of professionalism, values and work ethics, networking and partnership with industry and other organizations and technical institutions.

6. Vision & Mission Statements of the Department:

Vision: Develop department of Management Education as to be a centre of excellence to offer world class education, training and research in the area of management for education systems, industries and field agencies at national and international level.

Mission:

- Design, develop and implement need-based Management Education programmes.
- Collaborate with National and International management Organizations, Universities.
- Promote qualitative research in various areas of Management Education.
- Develop Curriculum and Learning Resources for Management Education and Training.
- Conduct Need Analysis and Research Studies.

7. Programme Educational Objectives (PEOs):

PEO1: Develop Policy Leadership and Strategic Thinking: Graduates will demonstrate leadership and strategic decision-making abilities in the formulation, implementation, and evaluation of public policies across government, non-government, and corporate sectors.

PEO2: Apply Multidisciplinary Knowledge for Problem Solving and Evidence-Based Decision-Making: Graduates will integrate concepts from economics, management, law, political science, and technology to design holistic and sustainable policy solutions for complex societal challenges. Graduates will apply data analytics, research methodologies, and emerging technologies to support evidence-based policy making and innovation in the public domain.

PEO3: Exhibit Ethical, Inclusive, and Responsible Governance: Graduates will uphold ethical values, promote inclusive practices, and contribute to public welfare through transparent, accountable, and citizen-centric approaches in governance and public management.

PEO4: Engage in Lifelong Learning and Professional Growth: Graduates will continuously upgrade their skills and knowledge to adapt to evolving public policy landscapes, and contribute meaningfully to academic, administrative, or entrepreneurial roles in the policy ecosystem.

8. Programme Outcomes (POs): -As per NBA

PO-1 Apply knowledge of management theories and practices to solve business problems.

PO-2 Foster Analytical and critical thinking abilities for data-based decision making.

PO-3 Ability to develop Value based Leadership ability.

PO-4 Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.

PO-5 Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.

9. Employment Potential:

Sample Employment and self-employment avenues are mentioned below-

9.1. Employment Avenues:

- Public Policy Analyst, Digital Governance Consultant
- E-Governance Project Manager
- Smart City Policy Advisor
- Data-Driven Policy Specialist
- AI Policy Officer
- Policy Innovation Manager
- Urban Development and AI Integration Expert
- Management Consultant (Public Sector Practice)
- AI & Policy Integration Consultant
- Sustainability & Regulatory Affairs Manager
- Public Affairs and Strategy Analyst
- Government Relations Manager
- Social Impact and Policy Lead, Policy Data Scientist
- AI Governance Analyst
- Public Sector AI Strategist
  Machine Learning Applications Consultant for Public Systems
- Policy Research Fellow, Development Economist (AI-Focused)
- Technology Policy Advisor (UN, NITI Aayog, World Bank, etc.)
- Program Manager – Digital Inclusion & Governance
- Ethics and Responsible AI Officer

9.2. Self-Employment Avenues:

- Policy and Governance Consultant
- AI-Driven Public Services Advisor
- Social Impact Entrepreneur
- Public Policy Research Analyst (Freelance)
- Digital Transformation Consultant for Government
- Founder – Public Policy Think Tank
- Data Analytics Specialist for Policy Insights

- AI Ethics and Policy Consultant
- Public Affairs and Advocacy Strategist
- EdTech Founder – Governance and AI
- Smart City Solutions Developer
- CivicTech Platform Developer
- Public Policy Influencer / Blogger
- AI-Powered Decision Support Tool Developer
- Sustainability and Climate Policy Consultant
- Freelance Public Finance Advisor
- Digital Inclusion Strategist
- Open Data and Transparency Advocate
- Urban Policy Innovation Consultant

10. Features of MBA in Public Policy and Management

- **Multidisciplinary Curriculum:** Integrates management, economics, law, political science, governance, and technology to address real-world policy issues.

- **Policy-Centric Pedagogy:** Focus on public policy analysis, strategic governance, regulatory frameworks, and evidence-based decision-making.

- **Experiential Learning:** Includes fieldwork, policy labs, simulations, internships, and live projects with government, NGOs, and think tanks.

- **Focus on Emerging Domains:** Covers contemporary themes like climate policy, digital governance, AI in policymaking, behavioral economics, and public-private partnerships.

- **Inclusion of Indian Knowledge System (IKS):** Emphasizes traditional Indian governance models, ethical principles, and decentralized institutions like Panchayati Raj.

- **Public Leadership and Ethics:** Develops leadership skills rooted in public service, ethical decision-making, and responsible governance.

- **Customizable Electives and CBCS Structure:** Offers flexibility with a Choice-Based Credit System, allowing interdisciplinary learning across sectors.

- **Career Readiness and Skill Mapping:** Focus on communication, policy writing, data analysis, stakeholder management, and UPSC/public sector exam preparedness.

- **Global and Local Policy Perspectives:** Blends comparative policy studies from international models with deep insights into Indian governance systems.

Programme Structure (PS) with Teaching & Learning and Assessment Scheme:

1.	**Title of Programme**	:	MBA Programme in Public Policy and Management
2.	**Board of Studies**	:	Public Policy and Management
3.	**Duration of Programme**	:	Two Years
4.	**Entry Qualification**	:	B.E./ B.Tech./BBA/ B. Com
5.	**Total Marks**	:	3760
6.	**Total Credits**	:	84
7.	**Total Number of Courses**	:	23

Summary of Credits and Marks

S. No	Spell	Credits	Total Marks
Year -1			
1.	Offline Spell - 1	18	750
2.	Offline Spell –2	21	850
3.	Online Spell – 1 (PD& NEP)	05	250
Total		**44**	**1850**
Year-2			
4.	Offline Spell - 3	19	860
5.	Offline Spell - 4	16	800
6.	Online Spell – 2 (PD & NEP)	05	250
Total		**40**	**1910**
Grand Total		**84**	**3760**

Category wise Courses

S. No.	Course Category	Abbreviations	Number of Courses	Total Credits
1.	Programme Core Courses	PCC	10	32
2.	Programme Elective Courses	PEC	-	-
3.	Stream Specific Diversified Courses (if applicable)	SSC	-	-
4.	Open Elective Courses (Common Basket)	OEC	03	12
5.	Project, Dissertation	PD	03	29
6.	Pedagogy Courses	PC	04	08
7.	NEP Courses	NEP	03	03
Total			**23**	**84**

MBA (Public Policy and Management)- MBAP

Teaching & Learning and Assessment Scheme (Year – 1)

Offline Spell – 1

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP01	PCC	**Public Policy and Management**	45	-	-	45	90	03	20	70	30	-	-	-	120
MBAP02	PCC	**Digital Transformation for Public Policy**	45	-	-	45	90	03	20	70	30	-	-	-	120
MBAP03	PCC	**Accounting for Managers**	45	-	45	30	120	04	30	70	20	-	20	30	170
MBAP04	PCC	**Public Policy Economics**	45	-	-	45	90	03	20	70	30	-	-	-	120
CSEB05	PCC	**Basics of Artificial Intelligence and Machine Learning**	30	15	45	30	120	04	30	70	20	-	20	30	170
NEP01-05	NEP*	**NEP Courses**	15	-	-	15	30	01	25	-	25	-	-	-	50
Total			**225**	**15**	**90**	**210**	**540**	**18**	**145**	**350**	**155**	**-**	**40**	**60**	**750**

Legends:

Course Category: Programme Core Courses (PCC), Programme Elective Courses (PEC), Stream Specific Diversified Courses (SSC), Open Elective Courses (OEC), Project (PD), Dissertation (PD), Pedagogy Courses (PC), NEP Courses (NEP)

* **Basket of NEP Courses:** Sports, Yoga & Meditation (NEP01)/ Open Educational Resources (NEP02)/ Professional Ethics (NEP03)/ Financial Literacy (NEP04)/ Engineering Economics (NEP05)

Offline Spell – 2

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)							
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		Total Marks (TA+TWA+LA)
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)		
MBAP05	PCC	**Public Policy Analysis**	45	-	-	45	90	03	20	70	30	-	-	-	120	
MBAP06	PCC	**Financial Management**	45	-	-	45	90	03	20	70	30	-	-	-	120	
MBAP07	PCC	**Marketing Management**	45	-	-	45	90	03	20	70	30	-	-	-	120	
MBAP08	PCC	**Human Resource Management**	45	-	-	45	90	03	20	70	30	-	-	-	120	
MBAP09-15	OEC	**Open Elective Courses**	45	30	-	45	120	04	50	70	50	-	-	-	170	
PD01	PD	**Project**	-	-	45	105	150	05	-	-	200	-	-	-	200	
Total			**225**	**30**	**45**	**330**	**630**	**21**	**130**	**350**	**370**	**-**	**-**	**-**	**850**	

Legends:

Course Category: Programme Core Courses (PCC), Programme Elective Courses (PEC), Stream Specific Diversified Courses (SSC), Open Elective Courses (OEC), Project (PD), Dissertation (PD), Pedagogy Courses (PC), NEP Courses (NEP)

Open Elective Courses: Environmental Governance and Sustainable (MBAP09) / Technology and Innovation in Public Policy and Governance (MPAB10) /Social Inclusion and Development (MBAP11)/ Sectoral Policy Analysis and Governance (MBAP12) / Public-Private Partnerships (PPP): Strategy, Policy, and Governance (MBAP13) / Global and Strategic Policy Issues (MBAP14)/ Leadership for Policy Transformation: Strategy, Negotiation and Governance (MBAP15)

Note Learners may also opt Open Elective Course offered by other PG programmes as well as from any category of the courses of the same spell/ MOOC courses

Online Spell –1

The online spell -1 will be offered parallelly with offline spell -1 and offline spell -2

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
PC01	PC	**Research Methodology**	30	-	-	30	60	02	30	50	20	-	-	-	100
PC02	PC	**Curriculum & Assessment**	30	-	-	30	60	02	20	30	50	-	-	-	100
NEP06	NEP	**Indian Knowledge System (IKS)**	15	-	-	15	30	01	25	-	25	-	-	-	50
Total			**75**	**-**	**-**	**75**	**150**	**05**	**75**	**80**	**95**	**-**	**-**	**-**	**250**

Legends:

Course Category: Programme Core Courses (PCC), Programme Elective Courses (PEC), Stream Specific Diversified Courses (SSC), Open Elective Courses (OEC), Project (PD), Dissertation (PD), Pedagogy Courses (PC), NEP Courses (NEP)

Year – 2

Offline Spell – 3

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP16	PCC	**Strategic Management for Public organization**	45	-	-	45	90	03	20	70	30	-	-	-	120
MBAP17-25	OEC	**Open Elective Courses**	45	30	-	45	120	04	50	70	50	-	-	-	170
MBAP17-25	OEC	**Open Elective Courses**	45	30	-	45	120	04	50	70	50	-	-	-	170
PD02	PD	**Dissertation Part -I**	-	-	90	150	240	08	-	-	300	100	-	-	400
Total			**135**	**60**	**90**	**285**	**570**	**19**	**120**	**210**	**430**	**100**	**-**	**-**	**860**

Legends:

Course Category: Programme Core Courses (PCC), Programme Elective Courses (PEC), Stream Specific Diversified Courses (SSC), Open Elective Courses (OEC), Project (PD), Dissertation (PD), Pedagogy Courses (PC), NEP Courses (NEP)

Open Elective Courses: Venture Creation (MBAP17)/ Entrepreneurship (MBAP18)/ Green Business Development (MBAP19)/ Public Finance (MBAP20)/ Data Analytics (MBAP21)/ Financial Technologies (FinTech) (MBAP22)/ Digital Human Resource (MBAP23)/ Quantitative Analysis for Business (MBAP24)/ Organization Behaviour (MBAP25)

Note: Learners may also opt Open Elective Course offered by other PG programmes as well as from any category of the courses of the same spell/ MOOC courses.

Offline Spell - 4

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
PD03	PD	**Dissertation Part - II**	-	-	105	375	480	16	-	-	500	300	-	-	800
Total			**-**	**-**	**105**	**375**	**480**	**16**	**-**	**-**	**500**	**300**	**-**	**-**	**800**

Legends:

Course Category: Programme Core Courses (PCC), Programme Elective Courses (PEC), Stream Specific Diversified Courses (SSC), Open Elective Courses (OEC), Project (PD), Dissertation (PD), Pedagogy Courses (PC), NEP Courses (NEP)

Online Spell –2

The online spell -2 will be offered parallelly with offline spell -3 and offline spell -4 in Second Year

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
PC03	PC	**MOOC Creation**	30	-	-	30	60	02	20	30	50	-	-	-	100
PC04	PC	**Learner Centric Instructional Methods**	30	-	-	30	60	02	30	50	20	-	-	-	100
NEP07	NEP	**Intellectual Property Rights (IPR)**	15	-	-	15	30	01	25	-	25	-	-	-	50
Total			**75**	**-**	**-**	**75**	**150**	**05**	**75**	**80**	**95**	**-**	**-**	**-**	**250**

Legends:

Course Category: Programme Core Courses (PCC), Programme Elective Courses (PEC), Stream Specific Diversified Courses (SSC), Open Elective Courses (OEC), Project (PD), Dissertation (PD), Pedagogy Courses (PC), NEP Courses (NEP)

Course Curriculum Detailing- Offline Spell -1

A)	**Course Title:** Public Policy and Management	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP01	
C)	**Pre- requisite (s):**	

D) **Rationale:** Public policy-making and implementation is the main function of central and state governments. Governments are expected to be sensitive and responsive to societal challenges at all times through the formulation and implementation of public policies. It is expected of any government to meet the developmental aspirations of its citizens through careful articulation of policies and programmes to drive national development. Given the central place of public policy in the good governance process, it makes sense to critically analyse every public policy to establish its capacity to achieve the intended goals and missions. Public policies are targeted at addressing social problems and challenges and implement innovative programmes and projects. In past some policies could not achieve the goals and missions because they were not based on clear evidence. Public policies are articulated on the basis of robust evidence and yet fail to achieve the desired objectives. This is attributed to poor implementation. Well-articulated public policies may not achieve specified goals due to weak implementation machinery. The policy space is more often than not inundated with failed policies because of a multiplicity of reasons one of which is the inability to critically analyse such policies before implementation.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP01.CO1	Classify various public policies
MBAP01.CO2	Analyse various public policies
MBAP01.CO3	Analyse a case study on public policy implementation identifying the challenges and problems of implementation
MBAP01.CO4	Evaluate the policy implementation on using different types of evaluation tools and techniques and criteria.
MBAP01.CO5	Design one public policy in any area using scientific steps of public policy making

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
MBAP01.CO1	3	1	-	1	-
MBAP01.CO2	3	3	1	3	1
MBAP01.CO3	3	3	1	2	1
MBAP01.CO4	3	3	2	2	1
MBAP01.CO5	3	3	2	2	3

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP01	PCC	Public Policy and Management	45	-	-	45	90	03	20	70	30	-	-	-	120

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Describe the terms used in public policy management. *TSO 1b.* Describe the characteristics of public policy *TSO 1c.* Differentiate between different types of policies *TSO 1d.* Classify public policies on different criteria *TSO 1e.* State the benefits of public policy management	**Unit-1.0 Introduction to Public Policy Management** 1.1 Concept of policy, public policy, policy-making process, public policy analysis, policy actors and ecology of public policy. 1.2 Characteristics of public policy 1.3 Classification and Types of public policy Conditional statements 1.4 Benefits of studying public policy management	**CO1**
TSO 2a. Explain the criteria for policy analysis *TSO 2b.* Describe dimensions of public policy analysis *TSO 2c.* Follow stages in policy analysis *TSO 2d.* Define scope of public policy analysis *TSO 2e.* State limitations of policy analysis *TSO 2f.* Analyse existing public policy concerning to business/market	**Unit-2.0 Public Policy Analysis** 2.1 Elements of good policy analysis 2.2 Dimensions of public policy analysis 2.3 Stages in policy analysis 2.4 Scope of public policy analysis 2.5 Limitations of policy analysis 2.6 Analyse existing public policy wrt business/market	**CO2**
TSO 3a. Derive role of public policy formulation process *TSO 3b.* Identify stakeholders involved in policy making *TSO 3c.* Describe states of policy making in different situations *TSO 3d.* Explain institutions limitations in policy formulation	**Unit-3.0 Policy formulation process** 3.1 Role in Public Policy Formulation Process 3.2 Stakeholders involved in Policy Making 3.3 Stages in Policy Making 3.4 Institutional Limits in Policy Formulation	**CO3**
TSO 4a. Describe approaches to policy implementation *TSO 4b.* Describe major activities/tasks/events during policy implementation *TSO 4c.* Assimilate events connecting policy implementation *TSO 4d.* Identify perquisites for policy implementation *TSO 4e.* Describe significant stages in policy implementation *TSO 4f.* Analyse issues and challenges in effective policy implementation *TSO 4g.* Analyse the variables directing policy implementation *TSO 4h.* Analyse the framework for effective policy implementation *TSO 4i.* Evolve strategies for managing policy implementation	**Unit-4.0 Policy Implementation** 4.1 Approaches to policy implementation 4.2 Major activities/events during policy implementation 4.3 Assimilate Events Connecting Policy Implementation 4.4 Prerequisite Factors for effective policy implementation 4.5 Stages in policy implementation process 4.6 Variables directing policy implementation 4.7 Issus and Challenges in Effective Policy Implementation 4.8 Framework for effective policy implementation 4.9 Strategies for Managing Policy Implementation	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 5a. Generate policy options *TSO 5b.* Articulate the goals of policy evaluation in a given situation *TSO 5c.* Describe the steps in policy evaluation in a given situation *TSO 5d.* Generate assessment criteria for policy evaluation *TSO 5e.* Predict resistence to change to policy evaluation *TSO 5f.* Design strategies to overcome resistance to change	**Unit -5.0: Policy Evaluation** 5.1 Policy options 5.2 Goals of policy evaluation 5.3 Steps in policy evaluation 5.4 Assessment criteria during evaluation 5.5 Resistance to Evaluation 5.6 Strategies to Overcome Resistance to Evaluation	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Case study analysis and discussion in line with the targeted COs.

b. Seminar/micro project topics:

- Analyse the national education policy 2020
- Analyse the implementation of apprenticeship training with reference to policy
- Generate criteria to evaluate skill India Mission
- Evaluate the greening policy of India viz a viz developed countries
- Identify the strategies used in SMART city policy
- Create a draft policy points for good governance

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0 Introduction to Public Policy Management	08
CO2	Unit 2.0 Public Policy Analysis	08
CO3	Unit 3.0 Policy Formulation Process	14
CO4	Unit 4.0 Policy Implementation	20
CO5	Unit 5.0 Policy Evaluation	20
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Public Policy in India	Krishna Raj	Rawat Publication 2021,
2.	The fundamentals of the public policy process	Talin Saroukhanian	Cognella, Inc ISBN-13 : 978-1793512567
3.	Public policy in India	Hari Prasad Mishra	Flipkart
4.	Public policy in India – Theory and practice	Sudeshna Das and Arnab Kayal	Flipkart
5.	Issues in Indian Public policies	Vinod B Arrigeri	Springer
6.	Public policy art and craft of policy analysis	Sapru R. K.	Second ISBN 9788120344389

b) Online Educational Resources (OER):

Books:

1) https://drive.google.com/drive/folders/1Nnd9ElNXqQjhoW-qNgDjchSjkJuwkbWX?usp=sharing

Podcasts:

2) "All things Policy" by The Takshashila Foundation
3) Podcasts by Vidhi Centre for Law & Policy [on various themes; accessible from their website]
4) The India Energy Hour - 101 Reporters [focussed ONLY on Energy Policy in India]
5) Spontaneous Dialogue - Centre for Civil Society

Blogs:

6) https://paulcairney.wordpress.com/blog/
7) https://mpp.nls.ac.in/blog/
8) https://jpublicpolicy.wordpress.com/blog-posts-2/
9) https://blogs.lse.ac.uk/socialpolicy/
10) https://crawford.anu.edu.au/research/blogs
11) https://finshots.in/
12)
13) YouTube videos
14) https://www.youtube.com/watch?v=GM0S1dGD3JY
15) https://www.youtube.com/watch?v=WSSZFERrIX0&t=972s
16) https://www.youtube.com/watch?v=z2LPvOkwSdU
17) https://www.youtube.com/watch?v=3AUwcloZd60

Internship Opportunities:

18) Centre for Policy Research, Delhi
19) CEEW, Delhi (Environmental Policy)
20) Gateway House, Mumbai (Foreign Policy)
21) Centre for Social and Economic Progress, Delhi
22) Centre for Civil Society, Delhi
23) PRS Legislative - Internships and LAMP Fellowship
24) Vidhi Centre for Legal Policy, Bangalore
25) Janaagraha, Bangalore
26) Centre for Law and Policy Research, Bangalore
27) Centre for Social Justice, Ahmedabad
28) Approach Public Policy professors for research internships
29) District Development Fellowships in various states eg: Gadchiroli dist, Maharashtra
30) Central ministries, NITI Aayog, Commissions, Lok Sabha - offer internships [could use Lawctopus to keep a tab on these notifications]
31) Interning with political party offices is a great way to learn how electoral politics works. Your experience will help you understand policymaking better, and also adds to your CV if applying for an MPP.
32) Impact and policy research institute IMPRI

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
1.	Prof. B. L. Gupta	blgupta@nitttrbpl.ac.inac.in

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A)	**Course Title:** Digital Transformation for Public Policy	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP02	
C)	**Pre- requisite (s):** Principles of Public Policy and Management (or an equivalent introductory course in public administration or policy analysis). This will ensure students have a foundational understanding of the public sector context before engaging with digital transformation concepts	

D) **Rationale:** The integration of digital technologies is profoundly transforming governance and public policy globally. In this evolving landscape, future public policy and administration leaders must develop a comprehensive understanding of digital transformation as a strategic and ethical imperative. Students will develop insights into how technology can be leveraged as a competitive advantage in governance to foster innovation, enhance operational efficiency, ensure transparency, and improve citizen engagement. By bridging theory and practice, this course will empower students to lead digital initiatives that make governance more inclusive, accessible, and responsive to societal needs.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP02.CO1	Explain the fundamental concepts (Comprehend the core concepts), principles and theoretical underpinnings of digital transformation within (as they relate to) the public policy and governance landscape
MBAP02.CO2	Analyse the transformative potential and challenges posed by key digital technologies (e.g., AI, blockchain, cloud, IoT) for the delivery of public services and the development (formulation) of public policy
MBAP02.CO3	Evaluate the strategic implications of digital transformation initiatives for enhancing efficiency, transparency, accountability, and citizen engagement (considering diverse perspectives) in public sector organisations and policy processes
MBAP02.CO4	Apply frameworks and methodologies for (to develop) data-driven decision-making (solutions) and understand the critical role of data governance and management (principles) in the digital transformation of public policy and service delivery
MBAP02.CO5	Develop an understanding of the strategic and policy considerations for formulating and implementing successful digital transformation initiatives in governmental and public organisations, considering ethical, legal, and societal implications

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value-based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in achieving organizational goals, contributing effectively to a team environment.
MBAP02.CO1	1	2	1	1	1
MBAP02.CO2	2	3	1	2	1
MBAP02.CO3	2	2	2	2	2
MBAP02.CO4	3	3	1	2	2
MBAP02.CO5	3	2	2	3	3

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP02	**PCC**	Digital Transformation for Public Policy	45	-	-	45	90	03	20	70	30	-	-	-	120

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Define digital transformation and explore its scope and fundamental concepts. *TSO 1b.* Analyse the transformative power of digital technologies across various sectors and organizational functions. *TSO 1c.* Evaluate the importance of digital transformation in the contemporary context and identify key driving forces. *TSO 1d.* Recognize organisations' main challenges and potential dilemmas when undertaking digital transformation.	**Unit 1.0: Introduction to Digital Transformation and its Importance** 1.1 Definition and Scope, 1.2 The Transformative Power of Digital Technologies, 1.3 Impact of Digital Technologies on Life and Organizations, 1.4 Why Digital Transformation is Crucial in the Current Era, 1.5 Challenges in Implementing Digital Transformation, 1.6 Navigating Potential Dilemmas in Digital Transformation.	**CO1**
TSO 2a. Describe structured and scientific methodologies for understanding and approaching digital transformation. *TSO 2b.* Apply different analytical lenses and conceptual frameworks to examine digital transformation initiatives. *TSO 2c.* Compare and contrast various organisational performance models in digital transformation, including economic and strategic perspectives. *TSO 2d.* Explain capability-based models of organizational transformation and how digital transformation contributes to capability building.	**Unit 2.0: Scientific and Strategic Approaches to Digital Transformation** 2.1 Structured and scientific approaches to digital transformation 2.2 Concepts for analysing digital transformation initiatives 2.3 Organisational performance models including economic and strategic frameworks 2.4 Capability-based models of organizational transformation 2.5 Digital transformation as a process of capability building	**CO2**
TSO 3a. Explain the instrumental purpose of digital transformation in achieving specific organizational objectives. *TSO 3b.* Analyse the operational aspects of enacting digital transformation within organisations, including implementation strategies. *TSO 3c.* Differentiate between exploration and exploitation in the context of digital transformation initiatives. *TSO 3d.* Describe the DaWoGoMo model of Digital Transformation and its relevance to understanding operational dynamics. *TSO 3e.* Analyze the fundamental concepts of digital architecture and its transformation.	**Unit 3.0: The Instrumental and Operational Purposes of Digital Transformation** 3.1 Practical enactment of digital transformation 3.2 Instrumental purpose for achieving organisational goals 3.3 Operational purpose and implementation in organisations 3.4 Exploration and exploitation in digital transformation 3.5 Introduction to the DaWoGoMo model of Digital Transformation 3.6 Understanding digital architecture and its transformation.	**CO3**
TSO 4a. Articulate data's critical role and significance in driving digital	**Unit 4.0: Data, Digital Tools, and Governance in Digital Transformation**	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
transformation. *TSO 4b.* Identify key digital transformation technologies used for data storage, processing, and analysis. *TSO 4c.* Discuss different data types, their potential applications, and relevant regulatory frameworks impacting their use in digital transformation. *TSO 4d.* Provide an overview of emerging digital tools such as Machine Learning and Artificial Intelligence and their application in digital transformation. *TSO 4e.* Recognise the importance of effective data management practices within digital transformation initiatives.	4.1 Role of data in digital transformation 4.2 Importance of data storage and processing technologies, 4.3 Impact of data on creating new paradigms 4.4 Types of data and their potential applications 4.5 Relevant regulatory systems for data 4.6 Introduction to emerging digital tools such as Machine Learning and Artificial Intelligence 4.7 Importance of data management in digital transformation.	
TSO 5a. Examine the underlying, existential reasons for organisations to adopt digital transformation, considering factors like bounded rationality. *TSO 5b.* Explain the concept and implications of creating artificially intelligent ecosystems within the context of digital transformation. *TSO 5c.* Outline key considerations in the strategic formulation of digital transformation initiatives. *TSO 5d.* Discuss the importance of integrating ethical, legal, and societal considerations in the strategic implementation of digital transformation (drawing from our broader discussion).	**Unit 5.0: The Existential Purpose and Strategic Implementation of Digital Transformation** 5.1 Existential purpose of digital transformation for organisations 5.2 Reasons for adopting digital transformation and bounded rationality 5.3 Creation of artificially intelligent ecosystems 5.4 Implications of AI ecosystems, Strategic formulation and implementation of digital transformation initiatives 5.5 Integration of ethical, legal, and societal considerations.	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. **Investigating the Barriers to Digital Transformation in Traditional Public Sector Organizations:** This research could explore the specific obstacles (e.g., legacy systems, organisational culture, regulatory constraints) hindering the adoption and implementation of digital transformation initiatives within public sector bodies, drawing upon examples discussed in the sources regarding healthcare regulation and challenges in social care.

ii. **Analysing the Impact of Emerging Technologies (AI, IoT, Blockchain) on Specific Industry Value Chains:** This research could focus on a particular industry and examine how the integration of AI, IoT, or blockchain technologies is reshaping its value chain, considering aspects such as efficiency, customer engagement, and new service offerings, as suggested by the discussion on technology readiness.

iii. **Developing a Framework for Assessing the Maturity of Digital Transformation Initiatives in Small and Medium-Sized Enterprises (SMEs):** This research could aim to create a model that allows for the evaluation of the progress and effectiveness of digital transformation efforts in SMEs, considering their specific challenges in accessing finance and resources.

iv. **Examining the Role of Data Governance and Privacy Regulations in Facilitating or Impeding Digital Transformation:** This research could investigate how data governance frameworks and privacy regulations (e.g., as alluded to in the context of healthcare) are influencing the ability of organisations to leverage data for digital transformation, considering potential trade-offs between innovation and data protection.

v. **Evaluating the Effectiveness of Public-Private Partnerships (PPPs) in Driving Digital Transformation in Public Services:** This research could analyse the successes and challenges of collaborative efforts between public and private sector entities in implementing digital transformation projects for public services, drawing insights from discussions on public-private cooperation in social care and the potential of Innovation Labs.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- **Case Study Analysis of a Successful (or Unsuccessful) Digital Transformation Initiative:** Students could select an organisation and analyse its digital transformation journey, identifying key strategies, challenges encountered, and outcomes achieved, drawing on frameworks discussed previously and real-world examples.

- **Developing a Roadmap for Digital Transformation for a Hypothetical Organisation:** Students could be tasked with creating a step-by-step plan for digital transformation for a chosen organisation (e.g., a local government department, a retail business), considering the different phases and elements involved, such as infrastructure, technology readiness, and ecosystem maturity.

- **Identifying and Evaluating Emerging Digital Technologies Relevant to a Specific Sector:** Students could research and present a report on three to four emerging digital technologies (e.g., AI, VR/AR, 5G) and assess their potential applications and impact within a specific industry, drawing on overviews of emerging technologies.

- **Analysing the Ethical and Societal Implications of a Specific Digital Transformation Trend:** Students could explore the broader ethical (e.g., privacy, bias in algorithms) and societal (e.g., impact on employment, social equity) consequences of a particular digital transformation trend, such as the increasing use of AI in decision-making.

- **Designing a Strategy for Engaging Stakeholders in a Digital Transformation Project:** Students could develop a plan for effectively involving various stakeholders (e.g., employees, customers, citizens) in a digital transformation initiative, considering different engagement models and the importance of communication and feedback.

b. Seminar Topics:

- **The Future of Work in the Age of Automation and Digital Transformation:** This seminar could explore the potential impact of automation and digital technologies on the labour market, discussing necessary skills and potential societal adjustments.

- **Digital Transformation and Sustainability: Opportunities and Challenges:** This seminar could examine the role of digital technologies in promoting sustainability (e.g., smart cities) and the potential environmental and social challenges associated with digital transformation.

- **The Evolution of Business Models in the Digital Era:** This seminar could discuss how digital transformation leads to the emergence of new business models (e.g., platform-based models) and the transformation of traditional ones.

- **The Role of Leadership in Driving Successful Digital Transformation:** This seminar could focus on the leadership qualities and strategies required to lead organisations through the complexities of digital transformation effectively.

- **Data as the New Currency: Implications for Organisations and Society:** This seminar could explore the increasing importance of data in the digital economy, discussing data ownership, security, and the creation of value from data.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0: Introduction to Digital Transformation and its Importance	12
CO2	Unit 2.0: Scientific and Strategic Approaches to Digital Transformation	1
CO3	Unit 3.0: The Instrumental and Operational Purposes of Digital Transformation	12
CO4	Unit 4.0: Data, Digital Tools, and Governance in Digital Transformation	12
CO5	Unit 5.0: The Existential Purpose and Strategic Implementation of Digital Transformation	12
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Digital Transformation and Public Policies	Valerie Revest (Editor), Isabelle Liotard (Editor)	Wiley-ISTE, July 2023, ISBN: 978-1-394-22629-0
2.	Leveraging digital technologies: How information quality leads to localized capabilities and customer service performance	P. Setia, V. Venkatesh, & S. Joglekar	MIS quarterly, 2013
3.	How information systems help create OM capabilities: Consequents and antecedents of operational absorptive capacity	P. Setia, & P. C. Patel	Journal of Operations Management, 31(6), 2013
4.	E-Governance and Digital Transformation in India	-	Career Point Ltd., Book No.: CPP-783
5.	Public Innovation and Digital Transformation	Hannele Väyrynen (Editor), Nina Helander (Editor), Harri Jalonen (Editor)	Routledge, First published 2023, ISBN: 978-1-032-13741-4 (hbk), 978-1-032-13797-1 (pbk), 978-1-003-23085-4 (ebk)

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
6.	Thinkers 50 Transformation Playbook	-	Print Edition ISBN: 9781999315726, PDF Edition ISBN: 9781999315733, ePub Edition ISBN: 9781999315740, Kindle Edition ISBN: 9781999315757
7.	Digital Transformation in Business and Society: Theory and Cases	Babu George (Editors), Justin Paul (Editors)	Springer International Publishing/Palgrave Macmillan, 2020, ISBN 978-3-030-08276-5, ISBN 978-3-030-08277-2 (eBook)

b) Online Educational Resources (OER):

1) OECD publications available online. The OECD's "Going Digital" project has a dedicated website: www.oecd.org/going-digital-toolkit.
2) Reports and information on the Digital India Programme are available on the official website: https://www.digitalindia.gov.in/. Information on the BharatNet Project can be found at https://www.nic.in/projects/bharatnet-project/.
3) The World Bank's World Development Report is available online (e.g., https://www.worldbank.org/en/publication/wdr2018).

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
1.	Prof. Ashish Deshpande	adeshpande@nitttrbpl.ac.in

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A)	**Course Title:** Accounting for Managers	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP03	
C)	**Pre- requisite (s):**	

D) **Rationale:** Accounting is important because it provides a systematic record of an organization's financial information. This information can be used to assess a company's performance over time, track income and expenditures, and ensure statutory compliance. Accounting also helps investors, management, and the government make business decisions based on accurate and consistent financial data. This course provides the basic detail about the various accounting concepts and principles to be considered to assess a company's performance. The students can learn the basic accounting skills after pursuing this course.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP03.CO1	Apply the various depreciation methods for various accounting procedures.
MBAP03.CO2	Perform bank reconciliation based on appropriation of expenditures and receipts
MBAP03.CO3	Prepare Trading, Profit & Loss statements and balance sheet for the firms
MBAP03.CO4	Prepare the Cash Flow and Fund flow statements for the firms
MBAP03.CO5	Use the fundamentals of Taxation for various situations.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value-based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in achieving organizational goals, contributing effectively to a team environment.
MBAP03.CO1	1	-	1	-	-
MBAP03.CO2	1	1	1	-	-
MBAP03.CO3	1	-	1	-	-
MBAP03.CO4	1	-	1	-	-
MBAP03.CO5	1	1	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP03	PCC	Accounting for Managers	45	-	45	30	120	04	30	70	20	-	20	30	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the Need and development of accounting. *TSO 1b.* Differentiate between book keeping and accounting. *TSO 1c.* Discuss the various types of accounting. *TSO 1d.* List the various users of accounting. *TSO 1e.* List the Objectives of accounting *TSO 1f.* List the Generally Accepted Accounting Principles (GAAP). *TSO 1g.* Explain the Depreciation Accounting *TSO 1h.* Calculate depreciation using Straight line method. *TSO 1i.* Calculate depreciation using Written down Value method.	**Unit-1.0 Introduction to Accounting** 1.1 Meaning and Scope of accounting 1.2 Need and development of accounting 1.3 Book-Keeping and accounting 1.4 Types of Accounting 1.5 Users of Accounting 1.6 Branches of accounting 1.7 Objectives of accounting 1.8 Generally Accepted Accounting Principles (GAAP): Concepts and conventions. Introduction to Accounting Standards 1.9 Disclosure to Accounting Policies 1.10 Depreciation Accounting 1.11 Straight line and Written down Value Methods	**CO1**
TSO 2a. Explain the terms Accounting cycle, Journal, Journal proper, Opening and closing entries. *TSO 2b.* List the Rules regarding posting *TSO 2c.* Make the trail balance for the given data *TSO 2d.* Make the accounts for subsidiary ledger for given books. TSO 2e. Do the bank reconciliation for given accounts. TSO 2f. Classify the given Expenditure TSO 2g. Classify the given receipts	**Unit-2.0 Preparation of Financial Statements** 2.1 Accounting Transactions: Accounting cycle, Journal, Journal proper, Opening and closing entries, Relationship between journal & ledger: 2.2 Rules regarding posting: 2.3 Trial balance: 2.4 Subsidiary books (Purchase, Purchase Returns, Sales, Sales Returns & cash book –Triple Column), 2.5 Bank Reconciliation Statement: Need – Reasons for Difference between Cash Book and Pass Book Balances – Problems on Favourable and Overdraft Balances. 2.6 Expenditure: 2.7 Classification of Expenditure-Capital, revenue and Deferred Revenue expenditure, Distinction between capital expenditure and revenue expenses, Unusual Expenses: Effects of error: Criteria test. 2.8 Receipts: Capital receipt, Revenue receipt, distinction between capital receipts and revenue receipts. 2.9 Profit or Loss: Revenue profit or loss, capital profit or loss	**CO2**
TSO 3a. Explain the features of final accounts. *TSO 3b.* List the uses of making the final accounts	**Unit-3.0 Analysis of Financial Statements -I** 3.1 Preparation of Financial Statements: Final	**CO3**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 3c. Prepare the Trading Account for the given data *TSO 3d.* Prepare the statement of Profit and Loss account for the given information *TSO 3e.* Prepare the Balance Sheet with the given information. *TSO 3f.* Make the adjustment entries in the profit and loss account for the given adjustment information. *TSO 3g.* List the types of errors before and after Preparations of Trial balance *TSO 3h.* Rectify the Errors before and after Preparations of Trial balance *TSO 3i.* Calculate the various types of ratios for the given data *TSO 3j.* Make the Common size Statement for the given information. *TSO 3k.* Compare the given Balance Sheet(s) for analyzing the performance of the given firms *TSO 3l.* Apply Trend Analysis for predictions of the given firm.	Accounts: Meaning, Features, Uses and Preparation of Trading Account, Statement of Profit and Loss and Balance Sheet – Adjusting and Closing Entries. (Basic problems on Final accounts of companies). 3.2 Rectification of Errors: Types of Errors – Rectification of Errors before and after Preparations of Trial balance. 3.3 Analysis of Financial Statements 3.4 Ratio Analysis- solvency ratios, profitability ratios, activity ratios, liquidity ratios, market capitalization ratios 3.5 Common Size Statement; Comparative Balance Sheet and Trend Analysis.	
TSO 4a. Explain the gross and net working capital *TSO 4b.* Prepare the Schedule of Changes in Working Capital for the given data *TSO 4c.* Prepare Funds Flow Statement for the given data *TSO 4d.* Analyze the given fund flow statements. *TSO 4e.* Prepare the cash flow statement using the given information *TSO 4f.* Differentiate between the cash flow and fund flow statement *TSO 4g.* Analyze the given cash flow statements	**Unit-4.0 Analysis of Financial Statements -II** 4.1 Funds Flow Statement: Meaning, Concept of Gross and Net Working Capital, Preparation of Schedule of Changes in Working Capital, Preparation of Funds Flow Statement and its analysis 4.2 Cash Flow Statement: Various cash and non-cash transactions, flow of cash, difference between cash flow and fund flow, preparation of Cash Flow Statement and its analysis.	**CO4**
TSO 5a. List the Accounting Standards and IFRS *TSO 5b.* Explain the Need for accounting standards *TSO 5c.* Explain the emerging issues in accounting *TSO 5d.* Use the fundamentals of Taxation for the given situation.	**Unit-5.0 Accounting Standards and IFRS and Emerging Issues in Accounting** 5.1 Accounting Standards and IFRS 5.2 Need for accounting standards - IFRS and proposed changes in Indian Accounting Standards. 5.3 Emerging issues in Accounting: Corporate Governance and clause 49 of the listing agreement, Human Resource Accounting, Forensic Accounting, Window Dressing- Sustainability Reporting. 5.4 Fundamentals of Taxation: Overview of Heads of Income, deductions u/s 80C, Income Tax	**CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
	Rates and Returns – For Individuals only (Only Theory)	

J) Suggested Laboratory Experiences:

Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment Titles	Relevant COs Number (s)
LSO 1.1 Apply accounting fundamentals to systematically record business transactions.	1.	Recording Journal Entries Enter business transactions using Excel journal templates (debit-credit format).	CO1
LSO 1.2 Construct ledgers and apply balancing techniques to ensure accuracy.	2.	Posting to Ledgers Post entries from journal to individual ledger accounts in Excel using linking formulas.	CO1
LSO 1.3 Assemble ledger balances into a trial balance for reconciliation.	3.	Preparing Trial Balance Create a trial balance from ledger balances to check arithmetical accuracy in Excel.	CO1
LSO 2.1 Prepare and present financial statements in a structured format.	4.	Creating Final Accounts Prepare Trading, Profit & Loss Account, and Balance Sheet using a formatted Excel workbook.	CO2
LSO 2.2 Evaluate the liquidity position using cash flow analysis.	5.	Cash Flow Statement (Indirect Method) Analyze balance sheet and P&L data to prepare a cash flow statement.	CO2
LSO 2.3 Interpret financial performance using ratio analysis techniques.	6.	Ratio Analysis Using Excel Compute financial ratios like Current Ratio, ROCE, and Debt-Equity from company data.	CO2
LSO 3.1 Design cost reports for managerial decision-making.	7.	Preparation of Cost Sheet Calculate Prime Cost, Works Cost, and Total Cost using a structured Excel cost sheet.	CO3
LSO 3.2 Analyze cost-volume-profit relationships using visual tools.	8.	Break-even Point Analysis Build a break-even chart in Excel using cost and revenue data, simulate profit levels.	CO3
LSO 3.3 Create budget plans and apply forecasting techniques for planning.	9.	Budgeting and Forecasting Create sales, production, and cash budgets and visualize variance using charts.	CO3
LSO 3.4 Evaluate performance deviations through variance analysis.	10.	Standard Costing and Variance Analysis Compare actual vs. standard costs; compute variances for materials and labor.	CO3
LSO 4.1 Determine asset values and impact on profit using depreciation methods.	11.	Depreciation Calculation Apply Straight-Line and Written Down Value methods for depreciation using Excel functions.	CO4
LSO 4.2 Reconcile banking transactions using systematic comparison.	12.	Bank Reconciliation Statement	CO4

Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment Titles	Relevant COs Number (s)
		Prepare a BRS in Excel by comparing cash book and bank statement balances.	
LSO 4.3 Apply inventory valuation techniques for accurate reporting.	13.	Inventory Valuation Use FIFO and LIFO methods to calculate closing stock and cost of goods sold.	CO4
LSO 5.1 Apply marginal costing principles to managerial decision-making.	14.	Marginal Costing for Decision Making Prepare contribution margin analysis for make-or-buy or pricing decisions.	CO5
LSO 5.2 Analyze long-term investment feasibility using capital budgeting tools.	15.	Capital Budgeting (NPV & IRR) Use Excel financial functions to evaluate investment decisions using NPV, IRR.	CO5

K) Suggested Research Based Problems

i. Impact of Budgeting on Managerial Decision-Making: Investigate how different budgeting techniques (e.g., zero-based budgeting, rolling forecasts) influence managerial decisions and organizational performance.

ii. The Role of Management Accounting in Strategic Planning: Analyze how management accounting practices contribute to strategic planning processes and the effectiveness of decision-making within organizations.

iii. Cost Allocation Methods and Their Effect on Product Pricing: Explore how various cost allocation methods (e.g., activity-based costing vs. traditional costing) affect product pricing strategies and profitability analysis.

iv. The Influence of Accounting Information Systems on Managerial Performance: Examine the impact of modern accounting information systems on the efficiency and effectiveness of managerial performance in organizations.

v. Ethical Issues in Management Accounting: Investigate the ethical dilemmas faced by managers in the realm of accounting and how these affect decision-making and corporate governance.

vi. Performance Measurement Systems: A Comparative Study: Conduct a comparative analysis of different performance measurement systems (e.g., Balanced Scorecard, Economic Value Added) and their effectiveness in driving organizational performance.

vii. Impact of Financial Reporting on Investor Decision-Making: Study how the quality and transparency of financial reporting influence investor perceptions and decisions in publicly traded companies.

viii. Role of Management Accounting in Change Management: Explore how management accounting information can facilitate successful change management initiatives in organizations.

ix. Analysis of Risk Management Practices in Financial Accounting: Investigate the relationship between risk management practices and financial performance, focusing on how managers use accounting data to identify and mitigate risks.

x. Sustainability Reporting and Its Implications for Managerial Decision-Making: Examine the growing importance of sustainability reporting and how it impacts managerial decisions related to resource allocation and strategic planning.

xi. The Role of Forensic Accounting in Fraud Detection and Prevention: Analyze the effectiveness of forensic accounting techniques in identifying and preventing fraud within organizations.

xii. The Influence of Regulatory Changes on Management Accounting Practices: Study how changes in accounting regulations (e.g., IFRS adoption) impact management accounting practices and decision-making processes.

xiii. Impact of Technology on Management Accounting: Investigate the role of emerging technologies (e.g., AI, big data analytics) in transforming management accounting practices and decision-making.

xiv. Cash Flow Management and its Importance in Financial Health: Explore the relationship between cash flow management practices and the overall financial health and performance of businesses.

xv. Human Resource Accounting: Measuring Employee Value: Analyze the concept of human resource accounting and its implications for managerial decision-making regarding employee investments and performance evaluation.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- **Assignment 1**: Prepare a report (1500-2000 words) discussing the role of managerial accounting in decision-making.
- **Assignment 2**: Budgeting Techniques and Their Impact on Management: Write a report (2000-2500 words) that compares different budgeting techniques and analyzes their impact on management effectiveness.
- **Assignment 3**: Cost-Volume-Profit Analysis in Managerial Decisions: Develop a report (1500-2000 words) explaining CVP analysis and its application in managerial decisions.
- **Assignment 4**: Write a detailed report (2000-2500 words) discussing performance measurement and the use of KPIs in management.

- **Assignment 5:** Ethical Considerations in Managerial Accounting: Prepare a report (1500-2000 words) that discusses the ethical considerations in managerial accounting.

b. Seminar Topics:

- The Role of Managerial Accounting in Strategic Decision-Making
- Budgeting Techniques: Their Impact on Managerial Effectiveness
- Cost-Volume-Profit Analysis: A Tool for Managerial Decision Making
- Variance Analysis: Understanding Budget Deviations for Better Control
- The Balanced Scorecard: Integrating Financial and Non-Financial Performance Measures
- Ethical Considerations in Managerial Accounting Practices
- Performance Measurement Systems: Evaluating Organizational Success
- Activity-Based Costing vs. Traditional Costing: A Comparative Study
- The Importance of Cash Flow Management in Managerial Accounting
- Capital Budgeting Techniques: Evaluating Investment Opportunities
- Relevant Costing: Making Informed Decisions in Business Operations
- The Impact of Technology on Managerial Accounting Practices
- The Evolution of Managerial Accounting: Trends and Future Directions
- Sustainability Accounting: Incorporating Environmental Costs in Managerial Decisions
- The Role of Forensic Accounting in Managerial Decision-Making

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit-1.0: Basic Economics Concepts	10
CO2	Unit-2.0: Time Value of Money	15
CO3	Unit-3.0: Cost and Banking Concepts	15
CO4	Unit-4.0 Analysis of financial statements II	15
CO5	Unit-5.0 Accounting standards and IFRS and emerging issues in accounting	15
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work:

S. No.	Name of Equipment, Tools, and Software	Broad Specifications	Relevant Experience /Practical Number
1.	Desktop / Laptop Computers	- Intel i5 or higher processor- Minimum 8 GB RAM- 256 GB SSD or 1 TB HDD- Windows 10 or later- MS Office installed (preferably Office 2016 or later)- 15.6" display (minimum)	All
2.	Microsoft Excel (MS Office)	- Version: Office 2016 or later (Office 365 recommended)- Excel features required: Formulas, Pivot Tables, Charts, Data Validation, What-if Analysis, Macros (optional)	All
3.	Internet Connectivity	- High-speed broadband (minimum 20 Mbps)- Wi-Fi enabled lab or LAN-connected systems	All
4.	Projector / Smart Board	- Minimum resolution: 1080p- HDMI/VGA compatible- In-built audio output or speaker system	All
5.	Laser Printer / Multifunction Printer	- B/W or Color- Print/Scan/Copy- Minimum 20 ppm speed- A4 size compatible	All
6.	Scanner (Optional)	- 600 dpi or higher- Flatbed recommended	All
7.	External Storage Devices	- USB Pen Drives (32 GB minimum) or External HDDs- USB 3.0 or higher	All
8.	Financial Statement Booklets / Hard Copies	- Published company annual reports- Accounting standard handbooks- Sample balance sheets and income statements	All
9.	Whiteboard / Notice Board	- Magnetic or writing board- Size: At least 3 ft x 4 ft- Marker pens and accessories	All
10.	Headphones (Optional)	- Over-the-ear- Noise cancelling- 3.5 mm jack or USB	All

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Financial Accounting: A Managerial Perspective	Narayanaswamy R,	PHI, 2014 ISBN: 9789354437656
2.	A Text book of Accounting For Management	Maheswari S. N, Maheswari Sharad K.	Vikas Publishing house (P) Ltd ISBN: 978-9352716166

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
3.	Financial Accounting	Tulsian P. C	Pearson Education ISBN: 978-9355016034
4.	Accounting for managers	Madegowda J	Himalaya Publishing House ISBN-978-9350514696
5.	Advanced Accountancy	Gupta R. L & Radhaswamy M	Sultan Chand Publications ISBN: 978-8180549885
6.	Financial Accounting	Jain S. P and Narang K L	Kalyani Publishers ISBN: 978-9327269512
7.	Business Taxation	Akhileshwar Pathak and Savan Godiawala	McGraw Hill Education (India) Pvt. Ltd. ISBN: 978-9339218225

b) Online Educational Resources (OER):

1) https://www.shiksha.com/online-courses/accounting-courses-certification-training-st577
2) https://www.coursera.org/learn/uva-darden-managerial-accounting
3) https://www.classcentral.com/course/accounting-acca-introduction-to-management-accoun-8903
4) https://www.futurelearn.com/subjects/business-and-management-courses/finance-and-accounting
5) https://alison.com/tag/accounting?page=3&utm_source=google&utm_medium=cpc&utm_campaign=Performance-Max_Tier-5_Career-Ready-Plan&gad_source=1&gclid=Cj0KCQjw-uK0BhC0ARIsANQtgGMVRBHbIwEjOdrJGaFEtG9ixKzIpnzfJvhs2VSk_ueZ7SZUX_YzmBYaAlRVEALw_wcB

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
1.	Prof. Roli Pradhan	rpradhan@nitttrbpl.ac.in

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A)	**Course Title:** Public Policy Economics	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP04	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course equips students with a solid understanding of economic principles and their application in the context of public policy. Through the study of public economics, cost-benefit analysis, and competition policy, students gain the tools necessary to evaluate policies objectively and address market imperfections. By mastering these concepts, they become informed advocates for effective public policies in diverse settings.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP04.CO1	Analyze the economic foundations of various public policy
MBAP04.CO2	Apply microeconomic principles to various public policy issues, critically examining consumer behavior, firm theory, and market structures.
MBAP04.CO3	Analyse market failures and government interventions in various public policies
MBAP04.CO4	Analyse the interaction of monitory and fiscal policy
MBAP04.CO5	Identify Policy Evaluation Techniques WRT social impact and ethical considerations

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value-based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in achieving organizational goals, contributing effectively to a team environment.
MBAP04.CO1	2	-	-	1	-
MBAP04.CO2	2	2	-	1	-
MBAP04.CO3	2	-	-	1	-
MBAP04.CO4	2	2	-	1	-
MBAP04.CO5	2	2	-	1	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP04	PCC	Public Policy Economics	45	-	-	45	90	03	20	70	30	-	-	-	120

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Identify the elements of economics and public policy *TSO 1b.* Explain the market failures *TSO 1c.* Identify economic tools of public policy *TSO 1d.* Outline the evolution of public policy WRT public economics *TSO 1e.* Analyze the economic foundations of public policy *TSO 1f.* Identify role of government in market economies	**Unit 1.0 Foundations of Public Policy Economics** 1.1 Introduction to Economics and Public Policy, 1.2 Concept of market failure, and economic tools of policy analysis, 1.3 Overview of public policy and its economic foundations, Role of government in market economies	**CO1**
TSO 2a. Analyse the parameters of consumer theory *TSO 2b.* Analyse the parameters of producer theory *TSO 2c.* Outline the market structures *TSO 2d.* Identify the regulation and implications of public policy *TSO 2e.* Differentiate between the pricing policies *TSO 2f.* Outline the market interventions for public policy *TSO 2g.* Apply microeconomic principles to public policy issues, critically examining consumer behaviour, firm theory, and market structures.	**Unit 2.0: Microeconomics for Public Policy** 2.1 Consumer Theory, Producer Theory, Market structures, Regulation and Implications for public policy, pricing policies, and market interventions.	**CO2**
TSO 3a. Identify the situations of market failures *TSO 3b.* Identify the role of government WRT market failures *TSO 3c.* Identify the externalities of PPE *TSO 3d.* Enlist public goods *TSO 3e.* Identify missing markets/inefficient markets in PPE *TSO 3f.* Explain information economics and policy *TSO 3g.* Explain Information Asymmetry *TSO 3h.* Explaining Market signalling and government interventions	**Unit 3.0: Market Failures and Government Intervention** 3.1 Market Failures and the Role of Government, Externalities, Public goods, Missing markets and inefficient markets, Information Economics and Policy, Information asymmetry, Market signalling and government intervention.	**CO3**
TSO 4a. Explain aggregate demand and supply in the given policy *TSO 4b.* Identify the potential output and output gap of the given policy *TSO 4c.* Explain the given fiscal policy *TSO 4d.* Explain the given monitory policy *TSO 4e.* Differentiate between fiscal policy tools *TSO 4f.* Analyse the interaction of monitory and fiscal policy. *TSO 4g.* Identify the considerations of open economy *TSO 4h.* Outline the balance of payment framework	**Unit 4.0: Macroeconomics and Fiscal Policy** 4.1 Aggregate Demand and Supply in Policy Context, Potential output and output gap, Fiscal and Monetary Policy, Fiscal policy tools, Monetary policy and its interaction with fiscal policy, Open Economy Considerations, Balance of payments framework.	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 5a. Explain Public Finance and Budgeting *TSO 5b.* Identify the Public revenue sources *TSO 5c.* Explain social welfare programs wRT design, financing and efficiency *TSO 5d.* Identify Policy Evaluation Techniques WRT social impact and ethical considerations	**Unit 5.0: Policy Evaluation and Public Finance** 5.1 Public Finance and Budgeting, Public revenue sources, social welfare programs and their design, financing, and efficiency, Policy Evaluation Techniques, Assessing social impact, Ethical Considerations and Future Challenges.	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0 Foundations of Public Policy Economics	14
CO2	Unit 2.0: Microeconomics for Public Policy	14
CO3	Unit 3.0: Market Failures and Government Intervention	14
CO4	Unit 4.0: Macroeconomics and Fiscal Policy	14
CO5	Unit 5.0: Policy Evaluation and Public Finance	14
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Microeconomics for MBAs	Richard B. McKenzie and Dwight R. Lee	Cambridge University Press, 2017
2.	Macroeconomics	Gregory Mankiw	Worth Publishers, 2022
3.	Public finance and public policy	Gruber, J. / Jonathan Gruber.	2022, Seventh ed. Macmillan
4.	Intermediate Public Economics	Jean Hindriks and Gareth D. Myles	MIT Press, 2004
5.	Economics of the Public Sector	Joseph E Stiglitz and Jay K. Rosengard	4th Edition, International Student Edition, Norton (2015).
6.	The Oxford Handbook of the Indian Economy	(Edited by Chetan Ghate	Oxford University Press, 2017
7.	Transforming Systems: Why the World Needs a New Ethical	Arun Maria	Toolkit (2010)
8.	In Service of the Republic: The Art and Science of Economic Policy	Vijay Kelkar and Ajay Shah	Penguin-Random House India Publications, 2022
9.	The Stiglitz Report: Reforming the International Monitory and Fiscal System in wake of the Global Crisis	Joseph E. Stiglitz	The New Press, 2011
10.	Economics of the Public Sector"	Sara Connolly and Alistair Munro	Prentice Hall Europe, 1999
11.	GDP: A Brief but Affectionate History	Coyle, D.	Princeton University Press, Princeton NJ, 2014
12.	The Economics of Social Problems	Le Grand, J, Smith, S, and Propper, C.	4th edition, Palgrave Macmillan, Basingstoke, 2008

b) Online Educational Resources (OER):

1) https://www.youtube.com/watch?v=Xl7mpy9te5I&t=2s

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
1.	Prof. Ashish Deshpande	adeshpande@nitttrbpl.ac.in

****

A)	**Course Title:** Basics of Artificial Intelligence and Machine Learning	Deemed to be University under Distinct Category
B)	**Course Code:** CSEB05	
C)	**Pre- requisite (s):**	

D) **Rationale:** Artificial Intelligence and Machine Learning are no longer confined to computer science; they are transformative technologies impacting every engineering discipline. From optimizing civil infrastructure designs, predicting material failures in mechanical systems, enhancing power grid efficiency in electrical engineering, to developing intelligent control systems, AI/ML offers unparalleled tools for problem-solving, efficiency, and innovation.

Therefore, this course is important for all disciplines. This course will equip learners with foundational knowledge in data-driven decision-making, predictive analytics, and automation. Regardless of their specialization, the comprehension of AI/ML will enable them to leverage these technologies to create smarter products, optimize processes, interpret vast datasets, and remain competitive in a rapidly evolving AI-driven industrial landscape.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
CSEB05.CO1	Develop Python programs for solving mathematical problems.
CSEB05.CO2	Manipulate Sequence data types in Python
CSEB05.CO3	Analyse the data using Python Libraries, modules, and Packages
CSEB05.CO4	Apply various Machine learning paradigms.
CSEB05.CO5	Evaluate the performance of the prediction model after creating it.
CSEB05.CO6	Analyse data using various tools for AI & ML Applications.

F) Suggested Course Articulation Matrix (CAM): (To be prepared by the curriculum development committee of the respective programme)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
CSEB05	PCC	Basics of Artificial Intelligence and Machine Learning	30	15	45	30	120	04	30	70	20	-	20	30	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Differentiate between Procedure-Oriented and Object-Oriented Programming approaches with examples. *TSO 1b.* Explain the concept of Lvalue and Rvalue *TSO 1c.* Write Python program using various data types and operators *TSO 1d.* Write Python program using decision-making statements. *TSO 1e.* Write Python Program using loop structure to solve iterative problems.	**Unit-1.0 Basics of Python Programming** 1.1 Procedure oriented vs. Object-Oriented approach of programming 1.2 Python character set, Python tokens, variables, concept of Lvalue and Rvalue, use of comments. 1.3 Data types: number (integer, floating point, complex), Boolean, sequence (string, list, tuple), none, mapping (dictionary), mutable and immutable data types 1.4 Operators: arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators. Expressions, statements, type conversion & input/output: precedence of operators, expressions, and evaluation of expressions.	**CO1**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
	1.5 Conditional statements: simple if statement, if-else statement, if-elif-else statement 1.6 Iterative statements: while loop, for loop, range function, break and continue statements, nested loops	
TSO 2a. Explain the procedure to perform the various operations on a string using string operators and methods. *TSO 2b.* Explain the procedure to perform various operations on a List using list operators and methods *TSO 2c.* Explain the procedure to perform various operations on tuples using tuple operators and methods *TSO 2d.* Explain the procedure to perform various operations on a set using set methods *TSO 2e.* Explain the procedure to perform various operations on a dictionary using dictionary methods. *TSO 2f.* Explain the procedure to create and use user-defined functions to implement a modular programming approach. *TSO 2g.* Explain the working of the scopes of variables.	**Unit 2.0: Sequence data types, Functions.** 2.1 String: indexing, string operations (concatenation, repetition, membership & slicing), traversing a string using loops, and built-in functions. 2.2 Lists: introduction, indexing, list operations: concatenation, repetition, membership & slicing, traversing a list, built-in list functions, linear search on a list of numbers, and counting the frequency of elements in a list 2.3 Tuples: Creating, initializing, accessing elements, tuple assignment, performing operations on tuples, tuple methods and built-in functions, nested tuples 2.4 Set: Creating sets, traversing, adding, removing data in a set, performing set operations like join, Union, intersection, difference 2.5 Dictionary: accessing items in a dictionary using keys, mutability of dictionary: adding a new item, modifying an existing item, built-in dictionary functions. 2.6 Functions: types of function (built-in functions, functions defined in module, user-defined functions), creating user user-defined function, arguments and parameters, default parameters, positional parameters, Lambda functions, returning value, scope of a variable: global scope, local scope	**CO2**
TSO 3a. Write simple Python programs with an object-oriented approach *TSO 3b.* Explain the workflow to use the constructors and destructors appropriately in a Python program *TSO 3c.* Write the program to implement the given type of inheritance in Python. *TSO 3d.* Explain the procedure to implement the concept of Polymorphism in Python *TSO 3e.* Write Python programs for exception handling in Python *TSO 3f.* Differentiate between different modes of	**Unit-3.0 OOPS, Data Analysis using Modules and Packages** 3.1 Object-oriented programming concepts and approach, Abstraction, encapsulation, class, object, class method vs static method in Python, class and static variable, constructor and destructors in Python. 3.2 Inheritance: single, multiple, multilevel, hierarchical inheritances	**CO3**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
file opening. *TSO 3g.* Explain the procedure to perform read, write, and Append operations in files *TSO 3h.* Explain the procedure to import and use Python modules, libraries, and Packages. *TSO 3i.* Write the procedure to apply the Pandas data structure for data analysis *TSO 3j.* Illustrate the process of using Pandas to perform various operations and functions on series. *TSO 3k.* Explain the procedure to perform the various operations in a Data Frame's columns and rows *TSO 3l.* Write a program to read and write on CSV, XLS, and Text data files *TSO 3m.* Write the procedure to use the various data cleaning operations and prepare data.	3.3 Polymorphism: Polymorphism with class method, polymorphism with inheritance, method overriding, and overloading. 3.4 Exception Handling: syntax errors, exceptions, need for exception handling, user-defined exceptions, raising exceptions, handling exceptions, catching exceptions, Try - except - else clause, Try - finally clause, recovering and continuing with finally, built-in exception classes. 3.5 File Handling: text file and binary file, file types, open and close files, reading and writing text files, reading and writing binary files, file access modes 3.6 Modules and Packages: Importing modules using 'import', Regular Expressions, Exception Handling, PyPI Python Package Index, Pip Python package manager, Importing Libraries and Functions 3.7 Key features and methods for summarizing data in Python, Aggregation and Grouping, data visualization. 3.8 Pandas data structures: Series, Declaration, selecting elements, assigning values, Filtering values, operations, mathematical functions, evaluating values, handling missing data, creating series from dictionaries, adding two series. 3.9 Data Frame: Defining, selecting elements, assigning values, membership, deleting a column, and filtering. Index Objects: Indexing, Re-indexing, Dropping, sorting and ranking, Descriptive Statistics 3.10 Data Loading: Reading and Writing CSV, xls, Text Data Files, Data Cleaning and Preparation: Handling missing data, removing duplicates, replacing values, Vectorized String Methods, Hierarchical Indexing, Merging and Combining, Data aggregation and Grouping.	
TSO 4a. Explain the concept of Artificial Intelligence. *TSO 4b.* Differentiate the various learning paradigms. *TSO 4c.* Explain the use of a suitable machine learning algorithm for the given application.	**Unit-4.0 Introduction to AI & ML** 4.1 Overview of AI: Agents, Natural Language Processing & Decision Network 4.2 Learning Paradigms: Supervised, Unsupervised and Reinforcement Learning. 4.3 ML Algorithms: Supervised Learning Algorithms: Linear Regression, Logistic	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 4d. Explain the procedure for validating the machine learning algorithm.	Regression, Random Forest, k-NN, Decision Tree, SVM, ANN, 4.4 Unsupervised Learning Algorithms: k-Means clustering and k-Mode Clustering 4.5 Reinforcement Learning Algorithm: Q-Learning.	
TSO 5a. Explain the process of exploring the various datasets to identify their characteristics and patterns. *TSO 5b.* Perform the feature scaling for the given dataset. *TSO 5c.* Perform the feature selection process on the given dataset. *TSO 5d.* Explain the procedure to create a model using data preprocessing and classification. *TSO 5e.* Explain the procedure to create multidisciplinary applications.	**Unit-5.0 Model Creation using Python** 5.1 Datasets: Kaggle, UCI Machine Learning Repository 5.2 Data Pre-processing: Feature Scaling and Feature Selection 5.3 Model creation using data pre-processing, Classification through ML algorithms using Python programming. 5.4 Creation of Multidisciplinary Applications	**CO5**
TSO 6a. Explain the role of AI and ML algorithms in decision-making on various applications. *TSO 6b.* Explain the features of the Weka Tool *TSO 6c.* Explain the features of the Orange3 Tool *TSO 6d.* Explain the features of Julia Tool *TSO 6e.* Differentiate the features of Weka, Orange3, and Julia. *TSO 6f.* Perform data preprocessing using Weka, Orange3, and Julia AI. *TSO 6g.* Explain the process of using classifiers for classification in Weka, Orange3, and Julia AI. *TSO 6h.* Use clustering methods for grouping the given data in Weka, Orange3, and Julia AI.	**Unit 6.0: Applications of AI & ML and Data Analysis Tools** 6.1 Role of AI & ML in Multidisciplinary, Applications 6.2 Introduction to Weka, Orange3, and Julius AI 6.3 Data pre-processing: Data cleaning, Removal of Stop words, Removal of Null values using Tools such as Weka, Orange3, and Julius AI 6.4 Data Visualization: Bar Chart, Pie Chart, Line Chart, Plot, etc. in Weka, Orange3, and Julius AI. 6.5 Classification through Weka, Orange3, and Julius AI 6.6 Regression through Weka, Orange3, and Julius AI 6.7 Clustering Process using Weka, Orange3, and Julius AI	**CO6**

J) Suggested Laboratory experiences:

Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment Titles	Relevant CO Number (s)
LSO 1.1. Implement conditional statements in Python.	1.	Write Python programs to demonstrate the use of the following conditional statements:	CO1

Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment Titles	Relevant CO Number (s)
		a. If statements b. If-else statements, if-elif-else statements	
LSO 2.1. Implement Loop statements in Python to solve iterative problems.	2.	Write Python programs to demonstrate the use of the following loop statements: a) While loop b) for loop c) Use of range function, break, continue	CO1
LSO 3.1. Manipulate given Sequence data types in Python	3.	Write and execute Python Programs to demonstrate various operations on the following sequence data types: a) String b) List	CO2
		Write and execute Python Programs to demonstrate various operations on the following sequence data types: a) Tuple b) Set, c) Dictionary	CO2
LSO 5.1. Create user-defined functions in Python	4.	Write and execute Python Programs to demonstrate creating and calling User-defined functions	CO2
LSO 5.1. Use NumPy and Pandas built-in functions	5.	Consider a dataset, and execute the following functions to analyze the dataset. a) Read, head, tail & arithmetic functions b) Loc (Location), iloc (Integer Location) c) Sort, Numpy with Arrays.	CO3
LSO 6.1 Use Python modules.	6.	Conduct a statistical learning process using the Chi-Square test by considering the parametric and Non-parametric tests.	CO3
LSO 7.1. Visualize the given data in various dimensions. *LSO 7.2.* Summarize the data according to the dataset's features.	7.	a) Demonstrate the data visualization of the given data. b) Summarize the data with respect to the different attributes of the given salary dataset.	CO3
LSO 8.1. Apply Linear Regression and Multiple Linear Regression for predictive analysis. *LSO 8.2.* Evaluate the Linear and Multiple Linear Regression models with	8.	a) Perform the predictive analysis using Multiple Linear Regression. b) Perform the predictive analysis using Linear Regression.	CO4

Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment Titles	Relevant CO Number (s)
respect to the standard evaluation metrics.		c) Compare the performance of the Multiple Linear Regression and Linear Regression with respect to the prediction accuracy and time.	
LSO 9.1. Implement the resampling process and feature selection using Python. *LSO 9.2.* Apply the k-nearest neighbor classifier to perform the predictive analysis. *LSO 9.3.* Evaluate the k-nearest neighbour with respect to the evaluation metrics.	9.	a) Perform the resampling process and feature selection using a suitable ML classifier. b) Perform the predictive analysis using k-Nearest Neighbor by considering the dataset with selected features. c) Evaluate the k-nearest neighbour classifier with respect to the standard evaluation metrics like precision, recall, f-measure and accuracy.	CO3, CO4
LSO 10.1. Solve the MCNFP problem for the optimal solution using Python. *LSO 10.2.* Evaluate the efficiency of the MCNFP in the process of optimization.	10.	Implement the Minimum Cost Network Flow Problem (MCNFP) method to find the new path in a transportation network.	CO3, CO4
LSO 11.1. Implement the stochastic decision tree to predict the risk. *LSO 11.2.* Evaluate the performance of the stochastic decision tree by using the evaluation metrics.	11.	Implement the stochastic decision tree algorithm to analyze the risk. (Prefer your own dataset)	CO3, CO4
LSO 12.1. Predict the future result by analyzing the given data using the Random Forest algorithm. *LSO 12.2.* Evaluate the performance of the classifier with respect to the standard evaluation metrics.	12.	a. Execute the source code of the random forest algorithm implementation for predicting diabetic and heart diseases b. Compare the performance of the random forest with k-nearest neighbor by considering the standard evaluation metrics.	CO3, CO4
LSO 13.1 Predict the future result by analyzing an image dataset using the SVM algorithm. *LSO 13.2* Evaluate the performance of the classifier with respect to the standard evaluation metrics. *LSO 13.3* Compare the performance of the SVM with MLP with respect to the standard evaluation metrics.	13.	a) Implement the support Vector Machine (SVM) algorithm for image classification/ semantic segmentation (choose any dataset) b) Evaluate the algorithm's performance with respect to the standard classifiers. c) Compare the performance of the SVM with the Multi-layer perceptron (MLP) by considering the standard evaluation metrics.	CO3, CO4
LSO 14.1 Visualize the given dataset using the Weka Tool.	14.	a) Perform the data visualization using the Weka Tool.	CO5, CO6

Lab Session Outcomes (LSOs)	S. No.	Laboratory Experiment Titles	Relevant CO Number (s)
LSO 14.2 Visualize the given dataset using the Orange3 Tool. *LSO 14.3* Visualize the given dataset using the Julia AI tool.		b) Perform the data visualization using the Orange3 Tool. c) Perform the data visualization using the Julia AI tool.	
LSO 15.1 Preprocess the given dataset using the Weka Tool. *LSO 15.2* Preprocess the given dataset using the Orange3 Tool. *LSO 15.3* Preprocess the given dataset using the Julia AI tool.	15.	a) Perform the data preprocessing on the given dataset using the Weka Tool. b) Perform the data preprocessing on the given dataset using the Orange3 Tool. c) Perform the data preprocessing on the given dataset using the Julia AI tool.	CO5, CO6
LSO 16.1 Classify the given dataset using the Weka Tool. *LSO 16.2* Classify the given dataset using the Orange3 Tool. *LSO 16.3* Classify the given dataset using the Julia AI tool.	16.	a) Perform the classification process on the given dataset using the Weka Tool. b) Perform the classification process using the Orange3 Tool. c) Perform the classification process using the Julia AI tool	CO5, CO6

K) Suggested Research Based Problems

i. Demonstrate the performance of the Multilayer Perceptron and Artificial Neural Network over a seizer dataset with respect to the detection accuracy and time.

ii. Develop a product recommendation system using a stochastic decision tree algorithm by analyzing a sales dataset. Further, the system needs to recommend the product requirement for the specific year and the required quantity to fulfill the customer needs with satisfaction.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

b. Seminar Topics:

- Python Libraries and Packages used in data analytics
- Comparison of various Data Visualization tools
- Role of predictive analysis in real-time applications

- ML algorithms in Decision Making
- ML algorithms in feature engineering
- Weka Vs Orange3 Vs Julia AI
- Role of AI and ML in Multidisciplinary Research

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0 Basics of Python Programming	10
CO2	Unit 2.0 Sequence data types, Functions.	10
CO3	Unit 3.0 OOPS, Data Analysis using Modules and Packages	10
CO4	Unit 4.0 Introduction to AI & ML	15
CO5	Unit 5.0 Model Creation using Python	15
CO6	Unit 6.0 Applications of AI & ML and Data Analysis Tools	10
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies: Different instructional/implementation strategies may be appropriately used in online and offline modes, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work:

S. No.	Name of Equipment, Tools and Software	Broad Specifications	Relevant Experience /Practical Number
1.	Computer system	Processor Intel Core i7, 32 GB RAM, 15 GB free disk space	All
2.	Integrated Development and Learning Environment (IDLE)	S/w to be downloaded for Python 3.11.3 or higher	1-13
3.	Anaconda Navigator / Jupyter NoteBook	Server for Software Platform	1-13
4.	Weka	Software Tool	14,15 & 16

S. No.	Name of Equipment, Tools and Software	Broad Specifications	Relevant Experience /Practical Number
5.	Orange3	Software Tool	14,15 & 16
6.	Julia AI	Software Tool	14,15 & 16

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Python for Programmers	Paul Deitel and Harvey Deitel	Pearson Education, 1st Edition, 2021 ISBN-10 : 9353947987 ISBN-13 : 978-9353947989
2.	Artificial Intelligence – A Modern Approach	Stuart Russell and Peter Norvig	Fourth Edition, Pearson Education, 2021. ISBN-10 : 1292401133 ISBN-13 : 978-1292401133
3.	Machine Learning: An Algorithmic Perspective	Stephen Marsland	Chapman & Hall/CRC, 2nd Edition, 2014. ISBN-10 : 1138583405 ISBN-13 : 978-1138583405
4.	Data Analytics and Decision Making	Ali Abdul Hussein	Creative Commons Attribution 4.0 International License, University of Windsor, 2022.
5.	Python Data Analytics	Fabio Nelli	Apress,2015 ISBN: 9781484209585
6.	Python for Data Analysis: Data Wrangling with Pandas, Numpy, and Python	Wes McKinney	O'REILLY, 2017, Second Edition ISBN-10: 1491957662 ISBN-13:78-1491957660

b) Online Educational Resources (OER):

1) https://docs.python.org/3/tutorial/
2) https://nptel.ac.in/courses/106106145
3) https://www.w3schools.com/python/
4) https://www.tutorialspoint.com/python/index.htm
5) https://www.w3schools.com/python/pandas/default.asp
6) https://pandas.pydata.org/docs/user_guide/10min.html
7) http://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Python-Cookbook-3rd-Edition.pdf

8) Data Sources:

- https://archive.ics.uci.edu/ml/machine-learning-databases/auto-mpg/
- https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data
- https://www.kaggle.com/arshid/iris-flower-dataset
- https://www.kaggle.com/rohankayan/years-of-experience-and-salary-dataset
- https://www.kaggle.com/datasets/johnsmith88/heart-disease-dataset
- https://www.kaggle.com/datasets/harunshimanto/epileptic-seizure-recognition
- https://www.kaggle.com/datasets/mathchi/diabetes-data-set

Q) Course Curriculum Development Team

S. No.	Name	E-mail Address
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A)	**Course Title:** Sports, Yoga & Meditation	Deemed to be University under Distinct Category
B)	**Course Code:** NEP01	
C)	**Pre- requisite (s):**	

D) **Rationale:** Sports or Physical Education, Yoga and Meditation is an integral part of a person's overall well-being and is imperative for a healthy mind and body balance. Integrating practical activities throughout the curriculum ensures that students not only gain theoretical knowledge but also develop practical skills, enhance their physical and mental well-being, and cultivate a deeper understanding and appreciation for sports, yoga, and meditation. Practical learning experiences are essential for reinforcing concepts, building competence, and fostering a lifelong commitment to health and wellness practices. It's also plays a major role in reducing level of stress/anxiety and add to the mental toughness. Looking to the ample benefits there is need to inculcate sports, Yoga and meditation as a day to day habit. So, it is necessary that every educational institutes should lay ample emphasis on including sports, yoga and meditation as a necessary part of education.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
NEP01.CO1	Select appropriate physical activities to maintain healthy lifestyle.
NEP01.CO2	Apply basic principles and practices of Yoga and meditation for overall growth & development.
NEP01.CO3	Use fitness and wellness techniques for optimal health and wellbeing

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)		
	PO-1 An ability to independently carry out research /investigation and development work to solve practical problems.	**PO-2** An ability to write and present a substantial technical report/document.	**PO-3** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
NEP01.CO1	2	1	1
NEP01.CO2	2	1	1
NEP01.CO3	2	1	1

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
NEP01	NEP	Sports, Yoga & Meditation	15	-	-	15	30	01	25	-	25	-	-	-	50

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Describe various sports, their benefits, and basic rules. *TSO 1b.* Explain the importance of physical fitness and basic conditioning exercises. *TSO 1c.* Select sports and exercises for physically challenged as per their need. *TSO 1d.* Explain the components of physical fitness (strength, flexibility, endurance). *TSO 1e.* Demonstrate proficiency in performing warm- up and cool-down routines. *TSO 1f.* Apply basic strength training and flexibility exercises to improve fitness levels.	**Unit-1.0 Introduction to Sports** 1.1 Definition of play, game, sports, exercise, psychology, sports psychology and exercise psychology, psychology and common-sense Overview of popular sports (football, basketball, tennis, etc.) 1.2 Benefits of sports for physical health and teamwork 1.3 Basic rules and equipment of selected sports 1.4 Components of physical fitness (strength, flexibility, endurance) 1.5 Warm-up and cool-down routines 1.6 Introduction to strength training and flexibility exercises 1.7 Adaptation of sports and exercises for physically challenged students in all levels.	**CO1**
TSO 2a. Apply principles and practices of yoga. *TSO 2b.* Explore techniques for mental relaxation and focus. *TSO 2c.* Explain history, philosophy, and principles of yoga. *TSO 2d.* Practice basic yoga asanas (poses) and their benefits. *TSO 2e.* Practice breath control (pranayama) and relaxation techniques effectively. *TSO 2f.* Develop a structured sequence of yoga poses for specific purposes (strength, flexibility, relaxation). *TSO 2g.* Integrate meditation techniques as part of their yoga practice. *TSO 2h.* Describe the benefits of meditation and mindfulness practices. *TSO 2i.* Apply mindfulness techniques to enhance focus, reduce stress, and improve overall well- being. *TSO 2j.* Select yoga and meditation for physically challenged as per their need.	**Unit-2.0 Yoga and Meditation** 2.1 History and philosophy of yoga 2.2 Role of yoga and meditation in purificatory process, in character building, developing concentration, will power and discipline 2.3 Types of yoga practices - asanas, pranayama, meditation 2.4 Basic yoga asanas (poses) and their benefits 2.5 Importance of breath control (pranayama) and relaxation techniques 2.6 Intermediate yoga asanas and their variations 2.7 Sequencing of yoga poses for different purposes (strength, flexibility, relaxation) 2.8 Introduction to meditation techniques 2.9 Benefits of meditation and mindfulness practices 2.10 Techniques: mindfulness meditation, guided visualization, body scan 2.11 Application of mindfulness in daily life and sports performance 2.12 Adaptation of yoga and meditations for physically challenged students in all levels	**CO2**
TSO 3a. Describe the mental aspects of sports and performance. *TSO 3b.* Apply skills learned in sports, yoga,	**Unit-3.0 Sports, Mental Conditioning and Integration** 3.1 Mental preparation techniques for sports	**CO3**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
and meditation in practical settings *TSO 3c.* Integrate physical fitness, yoga, and mental conditioning into a comprehensive wellness routine. *TSO 3d.* Create and implement personalized fitness and wellness plans based on learned principles.	3.2 Goal setting and visualization 3.3 Overcoming performance anxiety and stress management 3.4 Integration of physical fitness, yoga, and mental conditioning 3.5 Creating personal fitness and wellness routines	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

a. Develop nutritional guidelines and programs that result in measurable improvements in athletic performance and recovery times.

b. Develop comprehensive mental health programs that effectively reduce anxiety, depression, and burnout in athletes.

c. Identify yoga practices that results in measurable improvements in mental health outcomes such as reduced stress, anxiety, and depression.

d. Identify and study specific neurobiological changes due to yoga, leading to enhanced mental and physical health.

e. Develop and validate meditation practices that significantly reduce symptoms of anxiety, depression, and PTSD.

f. Investigate group meditation dynamics that result in improved mental health outcomes and increased group cohesion.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignments: (Seminar Topics/ Visits/ Self- Learning Topics)
Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Calculate your Body Composition (BMI) and Cardiovascular Assessment
- Assessment for Muscular Endurance, Muscular Strength,
- Flexibility, Cardio-respiratory Endurance, Body Composition
- Rules and Regulations of different indoor and outdoor games.

b. Seminar Topics:

- Ethics in sports
- Application of principles of yoga in daily life.
- Strategies to Incorporate mindfulness practices into everyday activities

M) Suggested Specification Table for End Semester Theory Assessment (ETA): (Not Applicable)

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software Research Work:

S. No.	Name of Equipment, Tools and Software	Broad Specifications
1.	Soccer Ball	Size 5, made of synthetic leather, weight 410-450g
2.	Tennis Racket	Length 27 inches, strung with synthetic gut, weight 280-300g
3.	Badminton racket and net	-
4.	Table tennis racket and net	-
5.	Basketball	Size 7, made of leather, weight 567-650g
6.	Base ball set	-
7.	Cricket bat and ball	-
8.	Hockey sticks and balls	-
9.	Javelin Throw	Length: 2.6 - 2.7 meters (8 ft 6 in - 8 ft 10 in) Weight: 800 grams Material: Metal head with a hollow or solid shaft
10.	Discus Throw	Weight: 2 kg for men, 1 kg for women Diameter: 22 cm for men, 18 cm for women Circle Diameter: 2.5 meters (8.2 ft) Material: Made of metal, smooth surface
11.	Shot Put	Weight: 7.26 kg for men, 4 kg for women Diameter: 110-130 mm (4.3-5.1 inches) for men, 95-110 mm (3.7-4.3 inches) for women Circle Diameter: 2.135 meters (7 ft) Material: Made of steel
12.	Chess, carrom	Chess and carrom set
13.	Resistance Bands	Various resistance levels, latex material
14.	Dumbbells	1-10 lbs, adjustable weights

S. No.	Name of Equipment, Tools and Software	Broad Specifications
15.	Jump Rope	Adjustable length, durable material
16.	Exercise Mat	Non-slip surface, cushioned, 68 x 24 inches
17.	Step Platform	Adjustable height, sturdy, non-slip surface
18.	Hand Weights	1-5 lbs, ergonomic grip
19.	Heart Rate Monitor	Wrist-worn, accurate readings
20.	Fitness Ball	55-75 cm diameter, anti-burst material
21.	Aerobics mats -	• Thickness- approx. 1/4 to 1/2 inch for adequate cushioning • Material- Non-slip PVC, rubber, or foam • Size-minimum 68 x 24 inches and larger sizes • Portability- Lightweight and easy to roll up • Durability- Tear-resistant and easy to clean • Design- Textured surface for better grip • Weight- Lightweight (around 2-3 pounds) for easy transport
22.	Sports Wheelchairs	Customized for different sports, lightweight, adjustable
23.	Adaptive Bicycles	Handcycles, tricycles, recumbent bikes
24.	Modified Dumbbells	Adjustable grips for different hand sizes and strength levels
25.	Adaptive Treadmills	Hand-cranked or wheelchair-accessible treadmills
26.	Prosthetics	High-performance prosthetics for running, swimming, etc.
27.	Adaptive Yoga Mat	1/4-inch-thick, non-slip surface, 68 x 24 inches, extra cushioning for support
28.	Yoga Blocks	4 x 4 x 9 inches and various sizes, made of cork or foam
29.	Yoga Strap	6 feet long, adjustable buckle, Adjustable length, made of nylon
30.	Blanket	72 x 48 inches, made of cotton, lightweight
31.	Water Bottle	500ml capacity, BPA-free plastic, leak-proof
32.	Yoga Bolsters	Soft, supportive, various sizes
33.	Chair Yoga Props	Sturdy chairs with low back, no arms
34.	Meditation Cushion	12 x 12 inches, filled with buckwheat hulls or foam, supportive cushions
35.	Meditation Bench	12 inches wide, 18 inches long, adjustable height, comfortable seating
36.	Meditation Bell	2 inches in diameter, made of brass, produces clear sound
37.	Timer	Digital, with a soft alarm sound, battery-operated
38.	Essential Oil Diffuser	100ml capacity, adjustable mist settings, made of ceramic
39.	Blood pressure equipment	Blood pressure equipment

S. No.	Name of Equipment, Tools and Software	Broad Specifications
40.	Blood sugar equipment	Blood sugar equipment
41.	Massage therapy equipment, Hot and cold therapy equipment, Ultrasound therapy equipment for pain relief.	Massage therapy equipment, Hot and cold therapy equipment, Ultrasound therapy equipment for pain relief.
42.	Safety accessories	Helmet, Mouthguards, Protective Eyewear, Shin Guards, Knee Pads, Elbow Pads,Wrist Guards, Padded Shorts, Safety Harnesses, Life Jackets, etc

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Practical Applications in Sports Nutrition	Heather Hedrick Fink, Alan E. Mikesky	Jones & Bartlett Learning (2020) ISBN No: 978-1284181340
2.	ACSM's Guidelines for Exercise Testing and Prescription	Gary Liguori	LWW; (2021) ISBN-13: 978-1975150198
3.	Essentials of Strength Training and Conditioning	Javair Gillett	Human Kinetics, (2021) ISBN-13: 978-1718210868
4.	Practical Applications in Sports Nutrition	Heather Hedrick Fink, Alan E. Mikesky	Jones & Bartlett Learning, (2017) ISBN-13: 978-1284101393
5.	Health Fitness Management	Mike Bates, Mike Spezzano, Guy Danhoff	Human Kinetics, (2019) ISBN-13: 978-1450412230
6.	Yoga for Every Body: A beginner's guide to the practice of yoga postures, breathing exercises and meditation	Luisa Ray, Angus Sutherland	Vital Life Books (2022) ISBN-13: 978-1739737009
7.	Science of Yoga: Understand the Anatomy and Physiology to Perfect Your Practice	Ann Swanson	DK Publisher, (2019) ISBN-13: 978-1465479358
8.	Mudras for Modern Living: 49 inspiring cards to boost your health, enhance your yoga and deepen your meditation Cards	Swami Saradananda	Watkins Publishing (2019) ISBN-13: 978-1786782786
9.	Counselling Skills in Applied Sport Psychology: Learning How to Counsel	Paul McCarthy, Zoe Moffat	Routledge, (2023) ISBN-13: 978-1032592589
10.	Advancements in Mental Skills Training (ISSP Key Issues in Sport and Exercise Psychology)	Maurizio Bertollo, Edson Filho, Peter Terry	Routledge, (2020) ISBN-13: 978-0367111588
11.	The Relaxation and Stress Reduction Workbook	Martha Davis, Elizabeth Robbins, Matthew McKay, Eshelman MSW	A New Harbinger Self-Help Workbook (2019)
12.	Patanjalis Yoga Sutras	Swami Vivekananda	Fingerprint Publishing (2023) Prakash Books India Pvt Ltd, New Delhi ISBN-13: 978-9354407017

b) Online Educational Resources (OER):

1) https://onlinecourses.swayam2.ac.in/aic19_ed28/preview- introduction to Yoga and Applications of Yoga
2) https://onlinecourses.swayam2.ac.in/aic23_ge09/preview- Yoga for Creativity
3) https://onlinecourses.swayam2.ac.in/aic23_ge05/preview- Yoga for concentration
4) https://onlinecourses.swayam2.ac.in/aic23_ge06/preview- yoga for memory development
5) https://onlinecourses.nptel.ac.in/noc21_hs29/preview-Psychology of Stress, Health and Well being
6) https://onlinecourses.swayam2.ac.in/nce19_sc04/preview- Food Nutrition for Healthy Living - Course – Swayam
7) https://www.classcentral.com/course/swayam-fitness-management-17608- Fitness Management from Swayam
8) https://onlinecourses.swayam2.ac.in/nce19_sc04/preview-Food Nutrition for Healthy Living
9) https://onlinecourses.swayam2.ac.in/cec21_ed02/preview Health Education and Recreation
10) https://onlinecourses.swayam2.ac.in/cec22_ed31/preview Sports Administration and Management

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A)	**Course Title:** Open Educational Resources (OER)	Deemed to be University under Distinct Category
B)	**Course Code:** NEP02	
C)	**Pre- requisite (s):**	

D) **Rationale:** OER are freely and publicly available teaching, learning, and research resources that reside in the public domain in any format or have been released under an intellectual property license that permits their free use and re-purposing by others.

Learning about Open Educational Resources (OER), copyright, and Creative Commons licenses is a valuable endeavour for content creators, users, and anyone interested in sharing knowledge and creative works.

Creative Commons licenses, offer a standardized way to grant permissions for the use and sharing of creative works. Learning about OER, copyright, and Creative Commons licenses is an ongoing process. As these fields evolve, it's important to stay informed and continue exploring new resources and practices.

After going through this course, learners will at first place have reasonable idea to explore and use various OERs useful for their course of study and secondly, be motivated for fair use of resources available to them on various platform by understanding the restrictions and legal issues related to copyright and other licensing policies.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
NEP02.CO1	Evaluate Open Educational Resources (OER) for its authentic use.
NEP02.CO2	Use copyright material appropriately.
NEP02.CO3	Implement suitable Creative Common License.

F) Suggested Course Articulation Matrix (CAM): (Not Applicable)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
NEP02	NEP	Open Education Resources	15	-	-	15	30	01	25	-	25	-	-	-	50

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the difference between OER and other free educational materials. *TSO 1b.* Elaborate the challenges and benefits of using OER in a class. *TSO 1c.* Apply various aspects of evaluating OER before use *TSO 1d.* Explain the necessity to assess an OER's adaptability. *TSO 1e.* Perform preliminary search for open educational resource. *TSO 1f.* Find OER using various resources.	**Unit-1.0 Open Educational Resources** 1.1 OER - definition 1.2 What is NOT OER. 1.3 Benefits of using OER – Benefits to Students - Access to Quality Education 1.4 OER - Benefits to Faculty - Use, Improve and Share, Network and collaborate with peers, Lower Cost, Improve access to information 1.5 Challenges of Using OER – Subject Availability, Format and Material type availability, Time and Support availability 1.6 Evaluating OER – a) Clarity, Comprehensibility, and Readability, b) Content and Technical Accuracy, c) Adaptability and Modularity, d) Appropriateness and Fit, e) Accessibility 1.7 Finding Open Content - OER Search Scenario Filter by Usage Rights in Google, Repositories and Search Tools, Subject-specific Repositories	**CO1**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 2a. Explain benefits of copyright protection for creator *TSO 2b.* Explain exceptions and limitations to copyright law *TSO 2c.* List rights granted to copyright holders. *TSO 2d.* Explain Exceptions and limitations to copyright law *TSO 2e.* Explain Fair use/fair dealing apply to copyright *TSO 2f.* Elaborate Public domain and how does it relate to copyright *TSO 2g.* Elaborate penalties for copyright infringement. *TSO 2h.* Explain copyright for digital content and the internet. *TSO 2i.* Explain use of copyrighted works in education *TSO 2j.* Explain the use of free licenses	**Unit-2.0 Copyright and Open Licensing** 2.1 Copyright and what it does protect, benefits of copyright protection for creators, duration of copyright protection last, rights granted to copyright holders. 2.2 Exceptions and limitations to copyright law, fair use/fair dealing apply to copyright 2.3 Public domain and its relation to copyright. 2.4 Penalties for copyright infringement 2.5 Apply copyright to digital content and the internet 2.6 Use of copyrighted works in education. 2.7 Open Licenses – GNU – Free Documentation license, Free Art License 2.8 Why Free Licenses – Retain, Reuse, Revise, Remix, Redistribute	**CO2**
TSO 3a. Describe the four different Creative Commons License components. *TSO 3b.* Explain the significance of No-Derivative license *TSO 3c.* Explain the Strengths and weaknesses of four Open CC Licenses *TSO 3d.* Choose the right Creative Commons license for work. *TSO 3e.* Apply a Creative Commons license to existing work. *TSO 3f.* Use Creative Commons licenses for commercial purposes. *TSO 3g.* Modify a work licensed under Creative Commons. *TSO 3h.* Revoke a Creative Commons license, combine works with different Creative Commons licenses *TSO 3i.* Differentiate between Attribution and Citation	**Unit-3.0 Creative Common Licenses** 3.1 Alternatives to copyright as Creative Commons licenses. 3.2 Four components of creative common Licenses – Attribution, Share- Alike, Non – commercial, No Derivatives 3.3 Choosing a Creative Common licenses – Wiley's 5 Rs and Creative Common Licenses 3.4 Four Open CC Licenses and Their Strengths and Weaknesses – (a) CC BY (b) CC BY SA (c) CC BY NC (d) CC BY NC SA 3.5 Attribution Vs Citation - Creative Commons licensed work without giving attribution 3.6 Apply a CC License - choose the right Creative Commons license for work, apply a Creative Commons license to existing work, Creative Commons licenses be used for commercial purposes, modify a work licensed under Creative Commons, revoke a Creative Commons license, combine works with different Creative Commons licenses	**CO3**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. Collect information on the impact of OER on cost savings and student engagement.

ii. Search at least four OER related to topic of your Engineering Discipline over Internet. Evaluate the material based on the relevance, accuracy and usability.

iii. Explore the different types of resources under creative Commons licenses (e.g., CC BY, CC BY-SA, CC BY-NC, etc.) and their specific permissions and restrictions.

iv. Create a comparative analysis chart or infographic that visually represents the key characteristics of each license. Select minimum 5 real-world examples from different domains (such as music, art, literature, or education) where creators have used Creative Commons licenses

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignments: (Seminar Topics/ Visits/ Self- Learning Topics)
Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

b. Seminar Topics:

- OER Quality Assurance
- OER Repositories and Platforms
- Creative Commons and Digital Media
- Creative Commons in the Visual Arts
- Examine the legal implications of using Creative Commons licenses, including the obligations and responsibilities of both creators and users and present it.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): (Not Applicable)

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	The OER Starter Kit.	Abbey Elder - 2019	IA: Iowa State University Digital Press, available under a Creative Commons Attribution 4.0 International License. Retrieved from iastate.pressbooks.pub/oerstarterkit
2.	A Brief History of Open Educational Resources	Bliss, T J and Smith, M. - 2017	In: Jhangiani, R S and Biswas-Diener, R. (Eds.) Open: The Philosophy and Practices that are Revolutionizing Education and Science (pp. 9–27). London: Ubiquity Press. DOI: https://doi.org/10.5334/bbc.b.

b) Online Educational Resources (OER):

1) OER for Empowering Teachers Instructional Material by P. Malliga is licensed under a Creative Commons Attribution 4.0 International License.
2) William & Flore Hewlett Foundation. (n.d.). OER defined. Retrieved from https://hewlett.org/strategy/open-educational-resources/
3) Free Software Foundation. (2008). GNU Free Documentation License. Retrieved from https://www.gnu.org/licenses/fdl.html
4) Copyleft Attitude. (2007). Free Art License 1.3. Retrieved from http://artlibre.org/licence/lal/en/
5) Free Software Foundation. (n.d.). What is copyleft? Retrieved from https://www.gnu.org/copyleft/copyleft.html

Q) Course Curriculum Development Team

S. No.	Name	E-mail Address
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A)	**Course Title:** Professional Ethics	Deemed to be University under Distinct Category
B)	**Course Code:** NEP03	
C)	**Pre- requisite (s):** General awareness about moral values and about different workplaces	

D) **Rationale:** The Course on Professional Ethics equips graduates with the moral frameworks necessary to handle complex challenges inherent in any profession. In the course, graduates will be exposed to situations involving ethical dilemmas, where robust decision-making is critical for integrity, trust, and societal well-being. This course will cover concepts and principles associated with values, ethics, code of conduct, empathy, and compassion, with a view to fostering a proactive approach to ethical conduct and building resilience. It will also help to cultivate responsible leadership, enhance employability, mitigate risks, and empower individuals to contribute positively to their professions and the broader community in an increasingly interconnected world. This course is meant to sensitize students to ethical considerations within their professions and motivate them to demonstrate ethical behaviour in day-to-day activities.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
NEP03.CO1	Make decisions considering values, moral and ethical framework.
NEP03.CO2	Propose fair professional practices considering the set of values and code of ethics in a simulated situation
NEP03.CO3	Demonstrate reasonable empathic and compassionate behaviour in professional settings.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)		
	PO-1 An ability to independently carry out research /investigation and development work to solve practical problems.	**PO-2** An ability to write and present a substantial technical report/document.	**PO-3** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
NEP03.CO1	3	3	1
NEP03.CO2	2	2	1
NEP03.CO3	2	2	1

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
NEP03	NEP	Professional Ethics	15	-	-	15	30	01	25	-	25	-	-	-	50

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the interrelationship between values, morals and ethics. *TSO 1b.* Explain the influence of values, morals and ethics on the development of attitudes. *TSO 1c.* Identify values using self-assessment tools. *TSO 1d.* Describe a moral framework. *TSO 1e.* Use values and morally related criteria for making decisions in a given situation.	**Unit -1.0 Values, Morals and Ethics in Day-to-Day Life** 1.1 Introduction to values, moral, and ethics, definition, types of values, examples, Concept of attitude and development of attitude 1.2 Values identification using self-assessment tool, Moral Framework and its features, Importance of values and morals in day-to-day activities and at the workplace 1.3 Value-based decision criteria - Long-term versus short-term value considerations, Personal values alignment with professional choices 1.4 Moral Principles and Moral Reasoning Process	**CO1**
TSO 2a. Explain the characteristics that define a profession *TSO 2b.* Describe the role of professional associations in establishing and enforcing ethical standards. *TSO 2c.* Communicate effectively with integrity *TSO 2d.* Identify the ethical principles in the given professional codes *TSO 2e.* Suggest fair professional practices in simulated situation	**Unit-2.0 Professionalism and Codes of Conduct** 2.1 Profession and Professionalism 2.2 Role of Professional Associations and Societies 2.3 Ethics in communication**,** non-violent communication 2.4 Common Code of Ethics/Conduct for different professions, Academic ethics, environmental ethics, and Digital Ethics	**CO2**
TSO 3a. Explain the difference between compassion and empathy *TSO 3b.* Explain the role of emotional intelligence in empathy *TSO 3c.* Demonstrate empathy in a given situation *TSO 3d.* Explain the key stages for compassion development *TSO 3e.* Identify the compassion quotient using a questionnaire *TSO 3f.* Resolve ethical conflicts according to moral values and ethics. *TSO 3g.* Suggest for appropriate behaviour in a given personal and professional setting	**Unit-3.0 Empathic and Compassionate Behavior** 3.1 Introduction to Empathy and Compassion-Definition and Key Differences, Emotional Intelligence, and its role in empathy 3.2 Building blocks of empathy – active listening, Perspective-Taking, emotional cues 3.3 Key stages of compassion development in humans, compassion Quotient 3.4 Balance between Compassion and Empathy 3.5 Identification of activities in one's own area of work and related ethical and unethical behaviour, Ethical boundaries, Ethical Conflicts	**CO3**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

One problem is to allocate to each student. More such problems as mentioned below can be included by the teacher

i. Literature review on the psychology behind ethical and non-ethical behaviour

ii. Analysis of the ethical dilemma situation (such as the Ethical dilemma faced by engineers when they discover a design flaw or safety risk that a company is unwilling to address).

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s): Preparing a report, critique, undertaking discussion in groups after reading books related to values and ethics/Epics/ Daily newspapers and (Any one)

b. Activities: Group discussion, panel discussion, role play, case study, skits related to issues on values and ethics in the profession and day-to-day life. (These can be instructional strategies for the course, and can be specified clearly)

c. Micro Projects: Development of skits and performance, poster making,

d. Other (Any one Topic)

Suggested Seminar/ Debates on topics such as:

- Charters of professions
- Importance of values and ethics in the identified profession
- Issues of ethical conflicts
- Identified issues from scripts such as the Chanakya Neeti, Kabir ke Dohe etc.
- Lessons on ethics from religious scriptures
- Nonviolent communication for good work culture
- Compassion measurement at workplace
- Issued based on happenings reported in daily news

Teacher can suggest supporting material for reference and preparation.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): (Not Applicable)

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Professional Ethics and Human Values	D. R. Kiran	McGraw-Hill Education Pvt. Ltd. 2007 ISBN: 9780070633872
2.	A Textbook on Professional Ethics and Human Values	Dr. R S Nagarajan	New Age International (P) Ltd., Publishers, 2017, ISBN: 8122419380, 9788122419382
3.	Ethics, Integrity and Attitude –Hindi (Paperback) (एथिक्स, सत्यनिष्ठा एवं अभिवृत्ति)	P.D Sharma	Rawat Publications, 2019 ISBN: 978-8131609941
4.	Chanakya - Niti (Sutra Sahit) (Hindi)	Chanakya	Maple Press. 2014 ISBN 978-9350335529
5.	Professional Ethics and Human Values	D. R. Kiran	McGraw-Hill Education Pvt. Ltd. 2007 ISBN: 9780070633872

b) Online Educational Resources (OER):

1) https://tibet.emory.edu/documents/Ozawa-deSilva-CompassionandEthics-FinalPrintVersion-JHSH2012.pdf
2) https://www.surendranathcollege.ac.in/wp-content/uploads/2024/02/7.1.9.-HUMAN-VALUES-AND-PROFESSIONAL-ETHICS.pdf
3) https://harmoniouscosmos.com/the-role-of-compassion-in-ethical-decision-making/
4) https://www.uhv.org.in/uhve
5) https://www.kaggle.com/rohankayan/years-of-experience-and-salary-dataset
6) http://gandhismriti.gov.in/sites/default/files/Nonviolent%20Communication%20Elements%20and%20Applications%20%281%29.pdf

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A)	**Course Title:** Financial Literacy	Deemed to be University under Distinct Category
B)	**Course Code:** NEP04	
C)	**Pre- requisite (s):**	

D) **Rationale:** Financial literacy is a critical life skill that everyone should have, yet many people struggle with it. This course explores the fundamentals of financial literacy, including budgeting, saving, investing, and debt management. The students will learn the fundamental principles of budgeting, saving, and investing, along with understanding the key factors that can impact the financial decisions.it communicates the different investment options and the risk-return trade-offs. It also can create a diversified portfolio that fits your risk tolerance and investment goals. In addition to investment strategies, this course covers topics such as credit and debt management, retirement planning, taxes, and insurance.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
NEP04.CO1	Formulate the investment plan for various situation of income & expenditure of individuals.
NEP04.CO2	Identify various Investment Options for Retirement.
NEP04.CO3	Apply Tax-Effective Investment Decisions for various situations.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
NEP04.CO1	1	-	1	-	-
NEP04.CO2	1	1	1	-	-
NEP04.CO3	1	-	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
NEP04	NEP	Financial Literacy	15	-	-	15	30	01	25	-	25	-	-	-	50

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the Personal Financial Goals for the given situation. *TSO 1b.* Explain Income/ Expenses/ Net Worth for the given situation. *TSO 1c.* Explain the steps of Budgeting for the given	**Unit-1.0: Basic Financial Concepts** 1.1 Personal Financial Goals 1.2 Income, Expenses, and Net Worth 1.3 Budgeting & Cash Flow Management	**CO1, CO2**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
situation. *TSO 1d.* Explain the Cash Flow Management process for the given situation. *TSO 1e.* Explain Saving for household for the given situation. *TSO 1f.* Formulate the investment plan for the given individual. *TSO 1g.* Explain Inflation in the economy *TSO 1h.* Identify the factors effecting the Interest Rates in the economy for the given situation. *TSO 1i.* Explain the role of Bank Accounts in personal savings for the given situation. *TSO 1j.* Explain the Payment Methods. *TSO 1k.* Explain the Credit Management system for the given situation. *TSO 1l.* Explain Debt Management for the given situation. *TSO 1m.* Explain the Insurance plan for the given situation. *TSO 1n.* Formulate the investment plan for the given situation of income & expenditure of individuals.	1.4 Saving 1.5 Investing 1.6 Inflation & Interest Rates 1.7 Bank Accounts and Payment Methods 1.8 Credit Management 1.9 Debt Management 1.10 Insurance	
TSO 2a. Identify the various the Investment option and types for the given situation. *TSO 2b.* Building a Diversified Portfolio applying risk-return trade-off for the given situation. *TSO 2c.* Apply the Risk-Return Trade-off for the given situation. *TSO 2d.* Explain Informed Investment Decisions for the given situation. *TSO 2e.* Write the steps in Retirement Planning for the given situation. *TSO 2f.* Explain Social Security and Pensions for the given situation. *TSO 2g.* Identify the Investment Options for Retirement Savings for the given situation. *TSO 2h.* Make Plans for Unexpected Events for the given situation. *TSO 2i.* List the Filing Taxes and Forms *TSO 2j.* Outline the Tax Laws and Regulations. *TSO 2k.* Minimizing Tax Liability for the given situation. *TSO 2l.* Make Tax-Effective Investment Decisions for the given situation.	**Unit-2.0: Investing & Taxation** 2.1 Investment option and types 2.2 Building a Diversified Portfolio 2.3 Risk-Return Trade-off 2.4 Informed Investment Decisions 2.5 Retirement Planning 2.6 Social Security and Pensions 2.7 Estimating Future Retirement Expenses 2.8 Planning for a Comfortable Retirement 2.9 Investment Options for Retirement Savings 2.10 Planning for Unexpected Events 2.11 Filing Taxes and Forms 2.12 Tax Laws and Regulations 2.13 Minimizing Tax Liability 2.14 Making Tax-Effective Investment Decisions	**CO2**
TSO 3a. Explain the importance of Entrepreneurship education *TSO 3b.* Outline the Entrepreneurial Opportunities for the given product. *TSO 3c.* Outline the Entrepreneurship Support Eco-System *TSO 3d.* Identify the Business opportunities for the given situation.	**Unit-3.0: Entrepreneurship Support System** 3.1 Entrepreneurship education 3.2 Achievement Motivation 3.3 Entrepreneurial Opportunities 3.4 Entrepreneurship Support Eco-System 3.5 Business opportunities Identification	**CO3**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 3e. Identify the steps in market survey for an enterprise. *TSO 3f.* Identify the Procedure and formalities for Bank Finance for the given situation	3.6 Market Survey 3.7 Procedure and formalities for Bank Finance	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

b. Visits:

- Arrange a visit to a tax filing consultancy nearby.

c. Group discussions on current print articles.

- Personal finance
- Taxation over last decade
- Essentials awareness for IT slabs.

d. Self-learning topics:

- Cash Management System for firms.
- Accounts receivable for firms.

e. Micro Projects: Suggested list of course wise micro projects are mentioned herewith

- Analysis of Situations where special provisions for saving has been observed
- Role of Media in Spreading Awareness regarding Tax filing.

f. Seminar Topics:

- The Evolution of the Indian Constitution: From the British Raj to Independence
- Filling Income tax as per Indian Provisions.
- Planning for retirement.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): (Not Applicable)

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Exploring Financial Literacy	Judi Deatherage M. D	Goodheart-Willcox , ISBN-13: 9781635637069
2.	The Money Guide by	Anushka Rathod	Zebralearn Pvt Ltd, ISBN-13: 978-8196373566
3.	Money Works: The Guide to Financial Literacy	Abhijeet Kolapkar	Publisher Penguin Business, ISBN-13: 978-0143461647
4.	Financial Literacy	Prof. Rajni and Dr. Abhishek Kumar Singh	JSR Publishing House LLP
5.	Taxmann's Financial Literacy – Equip Yourself With The Knowledge And Skills To Achieve Financial Independence and Make Informed Financial Decisions Confidently	Prof. (Dr.) Amit Kumar Singh	Taxmann Publications Private Limited; ISBN-13 : 978-9357785464
6.	Personal Finance: A Treatise on Financial Literacy	Prof (Dr.) Kana Sukumaran	Notion Press, ISBN-13: 979-8894463421
7.	The Legacy Of Financial Literacy : Guiding My Child To Financial Success	Jyotinath Ganguly	Notion Press, ISBN-13: 978-1637453223

b) Online Educational Resources (OER):

1) https://www.investopedia.com/guide-to-financial-literacy-4800530#:~:text=Financial%20literacy%20is%20the%20ability%20to%20understand%20and,money%2C%20compound%20interest%2C%20managing%20debt%2C%20and%20financial%20planning.
2) https://www.fidelity.com/learning-center/smart-money/financial-literacy
3) https://www.forbes.com/sites/truetamplin/2023/09/21/financial-literacy--meaning-components-benefits--strategies/
4) https://yourstory.com/2023/07/financial-literacy-is-key-to-unlocking-india-economy
5) https://www.investopedia.com/financial-literacy-5224001

Q) Course Curriculum Developer

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A)	**Course Title:** Engineering Economics	Deemed to be University under Distinct Category
B)	**Course Code:** NEP05	
C)	**Pre- requisite (s):**	

D) Rationale: The need of engineering economy is primarily motivated by the fact that everything in engineering has to be carried out economically and optimally - whether designing an equipment, choosing between alternatives, operating a plant, marketing a product or maintaining a plant, all of which involve a decision-making process. The decision-making process involves the fundamental elements of cash flows of money, time, and interest rates. This course introduces the basic concepts and terminology necessary for an engineer to combine these three essential elements to solve problems that will lead to better decisions.

E) Course Outcomes (COs): After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
NEP05.CO1	Apply the laws of economics for various situations.
NEP05.CO2	Evaluate the various engineering project w.r.t. Present worth method, Future worth method, Net present value method, internal rate of return method, Cost-benefit analysis in public projects
NEP05.CO3	Prepare cost sheets for the various products.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
NEP05.CO1	1	-	1	-	-
NEP05.CO2	1	1	1	-	-
NEP05.CO3	1	-	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
NEP05	NEP	Engineering Economics	15	-	-	15	30	01	25	-	25	-	-	-	50

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Outline the scope of Engineering Economics. *TSO 1b.* Explain micro & macro-economics. *TSO 1c.* Explain the Theory of demand *TSO 1d.* Explain the demand function for the given situation. *TSO 1e.* List the exceptions of Law of Demand. *TSO 1f.* Explain the Elasticity of demand. *TSO 1g.* Explain the elasticity of demand for the given product. *TSO 1h.* Explain the Laws of variable proportions for the given situation. *TSO 1i.* Explain the Law of returns to scale. *TSO 1j.* Apply the relevant laws of economics for the given situation.	**Unit-1.0 Basic Economics Concepts** 1.1 Engineering Economics – Nature and scope 1.2 General concepts on micro & macro-economics. 1.3 The Theory of demand: Demand function, Law of demand and its exceptions, 1.4 Elasticity of demand, Law of supply and elasticity of supply. 1.5 Theory of production: Law of variable proportion, Law of returns to scale	**CO1**
TSO 2a. Identify the factors in Time value of money. *TSO 2b.* Explain the Principle of economic equivalence *TSO 2c.* Identify the methods of evaluation of engineering projects. *TSO 2d.* Calculate the Net present value method, internal rate of return method, Cost-benefit analysis for the given product	**Unit-2.0: Time Value of Money** 2.1 Time value of money: Simple and compound interest, Cash flow diagram, Principle of economic equivalence. 2.2 Evaluation of engineering projects: Present worth method, Future worth method, Net present value method,	**CO2**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 2e. Explain Depreciation. *TSO 2f.* Distinguish the methods of depreciation. *TSO 2g.* Evaluate the given engineering project w.r.t. Present worth method, Future worth method, Net present value method, internal rate of return method, Cost-benefit analysis in public projects	internal rate of return method, Cost-benefit analysis in public projects. 2.3 Depreciation: Meaning Causes, Factors affecting depreciation, Methods of providing depreciation, Straight Line Method & Diminishing Balance Method	
TSO 3a. List the elements of costs. *TSO 3b.* Differentiate between fixed and variable costs *TSO 3c.* Explain BEP for the given product. *TSO 3d.* Calculate BEP for the given situation. *TSO 3e.* Explain the characteristic of the Indian banking system. *TSO 3f.* Explain the functions of commercial banks. *TSO 3g.* Explain the functions of Reserve Bank of India. *TSO 3h.* Outline the Indian Financial System. *TSO 3i.* Prepare a cost sheet for the given product.	**Unit-3.0: Cost and Banking Concepts** 3.1 Cost concepts: Elements of costs, Preparation of cost sheet, Segregation of costs into fixed and variable costs. Break-even analysis (Simple numerical problems to be solved) 3.2 Indian Banking System: Banks: Meaning, nature, characteristic of the Indian banking system, functions of commercial banks, functions of Reserve Bank of India, Overview of Indian Financial System.	**CO3**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

a. Cost-Benefit Analysis of Green Technologies

- Problem: How can cost-benefit analysis be used to justify investments in sustainable and green technologies in industries?
- Focus: Evaluation of long-term economic benefits vs. initial investment costs of green technologies such as solar power, energy-efficient systems, and eco-friendly materials.

b. Optimization of Project Scheduling Using Economic Principles

- Problem: How can engineering economic principles be applied to optimize project timelines while minimizing costs?
- Focus: Investigating the economic impact of scheduling delays and exploring methods like Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT).

c. Economic Viability of Renewable Energy Systems

- Problem: What is the economic feasibility of replacing traditional energy sources with renewable energy in large-scale projects?
- Focus: Cost analysis of renewable energy sources like wind, solar, and hydropower and their integration into existing infrastructures.

d. Risk and Uncertainty in Engineering Investment Decisions

- Problem**:** How can risk analysis techniques help improve investment decision-making in engineering projects?
- Focus: Exploring methods to quantify risk and uncertainty, such as Monte Carlo simulations or sensitivity analysis, and their application in engineering economics.

e. Economic Impact of Automation in Manufacturing

- Problem: What are the long-term economic effects of implementing automation in manufacturing processes?
- Focus: Investigating cost reduction, labor displacement, and productivity increases due to automation, and analyzing the return on investment (ROI).

f. Capital Budgeting and Infrastructure Development

- Problem: How can engineering economic models be used to evaluate large-scale infrastructure projects like bridges, highways, or airports?
- Focus: Applying techniques like Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period for evaluating capital expenditures in public infrastructure.

g. Lifecycle Costing in Engineering Design

- Problem: How can lifecycle costing be integrated into the design phase of engineering projects to improve long-term financial outcomes?
- Focus: Assessing the total cost of ownership (TCO) of systems or products from conception to disposal and its impact on engineering decisions.

h. Sustainability vs. Profitability in Engineering Projects

- Problem: How can sustainability practices be balanced with profitability in engineering project management?
- Focus: Analyzing the trade-offs between short-term profits and long-term sustainability goals, and finding ways to integrate them economically.

i. Impact of Inflation on Engineering Project Costs

- Problem: What is the effect of inflation on the cost estimation and budgeting of long-term engineering projects?
- Focus: Developing models to predict and mitigate inflation's impact on project finances and exploring strategies to safeguard against cost overruns.

j. Economic Analysis of Infrastructure Resilience

- Problem: How can economic models be used to assess the cost-effectiveness of building resilient infrastructure in the face of climate change or natural disasters?
- Focus: Cost-benefit analysis of resilient infrastructure investments, including disaster recovery costs and insurance savings.

k. Evaluating Engineering Project Feasibility Using Real Options Theory

- Problem: How can real options theory be applied to evaluate the feasibility and flexibility of engineering projects under uncertainty?
- Focus: Investigating how real options, such as delaying or expanding projects, can be modeled to improve decision-making in uncertain environments.

l. Public-Private Partnerships in Engineering: Economic Considerations

- Problem: What are the key economic challenges and benefits of public-private partnerships (PPP) in engineering infrastructure projects?
- Focus: Exploring the economic models that can be used to balance risks, rewards, and resource allocation between public and private sectors.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

i. Time Value of Money (TVM) Calculations

- Assignment: Explain and apply the concept of the time value of money. Calculate the future value and present value of different cash flows using different interest rates. Analyze how inflation impacts these calculations.
- Objective: Understand and apply TVM concepts to real-world investment decisions.

ii. Cost-Benefit Analysis for a New Engineering Project

- Assignment: Perform a cost-benefit analysis for a hypothetical or real-world engineering project (e.g., construction of a bridge, solar power plant, or water treatment facility). Identify all potential costs and benefits, and calculate the net benefit.
- Objective: Apply cost-benefit analysis techniques to evaluate the feasibility of engineering projects.

iii. Break-even Analysis in Manufacturing

- Assignment: Conduct a break-even analysis for a manufacturing process. Identify fixed and variable costs, and determine the break-even point. Create different scenarios by changing costs and price points.
- Objective: Learn how to determine profitability thresholds and manage operational costs in manufacturing.

iv. Capital Budgeting for Infrastructure Projects

- Assignment: Using techniques like Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period, evaluate a proposed infrastructure project (e.g., road construction, airport expansion). Analyze the financial viability and make a recommendation.
- Objective: Apply capital budgeting techniques to large-scale engineering projects.

v. Depreciation Methods and Their Impact on Project Economics

- Assignment: Explore various depreciation methods (e.g., straight-line, declining balance, sum-of-years-digits) and apply them to engineering assets (e.g., machinery, vehicles). Analyze how different methods affect tax savings and project economics.

- Objective: Understand how depreciation impacts financial decision-making and project budgeting.

vi. Life-Cycle Cost Analysis of Engineering Equipment

- Assignment: Perform a life-cycle cost (LCC) analysis for an engineering system or equipment (e.g., HVAC system, machinery). Consider initial costs, operation, maintenance, and disposal. Compare two alternatives based on LCC.
- Objective: Assess the total cost of ownership of engineering systems from inception to disposal.

vii. Sensitivity Analysis for an Engineering Project

- Assignment: Perform a sensitivity analysis on an engineering project's financial model. Identify critical variables (e.g., cost of materials, labor rates, interest rates) and assess how changes in these variables affect the project's profitability.
- Objective: Learn how to account for uncertainty and variability in project costs and decision-making.

viii. Inflation and Its Impact on Long-Term Engineering Projects

- Assignment: Analyze the impact of inflation on long-term engineering projects, such as power plants or public infrastructure. Calculate how inflation rates affect future costs and overall project budgets.
- Objective: Understand how inflation impacts project budgeting and long-term financial planning.

ix. Economic Analysis of Renewable Energy Projects

- Assignment: Evaluate the economic feasibility of a renewable energy project (e.g., wind farm, solar energy plant) by calculating the return on investment, break-even point, and long-term financial benefits.
- Objective: Learn how to assess the financial viability of sustainable engineering solutions.

x. Risk and Uncertainty in Investment Decisions

- Assignment: Analyze a case study of an engineering project where risk and uncertainty played a significant role. Use probabilistic methods, such as Monte Carlo simulations or decision trees, to model the impact of uncertainty on project outcomes.
- Objective: Develop skills in managing risk and uncertainty in engineering economics.

xi. Public-Private Partnership (PPP) Analysis

- Assignment: Analyze a public-private partnership (PPP) project in engineering (e.g., highway construction or airport management). Assess the risk-sharing model, economic benefits, and potential challenges from both public and private perspectives.
- Objective: Explore the economic considerations and challenges in engineering projects involving multiple stakeholders.

xii. Inventory Management and Economic Order Quantity (EOQ)

- Assignment: Apply the Economic Order Quantity (EOQ) model to an engineering firm's inventory management system. Calculate EOQ and analyze the trade-off between ordering costs and holding costs.

- Objective: Understand the principles of efficient inventory management in engineering operations.

xiii. Feasibility Study of Automation in a Production Line

- Assignment: Conduct a financial feasibility study to assess the benefits and costs of automating a manufacturing production line. Consider factors such as labor cost savings, capital costs, and operational efficiency.
- Objective: Assess the economic impact of automation in engineering.

xiv. Engineering Project Financing

- Assignment: Explore different financing options available for large engineering projects (e.g., project loans, bonds, equity). Analyze the pros and cons of each financing option and their impact on project cost and risk.
- Objective: Understand how financial structures affect the economics of engineering projects.

xv. Ethical and Economic Considerations in Engineering Projects

- Assignment: Analyze an engineering project with significant ethical and economic implications (e.g., building in environmentally sensitive areas, projects affecting communities). Explore the balance between economic benefits and ethical responsibility.
- Objective: Learn to integrate ethical considerations with economic decision-making in engineering projects.

b. Seminar Topics:

- Time Value of Money in Engineering Projects
- Cost-Benefit Analysis in Large Infrastructure Projects
- Depreciation Methods and Their Impact on Engineering Economics
- Economic Feasibility of Renewable Energy Projects
- Break-even Analysis in Engineering and Manufacturing
- Capital Budgeting Techniques in Engineering
- Risk and Uncertainty in Engineering Economic Decisions
- Lifecycle Costing in Engineering Systems
- Public-Private Partnerships (PPP) in Engineering Projects
- Sustainability and Economic Viability in Engineering
- Economic Order Quantity (EOQ) and Inventory Management
- Impact of Inflation on Engineering Projects
- Automation and Its Economic Impact on Manufacturing
- Economic Impact of Lean Manufacturing
- Financing Large-Scale Engineering Projects
- Feasibility Studies for Engineering Projects
- Economic Implications of Engineering Ethics
- Supply Chain Economics in Engineering
- Real Options in Engineering Project Evaluation
- Economic Evaluation of Disaster-Resilient Infrastructure

M) Suggested Specification Table for End Semester Theory Assessment (ETA): (Not Applicable)

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Engineering Economics	Riggs, Bedworth and Randhwa	McGraw Hill Education India, ISBN: 9780079122483
2.	Principles of Economics	D.M. Mithani	Himalaya Publishing House, ISBN:978-93-5202-762-0
3.	Engineering Economics & Costing	Sasmita Mishra	PHI Learning Pvt. Ltd, ISBN: 9788120341678
4.	Engineering Economy	Sullivan and Wicks	Pearson Hall, ISBN: 9780132554909
5.	Engineering Economics	R.Paneer Seelvan	Prentice-Hall of India Pvt. Ltd, ISBN: 788120348370
6.	Managerial Economics	Gupta G	McGraw Hill Education, ISBN-13:978-0071067867
7.	Cost Accounting: Text, Problems and Cases	Jawahar Lal , Seema Srivastav , Manisha Singh	McGraw-Hill. ISBN-13: 978-9353168384

b) Online Educational Resources (OER):

1) http://courseware.cutm.ac.in/courses/engineering-economics-and-costing/
2) https://ep.jhu.edu/courses/715641-engineering-economics/
3) https://online.stanford.edu/courses/cee146s-engineering-economics-and-sustainability
4) https://ocw.mit.edu/courses/10-490-integrated-chemical-engineering-i-fall-2006/98288885a32c8a4054460082cb87a426_eng_econ_lecture.pdf
5) https://engineering.purdue.edu/online/courses/engineering-economic-analysis

Q) Course Curriculum Developer

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Course Curriculum Detailing- Offline Spell -2

A)	**Course Title:** Public Policy Analysis	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP05	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course aims to equip future public policy managers with the analytical tools and critical thinking skills necessary to understand, evaluate, and influence policy decisions. Students will gain proficiency in identifying policy problems, analysing policy options, assessing their impact, and formulating evidence-based recommendations.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP05.CO1	Analyze the theoretical approaches and frameworks of public policy analysis.
MBAP05.CO2	Evaluate the effectiveness and implications of different policy evaluation approaches and methods.
MBAP05.CO3	Examine the agenda-setting processes and challenges involved in the design and implementation of public policies.
MBAP05.CO4	Critically evaluate the role of power, arguments, ideas and ethical dilemmas in shaping policy options.
MBAP05.CO5	Synthesise insights to formulate perspectives on how public policy interacts with business strategies, citizens, institutions, technology, and ecological concerns.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value-based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in achieving organizational goals, contributing effectively to a team environment.
MBAP05.CO1	3	2	1	-	-
MBAP05.CO2	2	3	2	1	-
MBAP05.CO3	3	2	2	1	-
MBAP05.CO4	2	1	3	2	1
MBAP05.CO5	1	2	3	3	2

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP05	PCC	Public Policy Analysis	45	-	-	45	90	03	20	70	30	-	-	-	120

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Define public policy and explain its significance in governance. *TSO 1b.* Differentiate between various theoretical models of the policy process. *TSO 1c.* Identify the key stages of the policy cycle. *TSO 1d.* Discuss the role of policy analysts in different stages of the policy process. *TSO 1e.* Analyze the various actors involved in the policy process and their influence. *TSO 1f.* Explain the concepts of policy instruments and their selection criteria. *TSO 1g.* Evaluate the criteria for effective policy analysis, including feasibility and ethical considerations.	**Unit-1.0 Foundations of Public Policy Analysis** 1.1 Introduction to Public Policy. 1.2 The Policy Cycle 1.3 Actors and Institutions in Policy 1.4 Policy Instruments 1.5 Criteria for Policy Analysis	**CO1, CO2, CO4**
TSO 2a. Describe the stages of the policy process and various models of agenda setting. *TSO 2b.* Explain the mechanisms and challenges involved in policy formulation, including stakeholder engagement and issue framing. *TSO 2c.* Analyze different models of policy decision-making and their implications. *TSO 2d.* Identify key factors influencing successful policy implementation, including organizational capacity and inter-agency coordination. *TSO 2e.* Explain the purposes and types of policy evaluation and their methodological considerations. *TSO 2f.* Apply basic policy evaluation criteria to assess policy outcomes.	**Unit-2.0 The Policy Process** 2.1 Agenda Setting and Policy Formulation 2.2 Policy Decision-Making 2.3 Policy Implementation 2.4 Policy Evaluation	**CO1, CO2**
TSO 3a. Distinguish between various quantitative and qualitative methods used in policy analysis. *TSO 3b.* Apply appropriate analytical methods to interpret policy-relevant data and draw evidence-based conclusions. *TSO 3c.* Examine the ethical dilemmas and responsibilities faced by policy analysts. *TSO 3d.* Discuss the role of values, fairness, and justice in public policy decision-making and evaluation. *TSO 3e.* Critically assess how power dynamics, compelling arguments, and prevailing ideas shape policy options. *TSO 3f.* Analyze the interaction of public policy with business strategies, technological advancements, and ecological concerns.	**Unit-3.0 Analytical Methods and Ethical Dimensions in Policy Analysis** 3.1 Quantitative and Qualitative Methods in Policy Analysis 3.2 Ethical Considerations in Public Policy 3.3 Power, Arguments, and Ideas in Policy options 3.4 Intersections of Public Policy	**CO2, CO4, CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 3g. Formulate perspectives on how public policy can contribute to broader public purposes through these interactions.		
TSO 4a. Analyze policy challenges and solutions within selected sectors such as health, education, infrastructure, or environmental policy. *TSO 4b.* Evaluate how different policy approaches are applied to address complex problems in specific domain areas. *TSO 4c.* Examine the complexities of global policy challenges and the role of international cooperation. *TSO 4d.* Compare and contrast public policy approaches and outcomes across different national and cultural contexts. *TSO 4e.* Discuss emerging trends in the field of public policy analysis. *TSO 4f.* Understand the principles and strategies of effective policy advocacy and communication.	**Unit-4.0 Technological Approaches to Carbon Capture and Storage** 4.1 Public Policy in Specific Sectors 4.2 Global and Comparative Public Policy 4.3 The Future of Public Policy Analysis and Policy Advocacy	**CO1, CO2, CO3, CO5**
TSO 4a. Apply comprehensive policy analysis frameworks to dissect complex real-world policy cases from diverse sectors. *TSO 4b.* Critically evaluate existing policy interventions and propose evidence-based solutions. *TSO 4c.* Develop a structured approach to design and execute independent policy analysis projects. *TSO 4d.* Investigate policy issues by utilizing appropriate research methods, data sources, and analytical tools. *TSO 4e.* Discuss the professional responsibilities, ethical considerations, and accountability for policy analysts. *TSO 4f.* Identify diverse career paths and opportunities available for policy analysis graduates. *TSO 4g.* Develop effective strategies for communicating complex policy recommendations to diverse audiences. *TSO 4h.* Practice crafting concise and persuasive policy briefs, executive summaries, presentations, and reports.	**Unit-5.0 Applied Policy Analysis and Professional Practice** 5.1 Advanced Policy Analysis Case Studies 5.2 Designing and Conducting Policy Analysis Projects 5.3 Professional Ethics and Career Paths in Policy Analysis 5.4 Communicating Policy Recommendations	**CO1, CO2, CO4, CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. Analyze a recent policy decision (e.g., demonetization, a new agricultural law) in India using different policy-making models (e.g., rational, incremental, public choice) to explain its development and outcomes.

ii. Propose a new policy instrument to address a contemporary societal problem (e.g., air pollution in major cities, digital divide), justifying your choice based on its suitability and potential effectiveness.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Write a critical essay on the evolution of public policy analysis as a discipline, highlighting its key milestones and intellectual shifts.

b. Seminar Topics:

- History of Public Policy in India, Role of Think Tanks in Policy Making, Behavioural Economics and Public Policy, Policy Paralysis: Causes and Cures, Global Perspectives on Policy Analysis.

c. Visits:

- RCVP Noronha Academy of Administration and Management, Bhopal
- Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGGPA), Bhopal

d. Self- Learning Topics:

- Public Interest Litigation and Policy Change, The Iron Triangle in Policy Making, Advocacy Coalitions Framework, Garbage Can Model of Organisational Choice, Policy Entrepreneurship.

e. Micro Projects:

- Create an infographic illustrating the stages of the policy cycle with real-world examples.
- Prepare a short presentation on the different types of policy typologies and provide examples for each.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit-1.0 Foundations of Public Policy Analysis	14
CO2	Unit-2.0 The Policy Process	14
CO3	Unit-3.0 Analytical Methods and Ethical Dimensions in Policy Analysis	14
CO4	Unit-4.0 Technological Approaches to Carbon Capture and Storage	14
CO5	Unit-5.0 Applied Policy Analysis and Professional Practice	14
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Public Policy: Concept, Theory and Practice	Bidyut Chakrabarty, Prakash Chand	Sage Publications, 1st Edition (2016), ISBN: 978-9351509257
2.	Public Policy Analysis: An Integrated Approach	William N. Dunn	Routledge, 6th Edition (2017), ISBN: 978-1138743844
3.	Understanding Public Policy	Thomas R. Dye	Pearson Education, 15th Edition (2021), ISBN: 978-0137409242
4.	Handbook of Public Policy Analysis: Theory, Politics, and Methods	Frank Fischer, Gerald J. Miller, Mara S. Sidney	CRC Press (Taylor & Francis), 1st Edition (2007), ISBN: 978-1574445619

b) Online Educational Resources (OER):

1) **NPTEL Courses:** Public Policy- An introduction - Course
https://onlinecourses.swayam2.ac.in/ugc19_hs45/preview
2) **Online Platforms & Research Organizations:** LSE: Public Policy Analysis | edX:
https://www.edx.org/executive-education/the-london-school-of-economics-and-political-science-public-policy-analysis

Q) Course Curriculum Development Team

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A)	**Course Title:** Financial Management	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP06	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course equips students with the knowledge and tools to make sound financial decisions in the dynamic Indian business landscape. Through the study of core financial concepts alongside their application in the Indian financial system, including regulations, institutions, and instruments the course delves into financial analysis, investment appraisal, working capital management, risk management, and corporate governance practices. By learning these concepts students gain comprehensive understanding of how to create and implement effective financial strategies.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP06.CO1	Analyze the roles and regulatory functions of RBI, SEBI, and other financial regulatory bodies.
MBAP06.CO2	Apply time value of money to evaluate investment opportunities.
MBAP06.CO3	Identify long-term financing strategies for businesses.
MBAP06.CO4	Implement working capital management strategies for business/firms/market.
MBAP06.CO5	Evaluate the financial performance of companies.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value-based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in achieving organizational goals, contributing effectively to a team environment.
MBAP06.CO1	1	-	1	-	-
MBAP06.CO2	1	1	1	-	-
MBAP06.CO3	1	-	1	-	-
MBAP06.CO4	1	1	1	-	-
MBAP06.CO5	1	1	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP06	PCC	Financial Management	45	-	-	45	90	03	20	70	30	-	-	-	120

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Outline the primary goals of a firm and the concept of shareholder wealth maximization. *TSO 1b.* Explain agency problems and its impact on corporate governance. *TSO 1c.* Differentiate between types of business organizations and their financial implications. *TSO 1d.* Outline the structure and components of the Indian financial system. *TSO 1e.* Analyze the roles and regulatory functions of RBI, SEBI, and other financial regulatory bodies. *TSO 1f.* Explain the significance of financial system stability and regulation in economic development. *TSO 1g.* Distinguish between primary and secondary markets *TSO 1h.* Explain the roles of Foreign Institutional Investors (FIIs) and Domestic Institutional Investors (DIIs). *TSO 1i.* Identify various financial instruments like equity shares, debentures, bonds, derivatives, mutual funds, venture capital, and microfinance.	**Unit 1.0: Introduction to Financial Management and the Indian Financial System** 1.1 Fundamentals of Financial Management 1.2 Goals of the firm, agency problems, types of business organizations 1.3 Indian Financial System 1.4 Structure and functions of RBI, SEBI, and other regulatory bodies 1.5 Financial Markets and Instruments in India 1.6 Primary and secondary markets, role of FIIs and DIIs 1.7 Financial instruments: equity shares, debentures, bonds, derivatives, mutual funds, venture capital, microfinance	**CO1**
TSO 2a. Compute present and future values of cash flows. *TSO 2b.* Apply IRR, MIRR, and NPV in investment decision-making. *TSO 2c.* Explain the concept of compounding and discounting. *TSO 2d.* Evaluate investment projects using Payback, DCF, IRR, MIRR, and Profitability Index. *TSO 2e.* Enlist strengths and limitations of each capital budgeting technique. *TSO 2f.* Make rational capital investment decisions using quantitative tools. *TSO 2g.* Interpret key financial ratios: liquidity, solvency, profitability, and efficiency. *TSO 2h.* Analyze financial statements to assess a firm's performance. *TSO 2i.* Make informed managerial decisions using ratio analysis. *TSO 2j.* Apply risk-adjusted discount rate (RADR) in capital budgeting decisions. *TSO 2k.* Evaluate project risks using various	**Unit 2.0: Time Value of Money, Capital Budgeting, and Risk Analysis** 2.1 Time Value of Money Concepts: Present value, future value, IRR, MIRR, NPV 2.2 Capital Budgeting Techniques: Payback period, DCF method, IRR, MIRR, PI 2.3 Financial analysis: Ratio analysis (liquidity, solvency, profitability, activity ratios) 2.4 Risk Analysis in Capital Budgeting: Risk-adjusted discount rate (RADR), project risk assessment techniques 2.5 Cost of Capital and Capital Structure Decisions: WACC calculation, factors affecting capital structure	**CO2**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
qualitative and quantitative techniques. *TSO 2l.* Incorporate uncertainty and sensitivity analysis in project evaluation. *TSO 2m.* Calculate WACC and understand its implications for investment decisions. *TSO 2n.* Analyze the impact of capital structure on firm valuation. *TSO 2o.* Identify factors influencing capital structure decisions.		
TSO 3a. Evaluate the suitability of financing alternatives for different business needs. *TSO 3b.* Explain the role of financial intermediaries in long-term financing. *TSO 3c.* Apply quantitative techniques for long-term investment evaluation. *TSO 3d.* Explain the concept and application of real options analysis. *TSO 3e.* Make strategic investment decisions under uncertainty. *TSO 3f.* Identify various methods of valuing firms in M&A. *TSO 3g.* Analyze legal and regulatory aspects of M&A in India. *TSO 3h.* Evaluate integration challenges and success factors in post-merger scenarios.	**Unit 3.0: Long-Term Financing and Investment Decisions** 3.1 Sources of Long-Term Finance: Equity issuance, debt financing, venture capital, private equity, other loans 3.2 Investment Appraisal Techniques: Techniques for evaluating long-term investments, real options analysis 3.3 Mergers and Acquisitions (M&A): Valuation methods, regulatory framework for M&A, post-merger integration challenges	**CO3**
TSO 4a. Explain the concepts of operating cycle and cash conversion cycle. *TSO 4b.* Identify key components of working capital. *TSO 4c.* Optimize working capital to enhance liquidity and profitability. *TSO 4d.* Interpret cash budgets and forecasts. *TSO 4e.* Manage short-term liquidity effectively using forecasting tools. *TSO 4f.* Apply inventory management models including EOQ and JIT techniques. *TSO 4g.* Design and implement effective credit and collection policies. *TSO 4h.* Analyze and manage receivables and bad debts. *TSO 4i.* Identify the features of short-term financing instruments such as commercial paper, factoring, trade credit, and bill discounting.	**Unit 4.0: Working Capital Management and Short-Term Financing** 4.1 Working Capital Management Concepts: Operating cycle, cash conversion cycle, working capital components 4.2 Cash Flow and Inventory Management: Cash budgeting techniques, forecasting methods, managing short-term liquidity 4.3 Inventory control models, JIT inventory management 4.4 Accounts Receivable Management and Short-Term Financing: Credit policy, collection techniques, bad debt management, Short-term financing instruments: commercial paper, trade credit, factoring, bill discounting, working capital loans from banks	**CO4**
TSO 5a. Evaluate factors affecting a firm's dividend policy. *TSO 5b.* Explain the implications of payout ratios, stock repurchases, and bonus issues.	**Unit 5.0: Dividend Policy, Financial Performance Evaluation, and Risk Management**	**CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 5c. Identify dividend theories and their application in practice. *TSO 5d.* Use financial ratios to assess overall business performance. *TSO 5e.* Compare performance trends across periods and with industry benchmarks. *TSO 5f.* Interpret financial health for strategic decision-making. *TSO 5g.* Identify various types of financial risks faced by firms. *TSO 5h.* Apply tools and strategies for managing financial risk. *TSO 5i.* Outline the role of corporate governance and ESG integration in financial decision-making.	5.1 Dividend Policy Decisions: Factors influencing dividend policy, payout ratio, stock repurchases, bonus issues 5.2 Financial Performance Evaluation: Financial ratios for performance analysis 5.3 Financial Risk Management and Corporate Governance: Identifying and managing financial risks, importance of good corporate governance, integration of ESG factors	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. **Research Problem 1:** The learner is expected to investigate the evolving role of regulatory institutions such as RBI and SEBI in stabilizing the Indian financial markets amid rising foreign institutional participation and financial innovation. The problem requires critical analysis of regulatory frameworks, institutional reforms, and market integration, considering global financial interdependence.

ii. **Research Problem 2:** The learner must develop an integrated capital budgeting model that incorporates time value of money, multiple risk dimensions, and real-world uncertainty using simulation or sensitivity analysis. The problem demands evaluating capital structure implications, inflation effects, and RADR applications in high-risk sectors such as infrastructure or tech startups.

iii. **Research Problem 3:** The learner is required to critically examine the effectiveness of long-term financing instruments such as venture capital, private equity, and hybrid securities in funding high-growth firms, and their implications on corporate valuation and control. The research must address challenges in valuation, exit strategies, and regulatory compliance in Indian capital markets.

iv. **Research Problem 4:** The learner should explore how mid-sized manufacturing firms in India optimize working capital through predictive analytics, dynamic inventory systems, and fintech-based short-term financing. The study should address the integration of cash forecasting, supply chain dynamics, and credit risk in liquidity decision-making under real-time constraints.

v. **Research Problem 5:** The learner is expected to analyze how dividend policy decisions and corporate risk management practices interact with ESG disclosures and governance standards to influence investor perception and market valuation. This involves a multi-dimensional approach combining performance metrics, stakeholder theory, and strategic risk analysis.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- **Assignment Title 1:** Prepare a **report** on the structure of the Indian financial system, explaining the roles of RBI, SEBI, and other key regulatory bodies. The learner should also examine the functions of primary and secondary markets, and analyze major financial instruments including equity, debt, and derivatives.

- **Assignment Title 2:** Prepare a **financial analysis report** evaluating an investment project using NPV, IRR, Payback, and RADR. The learner must justify the investment decision, considering risk factors and the cost of capital using realistic project assumptions.

- **Assignment Title3:** Prepare a **case-based report** on a company's long-term financing strategy involving equity, debt, or venture capital. The learner should also analyze the firm's investment appraisal techniques and discuss M&A decisions, if applicable.

- **Assignment Title 4:** Prepare a **working capital management portfolio** outlining the company's strategy for managing inventory, cash, and receivables. The learner must propose short-term financing tools such as trade credit, bill discounting, or bank loans to maintain liquidity.

- **Assignment Title 5:** Prepare a **strategic review report** of a listed company's dividend policy, financial performance (using ratio analysis), and risk management practices. The learner should evaluate how ESG factors and governance structures influence financial decision-making.

b. Seminar Topics:

- The Role of the Reserve Bank of India in Financial System Stability
- Evolution and Impact of SEBI on Indian Capital Markets
- Time Value of Money and Its Application in Investment Decisions
- Behavioral Finance: Understanding Investor Psychology
- Venture Capital and Private Equity: Fueling Innovation in India
- Financial Risk Management in Corporates
- Impact of Dividend Policy on Shareholder Wealth

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0: Introduction to Financial Management and the Indian Financial System	14
CO2	Unit 2.0: Time Value of Money, Capital Budgeting, and Risk Analysis	14
CO3	Unit 3.0: Long-Term Financing and Investment Decisions	14
CO4	Unit 4.0: Working Capital Management and Short-Term Financing	14
CO5	Unit 5.0: Dividend Policy, Financial Performance Evaluation, and Risk Management	14
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Financial Management and Policy	C. Van Horn	Pearson Education India, ISBN-13: 978-0130326577
2.	Financial Management	Prasanna Chandra	McGraw Hill Education India, ISBN-13: 978-9355322203
3.	Financial Management.	I.M. Pandey	Pearson Education India, ISBN-13: 978-9390577255
4.	Financial Management	Khan and Jain	McGraw Hill Education India, ISBN-13: 978-9353162184

b) Online Educational Resources (OER):

1) https://ocw.mit.edu/courses/15-401-finance-theory-i-fall-2008/
2) https://www.coursera.org/specializations/financial-management
3) https://www.khanacademy.org/economics-finance-domain/core-finance
4) https://learn.saylor.org/course/view.php?id=26
5) https://nptel.ac.in/courses/110104073
6) https://www.youtube.com/user/AswathDamodaranOnVal
7) https://www.investopedia.com/financial-management-5219885

Q) Course Curriculum Developer

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A)	**Course Title:** Marketing Management	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP07	
C)	**Pre- requisite (s):**	

D) **Rationale:** Marketing is the core of an operating business. It is an organizational philosophy and a set of guiding principles for interfacing with customers, competitors, collaborators, and the environment. Marketing entails planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services. It starts with identifying and measuring consumers' needs and wants, assessing the competitive environment, selecting the most appropriate customer targets and developing marketing strategy and implementation program for an offering that satisfies consumers' needs better than the competition. Marketing is the art and science of creating customer value and market place exchanges that benefit the organization and its stakeholders. It is designed to serve as an introduction to the theory and practice of marketing. The problem is that many of the public policy decision makers, in the context of public policy theory, do not have the relevant decision-making approaches they need. Marketing management as a social discipline can provide some of the decision making they need. We will explore the theory and applications of marketing concepts through a mix of cases, discussions, lectures, speakers, individual assignments, and group projects.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP07.CO1	Apply knowledge of marketing theories and practices to solve business problems.
MBAP07.CO2	Ability to create marketing mix elements.
MBAP07.CO3	Ability to analyze customer, competitors and Product portfolios.
MBAP07.CO4	Ability to apply marketing strategy formulation.
MBAP07.CO5	Ability for problem solving and decision-making abilities in marketing

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value-based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in achieving organizational goals, contributing effectively to a team environment.
MBAP07.CO1	3	-	1	-	-
MBAP07.CO2	2	1	1	-	-
MBAP07.CO3	1	-	-	1	-
MBAP07.CO4	1	-	1	-	1
MBAP07.CO5	1	1	1	-	1

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP07	PCC	Marketing Management	45	-	-	45	90	03	20	70	30	-	-	-	120

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the concepts of marketing. *TSO 1b.* Differentiate between Segmentation, Targeting and Positioning. *TSO 1c.* Discuss the various types of marketing environments. *TSO 1d.* List the various steps of marketing research. *TSO 1e.* List the steps in MIS. *TSO 1f.* Explain the ethics in marketing practices *TSO 1g.* Explain new market opportunities identification.	**Unit-1.0 Introduction to Marketing Management** 1.1 Evolution, nature and definitions of marketing, Core Concepts, Functions and Importance concepts/philosophies, Selling Vs. Marketing, Marketing Process, Marketing mix 1.2 Need and types of marketing environmental analysis and strategies to deal with these different environments 1.3 Market segmentation and targeting and positioning 1.4 Importance, types and Process of marketing research, Developing a market research plan, 1.5 Role and importance of Marketing information system, 1.6 Ethical issues in terms of product, pricing, promotional strategies and distribution system, Roles & responsibility and social responsibilities of a marketing manager. 1.7 New Market Offerings, Digital, Global and other types of marketing	**CO1**
TSO 2a. Explain the models of the consumer behaviour. *TSO 2b.* List the factors affecting consumer behaviour *TSO 2c.* Make the levels and mix of products for the given case study *TSO 2d.* Make the new product development process. TSO 2e. Classify different PLC stages and strategies	**Unit-2.0 Consumer Behaviour and Product Decisions** 2.1 Models, types and stages of consumer buying process, Organisational buyer behaviour and difference between personal and industrial consumer, Factors influencing buying behaviour, Consumerism and Public Issues 2.2 Concept and levels of a Product, Product mix decisions, Brand Decision 2.3 New Product Development Process and 2.4 Product Life Cycle strategies	**CO2**
TSO 3a. Explain the pricing objectives and policies. *TSO 3b.* List the pricing methods and products mix pricing strategies. *TSO 3c.* Explain the distribution objectives and policies. *TSO 3d.* List types of channels flow and functions *TSO 3e.* Prepare the channel design for case study. *TSO 3f.* List the types of retailers and wholesalers	**Unit-3.0 Price and Place Decisions** 3.1 Pricing objectives, Pricing Polices and Constraints 3.2 Different Pricing Methods 3.3 Product Mix Pricing Strategies 3.4 Channel Decision - Nature of Marketing Channels 3.5 Types of Channel flows and Channel functions 3.6 Structure and Design of Marketing Channels 3.7 Channel co-operation, conflict and competition 3.8 Retailers and wholesalers	**CO3**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 4a. Explain the promotion mix decisions *TSO 4b.* Differentiate advertisement and sales promotions *TSO 4c.* Analyze the steps for advertisement development *TSO 4d.* Prepare the pre-post adverting measurement *TSO 4e.* Analyze the sales force strategy	**Unit-4.0 Promotion Decisions** 4.1 Promotion mix, Advertising Decision 4.2 Advertising and Sales Promotion 4.3 Developing Advertising Programme 4.4 Measurement and Analysis of Advertisement effectiveness 4.5 Sales force Decision	**CO4**
TSO 5a. List the Marketing Management Decisions in public policy domains *TSO 5b.* Explain the Need and Steps in Social Marketing *TSO 5c.* Explain the emerging issues in NPO marketing *TSO 5d.* Explain the fundamentals of rural marketing *TSO 5e.* Apply marketing for greening	**Unit-5.0 Strategic Marketing in Public Policy Decisions** 5.1 Use of Marketing Management Decision Tools in public policy decisions 5.2 Social Marketing 5.3 Marketing in Non-Profit Organizations 5.4 Rural Marketing 5.5 Green Marketing	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. **Research Problem 1:** The learner is expected to investigate how evolving marketing philosophies—from product and selling orientations to holistic and digital marketing—are reshaping marketing strategies in emerging markets like India. The research should evaluate the effectiveness of contemporary marketing mixes under dynamic environmental conditions, integrating ethical, legal, and technological perspectives.

ii. **Research Problem 2:** The learner must analyze the impact of changing consumer behavior patterns—driven by digital access, social awareness, and sustainability concerns—on product development and brand positioning strategies. The research should focus on the effectiveness of behavioral models in predicting consumer choices across various product life cycle stages.

iii. **Research Problem 3:** The learner is required to examine how pricing strategies and marketing channel design influence customer perception, competitiveness, and profitability in multi-tiered markets. The study should consider dynamic pricing mechanisms, online-offline distribution integration, and conflict resolution within channel structures in the Indian retail context.

iv. **Research Problem 4:** The learner shall evaluate the effectiveness of integrated promotional strategies in capturing customer attention and driving conversions, with a focus on digital media, influencer marketing, and personalized advertising. The study must assess how advertisement effectiveness is measured and optimized using data analytics and feedback mechanisms.

v. **Research Problem 5:** The learner is expected to analyze how strategic marketing tools and frameworks are applied in designing and evaluating public policy interventions, such as social marketing campaigns, rural development outreach, and environmental sustainability initiatives. The study should explore the role of non-profit and public sector entities in market-based policy implementation.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Assignment **1:** The learner shall prepare a **report** on the evolution of marketing philosophy within a selected company or industry. The report must analyze how the firm applies the marketing mix, manages ethical issues, and adapts to digital and global marketing trends.
- Assignment **2:** The learner is required to conduct a **consumer behavior study** for a specific product category. The report should analyze decision-making models, brand perception, and how consumer insights influence product development and life cycle strategies.
- Assignment **3:** The learner shall prepare a **case-based report** on the pricing policies and distribution channels of a real-life company. The study should compare pricing methods, identify channel conflicts, and evaluate how place decisions impact product accessibility and profitability.
- Assignment **4:** The learner will prepare a **portfolio** of a promotional campaign for an existing or new product. It should include advertisement objectives, media plan, sales promotion tools, and criteria for measuring effectiveness.
- Assignment **5:** The learner is required to prepare a **report** analyzing how marketing tools are applied in areas such as social marketing, green marketing, or rural outreach. The assignment should evaluate the effectiveness of strategies used in public or non-profit campaigns.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit-1.0: Introduction to Marketing Management	14
CO2	Unit-2.0: Consumer Behaviour and Product Decisions	14
CO3	Unit-3.0: Price and Place Decisions	14
CO4	Unit-4.0 Promotion Decisions	14
CO5	Unit-5.0 Strategic Marketing in Public Policy Decisions	14
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Marketing Management	Philip Kotler, Kevin Lane Keller, Abraham Koshy, Mithileshwar Jha	Pearson (2018), ISBN 978-9353062341
2.	Marketing Management: Text and Cases	K.S. Chandrasekar	Tata McGraw-Hill Publishing, ISBN: 978-0070667303
3.	Marketing Management: Concepts, Cases, Challenges and Trends	M. Govindarajan	Prentice Hall of India, ISBN: 978-8120348200
4.	Marketing Management: Planning, Implementation and Control	V.S. Ramaswamy, S. Namakumari	Macmillan Business Books, ISBN: 978-9350594883

b) Online Educational Resources (OER):

1) https://www.shiksha.com/online-courses/accounting-courses-certification-training-st577
2) https://www.coursera.org/learn/uva-darden-managerial-accounting
3) https://www.classcentral.com/course/accounting-acca-introduction-to-management-accoun-8903
4) https://www.futurelearn.com/subjects/business-and-management-courses/finance-and-accounting
5) https://alison.com/tag/accounting?page=3&utm_source=google&utm_medium=cpc&utm_campaign=Performance-Max_Tier-5_Career-Ready-Plan&gad_source=1&gclid=Cj0KCQjw-uK0BhC0ARIsANQtgGMVRBHbIwEjOdrJGaFEtG9ixKzIpnzfJvhs2VSk_ueZ7SZUX_YzmBYaAlRVEALw_wcB

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
1.	Prof. P. Dubey	pdubey@nitttrbpl.ac.inac.in

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A)	**Course Title:** Human Resource Management	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP08	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course is focused on human aspect of the organization. Human resource is the key to ensure the achievement of strategic goals of the organization overcoming all the barriers to strategic goals. Human resource makes the organization competitive and develop the core competence for dealing with complex situations in time of turbulence. Human resource planning, recruitment and selection, deployment and redeployment, their performance appraisal, training and development, succession planning compensation and incentives and ultimately their impact on the business of the organization is matter of study in this course.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP08.CO1	Plan human resource requirements for an organization
MBAP08.CO2	Implement human resource management practices for an organization
MBAP08.CO3	Prepare a training and development plan for people working in an organization aligned to human resource policy
MBAP08.CO4	Analyse the performance appraisal and compensation policies
MBAP08.CO5	Design policy interventions for human resource productivity

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
MBAP08.CO1	2	3	2	2	2
MBAP08.CO2	3	2	3	1	2
MBAP08.CO3	3	1	2	1	2
MBAP08.CO4	2	3	2	1	3
MBAP08.CO5	3	3	2	2	2

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP08	PCC	Human Resource Management	45	-	-	45	90	03	20	70	30	-	-	-	120

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Describe the terms used in human resource management *TSO 1b.* Derive roles of human resource manager *TSO 1c.* Articulate responsibilities of Human resource manager *TSO 1d.* Prepare human resource management plan for a given situation *TSO 1e.* Design recruitment and selection process	**Unit-1.0 Introduction Human Resource Management** 1.1 Terminology used in Human resource management. 1.2 Process of role derivation 1.3 Method of deciding responsibility, accountability and authority 1.4 Human Resource Management Planning Models 1.5 Process of recruitment and selection	**CO1**
TSO 3g. Design training function using models of training needs analysis *TSO 3h.* Design training calendar and programmes *TSO 3i.* Use effective training approaches *TSO 3j.* Use effective training methods *TSO 3k.* Develop assessment tools and techniques for a training programme *TSO 3l.* Use mentoring, guidance and counselling approaches	**Unit-2.0 Human Resource Development** 2.1 Concept of training and development function 2.2 Models of training design 2.3 Training approaches 2.4 Training methods 2.5 Assessment tools and techniques 2.6 Mentoring, guidance and counselling tools and techniques	**CO2**
TSO 3a. Explain the concept, characteristics and process of performance appraisal *TSO 3b.* Describe the models of performance appraisal *TSO 3c.* Describe the concept and process of potertial appraisal *TSO 3d.* State the limitations of performance appraisal	**Unit-3.0 Performance Appraisal and Compensation** 3.1 Concept, benefits, characteristics and process of performance appraisal 3.2 Models of performance appraisal 3.3 Concept and process of potential appraisal 3.4 Concept of assessment centres 3.5 Limitations of Performance appraisal 3.6 Use of performance appraisal in human resource development and management	**CO3**
TSO 4a. Plan different human resource management processes *TSO 4b.* Describe the process of employee separation *TSO 4c.* Explain the process of downsizing *TSO 4d.* Develop the model of human resource information system for a given organization *TSO 4e.* Describe the laws applicable in human resource management	**Unit-4.0 Planning and Development Implementation** 4.1 Human resource management processes 4.2 Process of employee separation 4.3 Human resource information system 4.4 Models of industrial relation 4.5 Labour laws	**CO4**
TSO 5a. Describe the process of design of human interventions	**Unit -5.0: Human Resource Policy Intervention** 5.1 Concept and purpose of interventions	**CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 5b. Describe intervention strategies at planning state *TSO 5c.* Describe intervention strategies at implementation stage *TSO 5d.* Design intervention strategies at evaluation state *TSO 5e.* Analyse the impact of interventions at organizational level	5.2 Design process of interventions 5.3 Different types of interventions 5.4 Process of impact analysis 5.5 Resistance to Evaluation	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Case study analysis and discussion in line with the targeted COs.

b. Seminar/micro project topics:

- Conduct training need analysis
- Design training plan for an organization for one year
- Design mentoring system for an organization
- Design performance appraisal system
- Design human resource management information system
- Design intervention strategies to enhance performance of the organization
- Develop a case study on typical human resource management intervention

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0 Introduction to human resource management	8
CO2	Unit 2.0 Human resource development	8
CO3	Unit 3.0performance appraisal and compensation	12
CO4	Unit 4.0 Planning and development	14
CO5	Unit 5.0 Policy intervention	14
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Human Resource Management	Gary Dessler and Biju Varkkey	Prentic Hall, Pearson Delhi Eleventh Edition
2.	Management Training and Development	B L Gupta	Vranda Publications (P) Ltd. Delhi, First Edition 2011
3.	Designing and Managing Human Resource Systems	Udai Pareek and T Venkateswara Rao	Oxford & INH Publishing Co Pvt Ltd, New Delhi, Edition 1999
4.	Michael Armstrong's handbook of Human Resource management practices 13th edition	Michael Armstrong'	Kogan Page Limited, 4737/23 Ansari Road, Daryaganj, New Delhi 110002 India

b) Online Educational Resources (OER):

1) SWAYAM and NPTEL Course on Principles of Human Resource Management Offered by IIT, Khargpur, Internship, NITTTR, Bhopal
2) Academy of Administration Bhopal
3) Atal Bihari School of Good Governance Bhopal, Internship Opportunities

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
1.	Prof. B. L. Gupta	blgupta@nitttrbpl.ac.inac.in

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A)	**Course Title:** Environmental Governance and Sustainable	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP09	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course equips future public policy professionals with the knowledge and skills to address urgent environmental challenges through an integrated understanding of policy, regulation, corporate responsibility, and technology. Grounded in global frameworks and India's regulatory context, it combines theory with practical tools to analyse governance structures, evaluate policy effectiveness, and design sustainable strategies. Emphasising Environmental, Social, and Governance (ESG) principles, green finance, and digital innovations, the course prepares learners to lead inclusive and resilient development aligned with national priorities and international commitments like the SDGs.

Through case studies and applied research, students develop critical thinking and ethical decision-making abilities essential for driving transformative change in public, private, and non-profit sectors.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP09.CO1	Analyse the foundational principles, theories, and conceptual frameworks of environmental governance and sustainable development in a global context.
MBAP09.CO2	Evaluate India's environmental and climate policies, assessing their strengths, gaps, and socio-economic and ecological impacts.
MBAP09.CO3	Propose effective governance enhancements for environmental sustainability by integrating national missions, regulatory frameworks, and institutional roles.
MBAP09.CO4	Formulate climate resilience and adaptation strategies—including carbon finance, disaster-risk reduction, and equity considerations—for diverse regional contexts.
MBAP09.CO5	Synthesise emerging tools, technologies, and stakeholder models to real-world sustainable development challenges.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value-based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in achieving organizational goals, contributing effectively to a team environment.
MBAP09.CO1	3	2	1	-	-
MBAP09.CO2	2	3	2	1	-
MBAP09.CO3	3	2	2	1	-
MBAP09.CO4	2	1	3	2	1
MBAP09.CO5	1	2	3	3	2

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP09	OEC	Environmental Governance and Sustainable Development	45	30	-	45	120	04	50	70	50	-	-	-	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Differentiate key environmental and ecological concepts relevant to governance and sustainability, providing examples of their application in policy contexts. *TSO 1b.* Analyse the origins and evolution of sustainable development, including the Brundtland Report and SDGs on global policy. *TSO 1c.* Evaluate the principles of environmental governance, such as the precautionary and polluter-pays principles, in shaping policy decisions. *TSO 1d.* Assess the role of global environmental agreements in shaping governance frameworks, using case studies to support arguments. *TSO 1e.* Compare the functions of international environmental institutions in advancing global sustainability governance. *TSO 1f.* Apply the concept of environmental externalities and basic valuation techniques to real-world governance challenges.	**Unit-1.0 Foundations of Environmental Governance and Sustainable Development** 1.8 Concepts of environment, ecology, 1.9 Sustainable development (Brundtland Report, SDGs), 1.10 Environmental Ethics, 1.11 Principles of environmental governance (e.g., precautionary principle, polluter pays principle), 1.12 global environmental agreements (e.g., UNFCCC, CBD), 1.13 Role of International Institutions, 1.14 Environmental Economics (externalities, valuation).	**CO1**
TSO 2a. Critique constitutional provisions in India related to environmental protection and governance, highlighting their effectiveness and limitations. *TSO 2b.* Assess the effectiveness of major environmental legislations in India in addressing contemporary environmental challenges. *TSO 2c.* Evaluate the roles and effectiveness of the MoEF&CC, CPCB, SPCBs, and NGT in implementing environmental challenges. *TSO 2d.* Appraise the objectives and outcomes of national environmental missions and programmes, identifying gaps and opportunities for improvement. *TSO 2e.* Evaluate the Environmental Impact Assessment (EIA) process in India, discussing its strengths, weaknesses, and policy implications. *TSO 2f.* Analyse pollution control strategies and their operational challenges in the Indian context, proposing evidence-based improvements.	**Unit-2.0 Environmental Policy and Regulatory Frameworks in India** 2.1 Evaluate India's constitutional, legal, and institutional frameworks related to environmental regulation and their practical implementation. 2.2 Indian Constitution and environment, major environmental laws (e.g., EPA 1986, Water Act 1974, Air Act 1981, Forest Conservation Act 1980, Wildlife Protection Act 1972), 2.3 Environmental institutions (MoEF&CC, CPCB, SPCB, NGT), 2.4 National missions (e.g., National Action Plan on Climate Change, Swachh Bharat Abhiyan, National Clean Air Programme), 2.5 Environmental impact assessment (EIA) process, pollution control strategies.	**CO2**
TSO 3a. Integrate key scientific concepts and IPCC findings to inform climate governance strategies at the national and global level.	**Unit-3.0 Climate Change Governance, Resilience, and Adaptation**	**CO3**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 3b. Synthesise the provisions of international climate agreements and India's NDC commitments to propose actionable governance strategies. *TSO 3c.* Propose enhancements to India's climate action plans and mitigation strategies, incorporating renewable energy and carbon market mechanisms. *TSO 3d.* Design integrated climate adaptation frameworks that combine infrastructure resilience and ecosystem-based approaches for diverse contexts. *TSO 3e.* Apply concepts in carbon finance, credits, taxes, and emissions trading to develop governance solutions for emission reduction. *TSO 3f.* Integrate disaster risk reduction frameworks and climate justice principles into proposals for sustainable climate governance.	3.1 Analyze climate science, global agreements, India's climate strategies, and frameworks for resilience, adaptation, and justice. 3.2 Climate change science (IPCC reports, greenhouse gases, impacts), 3.3 Global climate governance (Paris Agreement, NDCs, COP meetings), 3.4 National climate policy in India (NDCs, climate action plans), 3.5 Climate change mitigation strategies (renewable energy, energy efficiency, carbon capture), climate change adaptation strategies (infrastructure resilience, ecosystem-based adaptation, early warning systems), 3.6 Carbon finance and markets (carbon credits, carbon taxation), 3.7 Disaster risk reduction (DRR) frameworks (Sendai Framework), climate justice and equity considerations.	
TSO 4a. Formulate business strategies that leverage sustainability drivers to enhance corporate environmental responsibility. *TSO 4b.* Integrate ESG principles and outline their integration into corporate strategies and decision-making processes for sustainability. *TSO 4c.* Evaluate the effectiveness of BRSR regulatory frameworks and reporting structures in advancing corporate sustainability in India. *TSO 4d.* Assess the impact of the Companies Act, 2013, CSR provisions on sustainable business practices and societal outcomes. *TSO 4e.* Design innovative green marketing and sustainable supply chain strategies tailored to diverse business contexts. *TSO 4a.* Evaluate the challenges and opportunities for businesses in advancing sustainable development, recommending actionable solutions.	**Unit-4.0 Business, ESG, and Corporate Sustainability** 4.1 Assess the role of ESG principles, CSR frameworks, and sustainable business practices in corporate environmental responsibility. 4.2 Corporate sustainability drivers, business case for sustainability, 4.3 ESG principles and integration into business strategy, 4.4 BRSR framework in India, 4.5 CSR (Companies Act 2013 provisions, strategic CSR), 4.6 Green marketing, sustainable supply chain management, 4.7 Responsible investing, challenges and opportunities for businesses in sustainable development.	**CO4**
TSO 5a. Synthesise emerging technologies (AI, IoT, blockchain) to develop innovative solutions for environmental monitoring and governance. *TSO 5b.* Integrate multi-stakeholder partnerships, including PPPs and community-based	**Unit-5.0 Future of Environmental Governance and Applied Sustainable Development** 5.1 Apply emerging technologies, finance models, and participatory approaches to	**CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
initiatives, into sustainable development project designs. *TSO 5c.* Apply tools and practices in green finance, impact investing, and sustainable financial instruments to real-world case studies. *TSO 5d.* Design behaviorally informed environmental policies and citizen engagement strategies for sustainable outcomes. *TSO 5e.* Evaluate governance models for global commons, integrating indigenous knowledge systems for enhanced sustainability. *TSO 5f.* Critique real-world integrated sustainable development projects, identifying best practices and lessons for future initiatives.	real-world sustainable development challenges. 5.2 Emerging technologies for environmental management (AI, IoT, blockchain in sustainability), 5.3 Multi-stakeholder partnerships for sustainable development (PPP, community-based initiatives), 5.4 Green finance and sustainable investments, 5.5 Behavioural insights in environmental policy, urban sustainability and smart cities, 5.6 Global commons governance, indigenous knowledge and environmental management, 5.7 Case studies in integrated sustainable development projects.	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

- Analyse a historical environmental disaster or movement (e.g., Bhopal Gas Tragedy, Chipko Movement) and explain how it influenced the evolution of environmental governance in India.
- Evaluate a specific SDG (e.g., SDG 6: Clean Water and Sanitation, SDG 13: Climate Action) and assess the challenges and opportunities for its achievement in a chosen Indian context.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignments (Complex Engineering Problems)

- Write a critical review of a major global environmental agreement (e.g., Paris Agreement, Montreal Protocol), discussing its objectives, mechanisms, and effectiveness.
- Prepare a report comparing two different approaches to carbon pricing (e.g., carbon tax vs. cap-and-trade) and assess their potential applicability in the Indian context.

b. Micro Projects:

- Develop a comprehensive mind map that explores the intricate interconnections

between the different Sustainable Development Goals (SDGs), highlighting the potential synergies and trade-offs among them.

- Conduct an in-depth case study on how a specific industry (such as textiles or agriculture) generates significant environmental externalities. Analyse the economic implications of these externalities and propose advanced economic mechanisms or policy interventions to effectively mitigate their impact. Consider incorporating real-world examples and case studies to support your recommendations.

c. Seminar Topics:

- Global and Indian Perspectives on Environmental Justice Movements: Challenges and Solutions
- Exploring the Circular Economy: Innovations and Applications for Sustainable Development
- The Interconnection Between Poverty and Environmental Degradation: Strategies for Resilience
- Ecosystem Services: Assessing Value and Implications for Policy and Practice
- Green Growth vs. Degrowth: Navigating the Future of Economic Sustainability.

d. Visits:

- RCVP Noronha Academy of Administration and Management, Bhopal
- Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGGPA), Bhopal

e. Self- Learning Topics:

- Deep Ecology and Ecofeminism,
- Environmental Kuznets Curve,
- Tragedy of the Commons,
- Anthropocene and Its Implications
- Climate Migration
- Planetary Boundaries Framework.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of the cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit-1.0 Foundations of Environmental Governance and Sustainable Development	14
CO2	Unit-2.0 Environmental Policy and Regulatory Frameworks in India	14
CO3	Unit-3.0 Climate Change Governance, Resilience, and Adaptation	14
CO4	Unit-4.0 Business, ESG, and Corporate Sustainability	14
CO5	Unit-5.0 Future of Environmental Governance and Applied Sustainable Development	14
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used, as per the requirement of the content/outcome to be achieved. Some of them are Improved Lecture, Tutorial, Case Method, Group Discussion, Industrial visits, Industrial Training, Field Trips, Portfolio Based, Learning, Role Play, Live Demonstrations in Classrooms, Lab, Field Information and Communications Technology (ICT)Based Teaching Learning, Blended or flipped mode, Brainstorming, Expert Session, Video Clippings, Use of Open Educational Resources (OER), MOOCs etc.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Environmental Governance	James Evans, Craig Thomas	Taylor & Francis, (2023), ISBN: 9781003833628, 1003833624
2.	Environmental Governance and Sustainability	Edited by Paul Martin, Tianbao Qin, Zhiping Li	Edward Elgar Publishing, 1st Edition (2012), ISBN: 9781781000489, 1781000484
3.	The Future We Choose: The Stubborn Optimist's Guide to the Climate Crisis	Christiana Figueres, Tom Rivett-Carnac	Bonnier Books UK, 2020, ISBN: 9781838770839, 1838770836
4.	Sustainable Sustainability: Why ESG is Not Enough	Rajeev Peshawaria	Penguin Random House SEA, 2021, ISBN: 9789814914974
5.	The Politics of Climate Change	Anthony Giddens	Wiley, 2nd Edition (2015), ISBN: 978-0-745-65514-7
6.	Adapting to Climate Change: An Introduction	W. Neil Adger	Cambridge University Press, 1st Edition (2009), ISBN: 9780521764858

b) Others/ Open Educational Resources (OER)

- **NPTEL Courses:**
  1) Constitution of India and Environmental Governance: Administrative and Adjudicatory Process: https://onlinecourses.nptel.ac.in/noc24_lw09/preview
  2) Environment and Development: https://onlinecourses.nptel.ac.in/noc25_hs195/preview

- **Online Platforms & Research Organizations:**
  1) United Nations Sustainable Development Knowledge Platform: Open-access reports, policy briefs, and SDG resources.
  2) World Bank Open Learning Campus: Courses and toolkits on environmental governance, climate policy, and sustainable development.

Q) Course Curriculum Developer (NITTTR, Bhopal)

S. No.	Name and Designation	E-mail Address
1	Prof. Aashish Deshpande	adeshpande@nitttrbpl.ac.in

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A)	**Course Title:** Technology and Innovation in Public Policy and Governance	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP10	
C)	**Pre- requisite (s):**	

D) **Rationale:** In the 21st century, technology plays a pivotal role in shaping effective public policy and responsive governance systems. Rapid advancements in digital infrastructure, AI, data analytics, and emerging technologies are transforming the way governments deliver services and engage with citizens. This course explores how technology can be strategically leveraged to design, implement, and evaluate innovative public policies. It emphasizes the role of data-driven decision-making, digital inclusion, and smart governance in enhancing transparency, efficiency, and accountability. As governments worldwide adopt digital platforms, e-Governance has become central to public service delivery. Innovation in public management, including the use of blockchain, IoT, and mobile technologies, is reshaping administrative processes. The course also examines ethical considerations, cybersecurity, and privacy concerns in tech-driven governance. Through simulations, hands-on tools, and policy labs, learners will build the competencies to design and critique technology-enabled policy solutions. The course prepares future policy leaders to be adaptive, innovative, and responsive in a digital governance environment.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP10.CO1	Evaluate the evolution and strategic role of digital technologies in transforming public policy frameworks and governance systems.
MBAP10.CO2	Analyze the application of emerging technologies such as AI, IoT, Blockchain, and Big Data in the formulation and implementation of public policies.
MBAP10.CO3	Evaluate the effectiveness of digital infrastructure and platforms in enhancing public service delivery and promoting inclusive governance.
MBAP10.CO4	Assess innovation ecosystems, public sector reforms, and collaborative models that foster technology-driven policy innovation.
MBAP10.CO5	Critically examine the ethical, legal, and regulatory challenges of technology use in governance, with a focus on cybersecurity, data protection, and digital rights

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value-based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in achieving organizational goals, contributing effectively to a team environment.
MBAP10.CO1	2	1	1	-	-
MBAP10.CO2	2	1	1	-	-
MBAP10.CO3	2	2	1	-	-
MBAP10.CO4	2	1	1	-	-
MBAP10.CO5	2	1	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP10	OEC	Technology and Innovation in Public Policy and Governance	45	30	-	45	120	04	50	70	50	-	-	-	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the evolution and significance of technology in public policy. *TSO 1b.* Identify major Indian and global initiatives in digital governance. *TSO 1c.* Evaluate the role of ICT in promoting inclusive and efficient governance.	**Unit-1.0 Foundations of Technology in Governance** 1.1 Role of technology in modern governance 1.2 Historical evolution of e-Governance in India and globally 1.3 Key digital governance frameworks and initiatives (e.g., Digital India, MyGov) 1.4 ICT for Development (ICT4D)	**CO1**
TSO 2a. Explain the role played by emerging technologies are reshaping public administration. *TSO 2b.* Analyze the application of AI, IoT, and data analytics in solving policy problems. *TSO 2c.* Critically assess real-world innovations in public sector service delivery.	**Unit-2.0 Emerging Technologies and Policy Innovation** 2.1 Artificial Intelligence, Machine Learning, and Blockchain in governance 2.2 Internet of Things (IoT), GIS, and mobile platforms in policy planning 2.3 Big Data analytics and predictive modeling for policymaking 2.4 Case studies: Aadhaar, GSTN, Digital Health Mission	**CO2**
TSO 3a. Explain the structure and role of India's digital public infrastructure. *TSO 3b.* Assess the effectiveness of digital platforms in citizen-centric service delivery. *TSO 3c.* Discuss challenges and best practices for digital inclusion in governance.	**Unit-3.0 Digital Infrastructure and Service Delivery** 3.1 Public digital platforms: India Stack, UPI, DigiLocker, e-Shram 3.2 National Service Delivery Gateway (NSDG) and Unified Digital Platforms 3.3 Grievance redressal systems and digital inclusion 3.4 Role of tech in rural governance and smart villages	**CO3**
TSO 4a. Examine frameworks that foster innovation in public systems. *TSO 4b.* Identify mechanisms for public-private innovation partnerships. *TSO 4c.* Evaluate the role of design thinking and agile methods in public policy.	**Unit-4.0 Innovation Ecosystems and Public Sector Reforms** 4.1 Policy innovation frameworks and public innovation labs 4.2 Start-ups, incubators, and GovTech collaborations 4.3 Agile governance and design thinking in policy 4.4 NITI Aayog's innovation models and India's Atal Innovation Mission	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 5a. Recognize the ethical and legal challenges in tech-enabled governance. *TSO 5b.* Explain key national and international data protection frameworks. *TSO 5c.* Analyze the trade-offs between surveillance and digital freedoms.	**Unit -5.0: Ethics, Cybersecurity, and Regulatory Frameworks**. 5.1 Ethical use of data and emerging technologies 5.2 Data privacy, cybersecurity, and digital rights 5.3 Legal frameworks: IT Act, Data Protection Bill, RTI in digital era 5.4 Digital surveillance vs. digital empowerment	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. **Research Problem1:** Critically evaluate the digital readiness and governance maturity of Indian state governments by developing a composite e-Governance Performance Index based on accessibility, transparency, efficiency, and citizen satisfaction. Submit Analytical Research Report with a proposed e-Governance Index Framework, data analysis, and ranking of selected states.

ii. **Research Problem2:** Investigate the impact of AI-enabled decision systems on public service delivery efficiency and inclusiveness, using comparative case studies from sectors like health, agriculture, or urban governance. Submit a Comparative Case Study Report supported by policy analysis, stakeholder interviews (if feasible), and innovation gap identification.

iii. **Research Problem 3:** Examine the effectiveness of India's digital public infrastructure (e.g., India Stack, UPI, DigiLocker) in bridging rural-urban service delivery gaps—identify barriers to adoption and propose policy-level interventions. Submit Policy Evaluation Portfolio including data charts, user adoption trends, SWOT analysis, and actionable policy suggestions.

iv. **Research Problem 4:** Design a policy innovation framework for urban local bodies (ULBs) to co-create solutions with startups and civic tech enterprises. Pilot the model in a Tier-II Indian city using systems thinking principles. Design a Policy Design Document or Innovation Framework Proposal, with process maps, stakeholder roles, expected outcomes, and implementation roadmap.

v. **Research Problem 5:** Analyze the ethical and regulatory implications of algorithmic governance in welfare schemes (like DBT or health insurance). Propose a policy framework to ensure transparency, accountability, and data sovereignty. Write a Regulatory White Paper outlining current gaps, ethical risks, global best practices, and a proposed draft policy/regulation for ethical tech governance.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Assignment 1: Prepare a brief report on how digital governance initiatives (such as Digital India, e-Seva, or Bhoomi) have improved public service delivery in a specific Indian state. (Length: 1000–1200 words | Include at least one case example)
- Assignment 2: Prepare a case study summary on the use of Artificial Intelligence or IoT in a public service (e.g., smart healthcare, traffic monitoring, or crop forecasting). (Length: 1000 words | Include diagrams or images if needed)
- Assignment 3: Prepare a comparative chart or infographic that shows how rural and urban populations use digital services (e.g., UPI, DigiLocker, Aadhaar). Add a short explanation (400–500 words).
- Assignment 4: Prepare a policy brief suggesting how a local government (such as a municipality or panchayat) could promote innovation in service delivery using digital tools or community startups.(Length: 800–1000 words | Include key actions and expected outcomes)
- Assignment 5: Prepare a short essay on the ethical challenges of using digital data in public schemes like DBT or health insurance. Highlight issues like data privacy, consent, or exclusion. (Length: 800 words | Use simple examples to support your arguments)

b. Seminar Topics:

- Digital India and the Future of e-Governance
- Artificial Intelligence in Public Policy: Risks and Rewards
- Bridging India's Digital Divide: Policy Challenges and Solutions
- Innovation Ecosystems and the Role of GovTech in Urban Governance
- Data Privacy and Ethical Use of Technology in Public Services

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0 Foundations of Technology in Governance	10
CO2	Unit 2.0 Emerging Technologies and Policy Innovation	10
CO3	Unit 3.0 Digital Infrastructure and Service Delivery	15
CO4	Unit 4.0 Innovation Ecosystems and Public Sector Reforms	15
CO5	Unit 5.0 Ethics, Cybersecurity, and Regulatory Frameworks	20
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Digital Government: Technology and Public Sector Performance	Darrell M. West	Princeton University Press ISBN: 9780691127253
2.	Designing Public Policies: Principles and Instruments	Michael Howlett	: Routledge ISBN: 9780415781336
3.	Artificial Intelligence and the Future of Power: 5 Battlegrounds	Rajiv Malhotra	Rupa Publications India ISBN: 9789355200121
4.	The Fourth Industrial Revolution	Klaus Schwab	Crown Business ISBN: 9781524758868
5.	The Digital Republic: On Freedom and Democracy in the 21st Century	Jamie Susskind	Bloomsbury Publishing ISBN: 9781526620200

b) Online Educational Resources (OER):

1) https://www.niti.gov.in- Government policy innovation, digital governance reports, and emerging technology initiatives (e.g., India@2047, Digital Public Infrastructure)
2) https://digitalindia.gov.in- National digital transformation, citizen services, e-Governance architecture
3) https://pmgati.gov.in- Gati Shakti: Integrated infrastructure planning, digital platforms for public asset monitoring
4) https://indiaai.gov.in- AI policy framework, government use cases, AI innovation ecosystem
5) https://diksha.gov.in- Public digital infrastructure in education, open-source e-learning architecture
6) https://www.mygov.in - Citizen engagement through digital platforms; participatory governance practices
7) https://iimbx.iimb.ac.in- MOOC: Digital Transformation in the Public Sector – Governance through digital innovation
8) https://nptel.ac.in/courses/110106155 - NPTEL Course: Digital Government and Innovation in the Public Sector
9) https://www.meity.gov.in- Policies on e-Governance, data protection, cybersecurity, digital economy
10) https://cbps.in- Center for Budget and Policy Studies – Research and working papers on digital public policy and governance innovation

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
1.	Prof. Roli Pradhan	rpradhan@nitttrbpl.ac.in

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A)	**Course Title:** Social Inclusion and Development	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP11	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course examines the theoretical foundations and practical applications of social inclusion in development processes. Students will explore how policies, programs, and management practices can address inequality, promote inclusive growth, and ensure equitable participation of marginalized communities in economic and social development.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP11.CO1	Apply the conceptual frameworks of social inclusion and development.
MBAP11.CO2	Ability to Design inclusive development strategies for diverse organizational contexts.
MBAP11.CO3	Apply evidence-based approaches to measure and monitor social inclusion outcomes.
MBAP11.CO4	Ability to Demonstrate ethical leadership in managing diversity and inclusion initiatives.
MBAP11.CO5	Ability for problem solving and decision-making abilities in Social Inclusion and Development.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
MBAP11.CO1	3	-	1	-	-
MBAP11.CO2	2	1	1	-	-
MBAP11.CO3	1	-	-	1	-
MBAP11.CO4	1	-	1	-	1
MBAP11.CO5	1	1	1	-	1

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		Total Marks (TA+TWA+LA)
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP11	OEC	Social Inclusion and Development	45	30	-	45	120	04	50	70	50	-	-	-	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Analyze core concepts and theoretical foundations *TSO 1b.* Analyze multiple dimensions of social exclusion *TSO 1c.* Evaluate international approaches to inclusion.	**Unit-1.0 Foundations of Social Inclusion and Development** 1.1 Defining social inclusion and exclusion: Historical perspectives and contemporary understanding, Capability approach, human rights-based development, and social justice 1.2 Dimensions of exclusion: Economic, social, political, and cultural 1.3 Intersectionality and multiple forms of disadvantage 1.4 Global perspectives on inclusion: UN SDGs and international frameworks	**CO1**
TSO 2a. Identify vulnerable and marginalized groups *TSO 2b.* Analyze structural barriers to inclusion *TSO 2c.* Develop sensitivity to diverse inclusion challenges *TSO 2d.* Evaluate policy instruments for promoting inclusion *TSO 2e.* Assess governance mechanisms for participatory development *TSO 2f.* Design inclusive organizational policies	**Unit-2.0 Social Groups and Marginalization** 2.1 Social class, and economic marginalization 2.2 Gender and intersectional analysis 2.3 Persons with disabilities and accessibility 2.4 Age-based exclusion: Youth and elderly populations 2.5 Rural-urban disparities and geographic exclusion	**CO2**
TSO 3a. Evaluate policy instruments for promoting inclusion *TSO 3b.* Assess governance mechanisms for participatory development *TSO 3c.* Design inclusive organizational policies	**Unit-3.0 Policy Frameworks and Governance** 3.1 Constitutional provisions and legal frameworks for inclusion 3.2 Affirmative action, Social protection systems and safety nets 3.3 Participatory governance and community engagement 3.4 Decentralization and local governance for inclusion 3.5 Corporate social responsibility and inclusive business practices	**CO3**
TSO 4a. Design inclusive development programs *TSO 4b.* Analyze implementation challenges and solutions *TSO 4c.* Apply technology for inclusive outcomes	**Unit-4.0 Development Programs and Implementation** 4.1 Inclusive economic growth strategies 4.2 Education, health, and social sector interventions 4.3 Livelihood programs and skill development 4.4 Financial inclusion and microfinance 4.5 Urban planning and inclusive cities	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
	4.6 Technology for inclusion: Digital divide and solutions	
TSO 5a. Develop M&E frameworks for inclusion programs *TSO 5b.* Apply quantitative and qualitative assessment methods *TSO 5c.* Design learning-oriented evaluation systems	**Unit-5.0 Measurement, Monitoring, and Evaluation** 5.1 Indicators and metrics for social inclusion 5.2 Data collection and analysis methods 5.3 Impact assessment and evaluation frameworks 5.4 Participatory monitoring approaches 5.5 Learning and adaptive management	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems:

i. Category 1: Digital Divide and Technology Access

- **Problem 1: Bridging the Digital Divide in Rural Madhya Pradesh**
  Research Question: How can public-private partnerships be designed to ensure equitable digital access for marginalized communities in rural MP?
  Context: Examine the effectiveness of digital literacy programs and infrastructure development
  Deliverables: Policy framework, implementation roadmap, and monitoring mechanisms
  PO Alignment: PEO 1, PEO 2, PEO 4

- **Problem 2: E-Governance and Social Inclusion**
  Research Question: What are the barriers preventing tribal communities from accessing e-governance services, and how can these be addressed?
  Context: Study the digital service delivery gaps in tribal-dominated districts
  Deliverables: Barrier analysis, inclusive design recommendations, and pilot program proposal
  PO Alignment: PEO 2, PEO 3, PEO 4

ii. Category 2: Education and Skill Development

- **Problem 3: Inclusive Education Policy Implementation**
  Research Question: How effective are current inclusive education policies in ensuring quality education for children with disabilities in Madhya Pradesh?
  Context: Analyze the gap between policy intent and ground-level implementation
  Deliverables: Impact assessment report, policy recommendations, and stakeholder engagement strategy
  PO Alignment: PEO 1, PEO 3, PEO 4

- **Problem 4: Skill Development for Urban Informal Workers**
  Research Question: What skill development interventions can enhance livelihood

opportunities for urban informal workers in Bhopal?
Context: Focus on migrant workers, street vendors, and domestic workers
Deliverables: Skill mapping study, training program design, and sustainability model
PO Alignment: PEO 2, PEO 4, PEO 5

iii. Category 3: Healthcare Access and Equity

- **Problem 5: Healthcare Access for Marginalized Communities**
  Research Question: How can the Ayushman Bharat scheme be made more accessible to scheduled tribes and other marginalized groups in MP?
  Context: Examine barriers to healthcare access and utilization patterns
  Deliverables: Access audit, community engagement model, and service delivery improvements
  PO Alignment: PEO 2, PEO 3, PEO 4

- **Problem 6: Mental Health and Social Stigma**
  Research Question: What community-based interventions can reduce mental health stigma and improve service access in semi-urban areas?
  Context: Study culturally sensitive mental health service delivery models
  Deliverables: Community intervention framework, awareness campaign design, and evaluation metrics
  PO Alignment: PEO 1, PEO 3, PEO 4

iv. Category 4: Women's Empowerment and Gender Inclusion

- **Problem 7: Women's Economic Participation in Small Towns**
  Research Question: How can self-help group (SHG) models be enhanced to increase women's economic participation in tier-2 and tier-3 cities?
  Context: Analyze existing SHG performance and identify scalable interventions
  Deliverables: SHG strengthening strategy, financial inclusion roadmap, and impact measurement framework
  PO Alignment: PEO 1, PEO 2, PEO 4

- **Problem 8: Workplace Gender Inclusion Policies**
  Research Question: What policy interventions can improve gender inclusion in the organized sector workforce in Madhya Pradesh?
  Context: Study implementation of gender-sensitive workplace policies
  Deliverables: Policy gap analysis, best practices compilation, and implementation toolkit
  PO Alignment: PEO 1, PEO 3, PEO 4

v. Category 5: Urban Planning and Housing

- **Problem 9: Slum Rehabilitation and Social Integration**
  Research Question: How can slum rehabilitation programs ensure social integration while preserving community networks in urban areas?
  Context: Examine the social impact of housing policies on urban poor communities
  Deliverables: Social impact assessment, community participation model, and policy recommendations
  PO Alignment: PEO 1, PEO 2, PEO 3

- **Problem 10: Affordable Housing and Financial Inclusion**
  Research Question: What innovative financing mechanisms can make affordable housing more accessible to low-income families?
  Context: Study the effectiveness of PMAY-U and other housing schemes
  Deliverables: Financial model design, stakeholder engagement strategy, and pilot implementation plan
  PO Alignment: PEO 1, PEO 2, PEO 4

vi. Category 6: Environmental Justice and Sustainable Development

- **Problem 11: Climate Change and Vulnerable Communities**
  Research Question: How can climate adaptation policies be designed to protect the most vulnerable populations in Madhya Pradesh?
  Context: Focus on climate migrants, agricultural communities, and urban poor
  Deliverables: Vulnerability assessment, adaptation strategy, and community resilience framework
  PO Alignment: PEO 1, PEO 2, PEO 3

- **Problem 12: Water Security and Social Equity**
  Research Question: What governance mechanisms can ensure equitable water access across different social groups in water-stressed regions?
  Context: Study water resource management and distribution policies
  Deliverables: Water equity audit, governance model, and community participation framework
  PO Alignment: PEO 1, PEO 3, PEO 4

vii. Category 7: Social Protection and Welfare

- **Problem 13: Direct Benefit Transfer (DBT) Effectiveness**
  Research Question: How can DBT mechanisms be improved to ensure better targeting and inclusion of beneficiaries in social welfare schemes?
  Context: Analyze leakages and exclusion errors in welfare delivery
  Deliverables: System improvement recommendations, technology solutions, and grievance redressal mechanisms
  PO Alignment: PEO 2, PEO 3, PEO 4

- **Problem 14: Aging Population and Social Security**
  Research Question: What social protection policies are needed to address the needs of an aging population in semi-urban areas?
  Context: Study the adequacy of current elderly care systems
  Deliverables: Policy gap analysis, care model design, and implementation roadmap
  PO Alignment: PEO 1, PEO 2, PEO 3

viii. Category 8: Youth Development and Employment

- **Problem 15: Youth Employment and Skill Mismatch**
  Research Question: How can public policy address the skill-employment mismatch among youth from disadvantaged backgrounds?

Context: Focus on unemployed graduates and vocational training outcomes
Deliverables: Skill gap analysis, training program redesign, and employment linkage strategy
PO Alignment: PEO 2, PEO 4, PEO 5
Assessment Criteria
Research Quality (25%): Methodology rigor, data collection quality, analysis depth
Policy Relevance (25%): Alignment with current policy priorities, practical applicability
Innovation (20%): Creative solutions, evidence-based approaches, technology integration
Stakeholder Engagement (15%): Community participation, multi-stakeholder consultation
Presentation and Communication (15%): Clear articulation, policy brief quality, presentation skills
Expected Outcomes: Students will develop:

- Analytical skills for policy research
- Understanding of social inclusion challenges
- Ability to design evidence-based interventions
- Stakeholder engagement capabilities
- Communication skills for policy advocacy.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit-1.0 Foundations of Social Inclusion and Development	10
CO2	Unit-2.0 Social Groups and Marginalization	15
CO3	Unit-3.0 Policy Frameworks and Governance	15
CO4	Unit-4.0 Development Programs and Implementation	15
CO5	Unit-5.0 Measurement, Monitoring, and Evaluation	15
Total		**70**

N) Suggested Instructional/ Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT) based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Development as Freedom	Amartya Sen	Oxford University Press 978-0192893307
2.	Inclusive Citizenship: Meanings and Expressions	Naila Kabeer	Zed Books 978-1842775652
3.	Blocked by Caste: Economic Discrimination in Modern India	Sukhadeo Thorat & Katherine S. Newman	Oxford University Press 978-0198063551

b) Reference Materials:

1) United Nations Development Programme reports on Human Development
2) World Bank publications on Inclusive Growth
3) Government of India reports on social inclusion policies
4) Academic journals: World Development, Development Policy Review, Social Policy & Administration

c) Online Educational Resources (OER):

5) Dtabases- JSTOR, ProQuest, Google Scholar
6) Government portals: Ministry of Social Justice and Empowerment
7) International organization websites: UN, World Bank, OECD

P) Course Curriculum Developer

S. No.	Name and Designation	E-mail Address
1.	Prof. Parag Dubey	pdubey@nitttrbpl.ac.in

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A)	**Course Title:** Sectoral Policy Analysis and Governance	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP12	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course provides a comprehensive foundation for understanding the formulation, implementation, and evaluation of public policies across key sectors such as education, health, agriculture, urban development, energy, and industry. It equips learners with analytical tools and conceptual frameworks to critically assess sectoral governance structures, policy outcomes, and institutional performance. The course emphasizes the importance of inter-sectoral linkages, federal dynamics, regulatory frameworks, and the role of various stakeholders including government bodies, civil society, and the private sector. Learners will gain practical insights into how sector-specific policies impact social equity, economic development, and environmental sustainability. Through case studies, policy briefs, and impact assessment exercises, the course builds competencies in designing integrated and evidence-based policy interventions. It prepares learners to contribute as policy analysts, governance consultants, and development professionals capable of addressing complex public challenges and driving sectoral reforms aligned with national priorities and the Sustainable Development Goals (SDGs).

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP12.CO1	Analyze the structure, process, and inter-sectoral linkages of sectoral policymaking and governance in India.
MBAP12.CO2	Evaluate the design and outcomes of education and health sector policies using equity, access, and quality indicators.
MBAP12.CO3	Assess rural development and agricultural policies for their effectiveness in addressing livelihood, sustainability, and decentralization goals.
MBAP12.CO4	Examine the planning and governance of urban development and infrastructure projects, with a focus on sustainability, inclusion, and PPP models.
MBAP12.CO5	Design policy recommendations for the energy, environment, and industrial sectors based on an understanding of institutional, regulatory, and innovation frameworks.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
MBAP12.CO1	2	1	1	-	-
MBAP12.CO2	2	1	1	-	-
MBAP12.CO3	2	2	1	-	-
MBAP12.CO4	2	1	1	-	-
MBAP12.CO5	2	1	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP12	OEC	Sectoral Policy Analysis and Governance	45	30	-	45	120	04	50	70	50	-	-	-	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the fundamental concepts and typologies of sectoral policy. *TSO 1b.* Outline the stages of the public policy cycle and their practical relevance. *TSO 1c.* Analyze the principles and mechanisms of governance in sectoral contexts. *TSO 1d.* Identify the roles of key institutions in sectoral policymaking. *TSO 1e.* Examine the importance of policy coherence across sectors.	**Unit 1.0: Foundations of Sectoral Policy and Governance** 1.1 Meaning and scope of sectoral policies 1.2 Public policy cycle: formulation, implementation, evaluation 1.3 Governance: principles, actors, and accountability 1.4 Role of data and institutions in policy planning 1.5 Inter-sectoral coordination and coherence	**CO1**
TSO 2a. Explain the core objectives of education and health policies in India. *TSO 2b.* Compare public and private governance models in social sectors. *TSO 2c.* Evaluate the implementation frameworks of flagship schemes. *TSO 2d.* Interpret policy outcomes using indicators such as literacy, health coverage, and out-of-pocket expenses. *TSO 2e.* Assess governance challenges in achieving inclusive and quality service delivery.	**Unit 2.0: Education and Health Sector Policy** 2.1 National Education Policy (NEP), SDG 4 2.2 Public and private models in education delivery 2.3 Universal Health Coverage, Ayushman Bharat 2.4 Institutional frameworks: MHRD, MoHFW, NITI Aayog 2.5 Equity, quality, and access issues	**CO2**
TSO 3a. Outline the major rural and agricultural policies and their objectives. *TSO 3b.* Assess policy impacts on employment, livelihoods, and rural infrastructure. *TSO 3c.* Evaluate the effectiveness of PRIs in rural governance. *TSO 3d.* Analyze innovations in sustainable agriculture policy. *TSO 3e.* Identify gaps in rural development planning and delivery systems	**Unit 3.0: Agriculture and Rural Development** 3.1 Agricultural policy evolution and reforms 3.2 Rural livelihoods, employment (MNREGA, NRLM) 3.3 Institutional mechanisms: NABARD, Ministry of Agriculture 3.4 Role of PRIs and local governance 3.5 Climate-smart agriculture, food security	**CO3**
TSO 4a. Outline key policy missions related to urban development. *TSO 4b.* Evaluate governance models in urban infrastructure and service delivery. *TSO 4c.* Examine the role of PPPs in financing and managing infrastructure projects. *TSO 4d.* Analyze institutional and fiscal challenges of urban local bodies. *TSO 4e.* Assess sustainability and climate resilience components in urban planning.	**Unit 4.0: Urban Development and Infrastructure Policy** 4.1 Smart Cities Mission, AMRUT, PMAY 4.2 Urban transport, waste management, water governance 4.3 Infrastructure policy and PPP models 4.4 Urban local bodies and fiscal decentralization 4.5 Sustainable urbanisation and resilience	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 5a. Explain major national-level energy and environment policies. *TSO 5b.* Examine the role of legal institutions in environmental governance. *TSO 5c.* Assess the strategic objectives of India's industrial policy. *TSO 5d.* Analyze MSMEs' contribution to inclusive growth. *TSO 5e.* Evaluate the policy mechanisms for green industrial transformation.	**Unit 5.0: Energy, Environment, and Industrial Policy** 5.1 National Energy Policy, renewable energy governance 5.2 Environmental regulations: EIA, NGT, forest and pollution laws 5.3 Make in India, Start-Up India, industrial policy reforms 5.4 Role of MSMEs in local economic development 5.5 Green economy and sustainable industrialization	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. **Assignment 1:** Submit a detailed report analyzing how an integrated sectoral policy framework can be developed to ensure alignment between national, state, and local institutions. The report should explore coordination challenges, role clarity, and propose governance models that enhance inter-sectoral synergy.

ii. **Assignment 2:** Submit a policy brief or portfolio evaluating the applicability and effectiveness of Social Impact Bonds (SIBs) in India's social sectors. Include global benchmarks, implementation models, risk-sharing mechanisms, and a governance structure suitable for Indian conditions.

iii. **Assignment 3:** Submit a research report identifying institutional barriers faced by Panchayati Raj Institutions (PRIs) in enabling climate-smart agricultural practices. Support the analysis with regional case studies, and suggest capacity-building or governance reform strategies.

iv. **Assignment 4:** Submit a governance analysis report on the institutional and financial empowerment of ULBs under Smart Cities and AMRUT. The report should map out existing challenges in fiscal decentralization and propose models for enhancing accountability and service delivery.

v. **Assignment 5:** Submit a policy strategy report proposing innovative regulatory and governance mechanisms for promoting decentralized renewable energy solutions in rural and peri-urban areas. Include an analysis of stakeholder roles, financing options, and technological feasibility.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Assignment 1: Learners are required to prepare a policy process mapping report on how a sectoral policy (e.g., National Education Policy or National Health Policy) moves through the stages of agenda setting, formulation, adoption, implementation, and evaluation. The report should highlight gaps in coordination, institutional responsibilities, and alignment with SDG targets.
- Assignment 2: Learners will develop a portfolio analyzing an innovative financing or service delivery model (e.g., Social Impact Bond, Public-Private Partnership) implemented in either the education or health sector. The portfolio should include performance indicators, stakeholder roles, funding flows, and governance outcomes.
- Assignment 3: Learners must prepare a case study brief on a regional initiative or policy that attempted to promote climate-resilient agriculture. The brief should analyze institutional capacity, role of PRIs, and the effectiveness of policy instruments (subsidies, incentives, extension systems).
- Assignment 4: Learners are required to develop a report assessing the effectiveness of financial decentralization to Urban Local Bodies (ULBs) under schemes like Smart Cities Mission or AMRUT. The report must include fiscal data, project performance, stakeholder feedback, and comparative analysis across cities.
- Assignment 5: Learners will prepare a strategy note proposing governance reforms and regulatory innovations to scale decentralized renewable energy systems in rural or peri-urban India. The note should focus on the role of DISCOMs, financing mechanisms, and policy incentives.

b. Seminar Topics:

- Cooperative Federalism and Policy Implementation: Challenges and Prospects
- Public-Private Partnerships in Social Infrastructure: Success Stories and Pitfalls
- Digital Health Governance in India: Evaluating Ayushman Bharat and NDHM
- Education Policy Reforms in India: Equity, Quality, and Inclusion under NEP 2020
- Climate-Resilient Agriculture: Governance Innovations for Sustainable Rural Development
- Smart Cities Mission: Assessing Urban Governance and Infrastructure Delivery
- Energy Transition in India: Decentralized Renewables and Policy Bottlenecks
- Role of Civil Society and Community Institutions in Sectoral Policy Outcomes
- Data-Driven Decision-Making in Public Policy: Opportunities and Ethical Challenges
- Integrating ESG Principles in Industrial Policy: Toward Sustainable Development

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0: Foundations of Sectoral Policy and Governance	10
CO2	Unit 2.0: Education and Health Sector Policy	10
CO3	Unit 3.0: Agriculture and Rural Development Policy	15
CO4	Unit 4.0: Urban Development and Infrastructure Governance	15
CO5	Unit 5.0: Energy, Environment, and Industrial Policy Reforms	20
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Development as Freedom	Amartya Sen	Oxford University Press 9780195655260
2.	Inclusive Citizenship: Meanings and Expressions	Naila Kabeer	Zed Books 9781842778272
3.	Blocked by Caste: Economic Discrimination in Modern India	Sukhadeo Thorat, Katherine S. Newman	Oxford University Press 9780198063550
4.	Public Policy: Politics, Analysis, and Alternatives	Michael E. Kraft, Scott R. Furlong	CQ Press 9781544374811
5.	India's Long Road: The Search for Prosperity	Vijay Joshi	Oxford University Press 9780190610141
6.	Governance and the Crisis of Rule in Contemporary India	Alf Nilsen and Kenneth Bo Nielsen (Eds.)	Orient BlackSwan 9788125059066
7.	The Oxford Handbook of Public Policy	Michael Moran, Martin Rein, Robert E. Goodin	Oxford University Press 9780199548452

b) Online Educational Resources (OER):

1) https://www.niti.gov.in – Government policy innovation, digital governance reports, and emerging technology initiatives (e.g., India@2047, Digital Public Infrastructure)
2) https://www.povertyactionlab.org/sector/political-economy-governance – Evidence-based policy experiments, transparency and accountability interventions, and randomized evaluations in governance
3) https://onlinecourses.swayam2.ac.in/cec24_hs38/preview – Course on Public Policy and Governance (IPE Hyderabad); covers policy processes, implementation frameworks, and administrative systems
4) https://school.takshashila.org.in/ – Offers certificate courses in public policy, sectoral policy labs, defence and tech governance modules
5) https://www.coursera.org/courses?query=public%20policy – Global MOOC platform with public policy courses on education, environment, social protection, and economic development
6) https://www.ispp.org.in/programmes/ – India School of Public Policy (ISPP); offers policy research training, sector-specific simulations, and governance frameworks
7) https://carnegieendowment.org/research/2024/11/tech-policy-planning-guide-india – Tech Policy Planning Guide for India; governance strategies for AI, semiconductors, digital economy, and cybersecurity
8) https://hpuniv.ac.in/hpuniv/upload/uploadfiles/files/403%20PUBLIC%20POLICY%20AND%20GOVERNANCE%20IN%20INDIA%20IVth%20sem.pdf – Comprehensive academic resource on Indian policy structures, planning processes, and rural governance models
9) https://rfskillingacademy.com/en/skill_development/e-course/RF_356_en/Foundation-Course-in-Public-Policy – Introductory e-course on Indian public policy foundations, sectoral dynamics, and stakeholder roles
10) https://onlinecourses.swayam2.ac.in/ini25_hs09/preview – IGNOU's Social Policy and Planning course; focuses on sectoral planning, welfare theory, and social development governance

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
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A)	**Course Title:** Public-Private Partnerships (PPP): Strategy, Policy, and Governance	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP13	
C)	**Pre- requisite (s):**	

D) **Rationale:** Public-Private Partnerships (PPP) have emerged as a transformative mechanism for delivering infrastructure and public services, especially in developing economies like India where the demand for efficient service delivery often exceeds public resources. This course equips learners with the conceptual foundation, strategic frameworks, and practical tools necessary to understand, evaluate, and implement PPP models across various sectors such as transport, energy, healthcare, education, and urban infrastructure. It introduces the legal, regulatory, and institutional frameworks governing PPPs and explores the roles and responsibilities of government entities and private players in ensuring project sustainability. The course also covers risk allocation, financial structuring, and performance-based contracting, alongside social impact considerations and stakeholder engagement. As governments increasingly adopt PPPs for innovation and efficiency, this course helps learners critically analyze policy options, evaluate project viability, and contribute to governance reforms that ensure transparency, equity, and accountability. By integrating global best practices and local case studies, the course fosters a holistic understanding of PPPs as a strategic tool for inclusive and sustainable development.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP13.CO1	Critically evaluate the conceptual foundations, evolution, and global practices of PPPs to develop informed perspectives on their application in public infrastructure and service delivery.
MBAP13.CO2	Interpret and assess the legal, regulatory, and institutional frameworks governing PPPs in India and globally to identify gaps and recommend necessary policy reforms.
MBAP13.CO3	Design and structure PPP projects with appropriate risk allocation, financial modeling, and concession arrangements suited to specific sectors and stakeholder needs.
MBAP13.CO4	Evaluate and improve governance mechanisms for transparency, stakeholder engagement, and accountability in PPP execution, especially in long-term contracts.
MBAP13.CO5	Analyze sector-specific PPP case studies to derive actionable lessons and propose innovative, sustainable, and replicable PPP models for future development challenges

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
MBAP13.CO1	2	1	1	-	-
MBAP13.CO2	2	1	1	-	-
MBAP13.CO3	2	2	1	-	-
MBAP13.CO4	2	1	1	-	-
MBAP13.CO5	2	1	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP13	OEC	Public-Private Partnerships (PPP): Strategy, Policy, and Governance	45	30	-	45	120	04	50	70	50	-	-	-	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the fundamental concepts and typologies of Public-Private Partnerships. *TSO 1b.* Analyze the rationale for using PPPs in infrastructure and public service delivery. *TSO 1c.* Compare PPP trends and best practices globally and in the Indian context	**Unit 1.0: Introduction to PPPs – Concepts and Rationale** 1.1 Definition, need, and significance of PPPs. 1.2 Evolution and typologies of PPP models (BOT, BOOT, DBFOT, etc.) 1.3 Comparative advantages of PPP over traditional procurement 1.4 PPPs in the global and Indian context	**CO1**
TSO 2a. Interpret the key legal and regulatory frameworks guiding PPPs in India. *TSO 2b.* Examine the institutional mechanisms supporting PPP development and regulation. *TSO 2c.* Evaluate contract structures and resolution mechanisms in PPP agreements	**Unit 2.0: Legal, Regulatory, and Institutional Framework** 2.1 National and state-level PPP policies in India 2.2 Legal frameworks governing contracts and concessions 2.3 Roles of NITI Aayog, DEA (Department of Economic Affairs), and other nodal agencies 2.4 Contract enforcement and dispute resolution mechanisms	**CO2**
TSO 3a. Develop a basic structure for PPP project design and implementation. *TSO 3b.* Assess risk allocation strategies and financial instruments used in PPPs. *TSO 3c.* Illustrate financing models and their applicability in different PPP projects.	**Unit 3.0: Project Structuring, Risk Allocation, and Financing** 3.1 Project identification and feasibility studies 3.2 Risk allocation between public and private entities 3.3 Financial structuring and viability gap funding (VGF) 3.4 Sources of PPP financing: banks, multilateral institutions, infrastructure funds	**CO3**
TSO 4a. Discuss the role of governance and accountability in PPP projects. *TSO 4b.* Analyze mechanisms for transparency, public engagement, and contract oversight. *TSO 4c.* Identify governance challenges and recommend improvements.	**Unit 4.0: Governance, Transparency, and Accountability in PPPs** 4.1 Good governance principles in PPPs 4.2 Stakeholder management and public participation 4.3 Monitoring and performance evaluation mechanisms 4.4 Issues of transparency, corruption, and renegotiation	**CO4**
TSO 5a. Analyze sector-specific PPP models and their performance outcomes. *TSO 5b.* Critically evaluate success factors and risks from real-world PPP case studies. *TSO 5c.* Apply PPP learning to propose context-based sectoral strategies.	**Unit 5.0: Sectoral Applications and Case Studies Topics:** 5.1 PPPs in transport, energy, water, education, and health 5.2 Evaluation of successful and failed PPP projects	**CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
	5.3 Innovations in urban PPPs (smart cities, logistics, etc.) 5.4 Lessons from national and international case studies	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. **Assignment 1:** Designing a PPP Framework for Waste-to-Energy Plants in Tier-2 Cities: Learners shall submit a report analyzing how a PPP model can be structured to attract private investment for solid waste-to-energy infrastructure in mid-sized Indian cities. The report must explore legal, financial, environmental, and social dimensions, including risk sharing and regulatory bottlenecks.

ii. **Assignment 2: Evaluating** Contractual Failures in Indian Highway PPPs: Learners shall prepare a case-based portfolio examining failed PPP highway projects (e.g., delays in NHDP/Bharatmala). The study must identify causes of contractual breakdowns, assess dispute resolution mechanisms, and propose legally sustainable contract models for future infrastructure development.

iii. **Assignment 3:** Risk Modeling in Urban Transit PPPs: A Comparative Sectoral Study: Learners shall submit a comparative research report analyzing risk allocation strategies in urban metro and bus rapid transit PPPs across three cities. The project must explore financial structuring, stakeholder incentives, and failure risks related to demand forecasting, cost overruns, and tariff regulation.

iv. **Assignment 4:** Assessing Governance Gaps in Health Sector PPPs During Public Health Crises: Learners shall prepare a critical policy analysis of PPPs in the health sector during emergencies (e.g., COVID-19). The study must highlight governance failures, issues of service delivery equity, transparency in procurement, and propose reforms in public health PPP guidelines and response protocols.

v. **Assignment 5:** Developing a Model **PPP** Framework for Rural Digital Infrastructure: Learners shall submit a detailed project report outlining a scalable PPP framework for broadband and digital infrastructure delivery in underserved rural areas. The study must assess the role of Digital Public Infrastructure (DPI), viability gap funding, policy support, and stakeholder collaboration.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Assignment 1: Prepare a Concept Paper on PPP Models: The learner shall prepare a detailed concept paper on the various types of PPP models (e.g., BOT, BOOT, DBFOT), highlighting their structure, key contractual features, and comparative advantages. The paper must include Indian and global examples. Report (1,500–2,000 words)
- Assignment 2: Develop a Draft Concession Agreement Outline: The learner shall draft a model concession agreement outline for a selected sector (e.g., transport, water supply). The document should highlight clauses on scope of work, risk-sharing, dispute resolution, and financial obligations.
- Assignment 3: Conduct a Case Study on a Sectoral PPP Project: The learner shall analyze a real-life PPP project (e.g., Smart City Mission, Metro Rail, or Hybrid Annuity Model highways). The study should assess its planning, implementation, stakeholder roles, and challenges faced. Case study portfolio (with executive summary, analysis, and conclusion)
- Assignment 4: Design a Risk Assessment Matrix: The learner shall identify key risks in a hypothetical PPP project in energy, healthcare, or logistics and prepare a risk matrix detailing risk type, probability, impact, responsible party, and mitigation strategies. Risk Matrix Table + Brief Analytical Report (500–800 words)
- Assignment 5: Policy Brief on Reforming India's PPP Ecosystem: The learner shall write a policy brief recommending institutional, regulatory, or financial reforms to enhance PPP effectiveness in India. The brief should be data-driven and reflect understanding of current governance issues. Policy Brief (1,200–1,500 words)

b. Seminar Topics:

- Innovative Financing Mechanisms in PPP Projects: Blended Finance and Viability Gap Funding
- PPP in Smart Cities: Challenges, Best Practices, and Future Potential
- Legal and Regulatory Challenges in PPP Contracts in India
- Public Health Infrastructure through PPP: A Post-Pandemic Perspective
- Risk Allocation and Risk Mitigation Strategies in Urban Infrastructure PPPs
- The Role of PPPs in Achieving India's Sustainable Development Goals (SDGs)
- Technology-Driven PPPs: Leveraging Digital Infrastructure and AI for Governance
- PPP Models in Education and Skill Development: Opportunities and Pitfalls
- Cross-Country Comparison of PPP Policies: Lessons for India
- Ensuring Transparency and Accountability in Long-Term PPP Agreements

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0: Introduction to Public-Private Partnerships (PPPs): Concepts and Evolution	10
CO2	Unit 2.0: Legal, Regulatory, and Institutional Framework for PPPs	10
CO3	Unit 3.0: Project Structuring, Risk Allocation, and Financing Mechanisms	15
CO4	Unit 4.0: Governance, Transparency, and Accountability in PPP Projects	15
CO5	Unit 5.0: Sectoral Applications of PPPs and Case Study Analysis	20
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Title	Authors	Publisher & ISBN
1.	Public Private Partnerships: Principles of Policy and Finance	E. R. Yescombe	Elsevier, ISBN: 9780750680541
2.	Public-Private Partnerships: Policy and Governance Challenges Facing Partnership Arrangements in the Public Sector	G. Hodge, C. Greve	Routledge, ISBN: 9781138822057
3.	Developing Public-Private Partnerships in Infrastructure	Jeffrey Delmon	World Bank Publications, ISBN: 9780821377310
4.	Public-Private Partnerships: Infrastructure, Transportation and Local Services	A. Akintoye, M. Beck	Routledge, ISBN: 9781405124301
5.	PPPs in Infrastructure Resource Book on Frameworks and Practices	Department of Economic Affairs, Govt. of India	Ministry of Finance, Govt. of India (Official Publication)
6.	Public–Private Partnerships: Theory and Practice	A. Akintoye, M. Kumaraswamy, G. Ofori	Wiley-Blackwell, ISBN: 9781118658585

S. No.	Title	Authors	Publisher & ISBN
7.	India's Infrastructure Challenges: PPP and Beyond	Gajendra Haldea	Oxford University Press, ISBN: 9780198082857

b) Online Educational Resources (OER):

1) https://www.niti.gov.in(https://www.niti.gov.in): Government policy innovation, digital governance reports, India\@2047 vision, and PPP framework guidelines.
2) https://pppinindia.gov.in(https://pppinindia.gov.in): Government of India PPP portal: policy documents, sector-specific toolkits, model concession agreements.
3) https://dea.gov.in/division-public-private-partnership (https://dea.gov.in/division-public-private-partnership): DEA (Ministry of Finance) official page on PPP projects, VGF guidelines, and best practices in structuring deals.
4) https://infrastructureindia.gov.in (https://infrastructureindia.gov.in): Database of infrastructure projects including PPPs, funding models, and implementation status.
5) https://adb.org(https://adb.org) : ADB-funded PPP case studies, project reports in transport, health, and energy sectors in Asia.
6) https://worldbank.org/en/topic/publicprivatepartnerships (https://worldbank.org/en/topic/publicprivatepartnerships): Global PPP frameworks, risk mitigation tools, legal frameworks, and infrastructure finance toolkits.
7) https://unescap.org/our-work/finance/ppp (https://unescap.org/our-work/finance/ppp): ESCAP knowledge portal on PPP policy formulation, sustainable models, and stakeholder management.
8) https://smartnet.niua.org (https://smartnet.niua.org): Smart City Mission knowledge platform: urban PPPs, municipal innovation strategies, and case documentation.
9) https://ispp.org.in(https://ispp.org.in): India School of Public Policy: policy labs, PPP in governance education, webinars, and case-based learning.
10) https://www.iitk.ac.in/ceafm/PPP (https://www.iitk.ac.in/ceafm/PPP): IIT Kanpur's Centre for Excellence in PPP: research papers, models, and empirical studies on Indian PPPs.

Q) Course Curriculum Developer

S. No.	Name	E-mail Address
1.	Prof. Roli Pradhan	rpradhan@nitttrbpl.ac.in

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A)	**Course Title:** Global and Strategic Policy Issues	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP14	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course provides students with a comprehensive understanding of contemporary global policy challenges and strategic approaches to addressing them. Students will analyze complex international policy issues, examine multilateral governance mechanisms, and develop strategic thinking skills essential for effective policy leadership in an interconnected world.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP14.CO1	Apply the complex global policy issues using multidisciplinary frameworks.
MBAP14.CO2	Ability to evaluate strategic policy options for addressing transnational challenges.
MBAP14.CO3	Apply ethical and inclusive governance principles to international contexts.
MBAP14.CO4	Ability to design evidence-based policy solutions for global problems.
MBAP14.CO5	Ability to demonstrate leadership thinking in policy formulation and implementation.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes(COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
MBAP14.CO1	3	-	1	-	-
MBAP14.CO2	2	1	1	-	-
MBAP14.CO3	1	-	-	1	-
MBAP14.CO4	1	-	1	-	1
MBAP14.CO5	1	1	1	-	1

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP14	OEC	Global and Strategic Policy Issues	45	30	-	45	120	04	50	70	50	-	-	-	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
TSO 1a. Explain the complexity of global policy environment *TSO 1b.* Apply strategic thinking to policy problems *TSO 1c.* Develop scenario-based policy planning skills *TSO 1d.* Evaluate effectiveness of multilateral institutions and understand India's role in global governance *TSO 1e.* Develop diplomatic communication skills	**Unit-1.0 Foundations of Global Policy Analysis** 1.1 Evolution of global governance and key actors in international policy making 1.2 Theoretical frameworks for policy analysis and Strategic planning methodologies 1.3 Policy design and implementation frameworks and scenario planning 1.4 International financial institutions and Track II diplomacy and policy networks 1.5 Digital diplomacy and policy communication	**CO1**
TSO 2a. Analyze climate policy instruments and effectiveness *TSO 2b.* Evaluate India's climate strategy *TSO 2c.* Explain global health governance system *TSO 2d.* Analyze impact of global economic policies *TSO 2e.* Explain India's economic diplomacy *TSO 2f.* Evaluate security policy frameworks *TSO 2g.* Explain emerging technology policy challenges *TSO 2h.* Evaluate digital governance models	**Unit-2.0 Contemporary Global Challenges** 2.1 Global climate governance architecture 2.2 National climate policies and commitments 2.3 Green economy and sustainable development 2.4 Global health governance systems 2.5 International economic governance 2.6 Trade policy and economic diplomacy 2.7 Financial regulation and stability 2.8 Cyber security and information warfare 2.9 AI governance and regulation 2.10 Data governance and privacy	**CO2**
TSO 3a. Analyze regional policy coordination challenges *TSO 3b.* Explain India's regional leadership role *TSO 3c.* Evaluate India's global engagement strategy *TSO 3d.* Explain policy coherence challenges *TSO 3e.* Analyze India's reform agenda *TSO 3f.* Explain coalition building strategies	**Unit-3.0 Regional Perspectives and India's Global Role** 3.1 SAARC and regional cooperation 3.2 India-Pakistan relations and policy implications 3.3 Economic integration challenges 3.4 India's foreign policy priorities 3.5 Economic diplomacy and trade policy 3.6 Soft power and cultural diplomacy 3.7 UN Security Council reform 3.8 International financial architecture reform 3.9 South-South cooperation	**CO3**
TSO 4a. Explain policy innovation approaches *TSO 4b.* Evaluate collaborative governance models *TSO 4c.* Apply evidence-based policy making principles *TSO 4d.* Design policy evaluation frameworks	**Unit-4.0 Strategic Policy Design and Implementation** 4.1 Policy laboratories and experimentation 4.2 Public-private partnerships in policy 4.3 Innovation in policy delivery	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant COs Number(s)
	4.4 Policy research and evaluation methods 4.5 Big data and policy analytics 4.6 Monitoring and evaluation frameworks	
TSO 5a. Anticipate future policy challenges *TSO 5b.* Develop adaptive policy thinking *TSO 5c.* Develop policy communication strategies *TSO 5d.* Design stakeholder engagement processes	**Unit-5.0 Future of Global Policy Making and Stakeholder Engagement** 5.1 Emerging trends in global governance 5.2 Technology and policy making 5.3 Building resilient policy systems 5.4 Strategic communication for policy 5.5 Stakeholder mapping and engagement 5.6 Public participation in policy making	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. **Problem 1**: **Climate Policy Governance in South Asia**

Context: The South Asian region faces severe climate vulnerabilities while balancing economic development needs.

Research Question: How can regional cooperation mechanisms be strengthened to address transboundary climate challenges while ensuring equitable development pathways for South Asian nations?

Sub-problems: Analyse the effectiveness of existing regional climate frameworks (SAARC, BIMSTEC)

Evaluate the role of technology transfer and climate finance in regional cooperation

Assess policy coordination challenges between national and regional levels

Methodology Requirements:

Comparative policy analysis

Stakeholder mapping and analysis

Data collection from multiple sources (policy documents, interviews, surveys)

ii. Problem 2: Digital Governance and Data Sovereignty

Context: The digital transformation has created new governance challenges around data privacy, cybersecurity, and digital rights.

Research Question: How can emerging economies like India develop comprehensive digital governance frameworks that balance innovation, security, and citizens' rights in the global digital economy?

Sub-problems: Examine global models of data protection and digital rights frameworks

Analyse the tension between data localization and cross-border data flows

Evaluate the role of public-private partnerships in digital governance

Methodology Requirements:

Policy document analysis

Case study methodology
Stakeholder interviews with government officials, industry representatives, and civil society

iii. **Problem 3: Global Supply Chain Resilience and Strategic Autonomy**

Context: The COVID-19 pandemic and geopolitical tensions have highlighted vulnerabilities in global supply chains.

Research Question: What strategic policy interventions can middle powers adopt to enhance supply chain resilience while maintaining global economic integration?

Sub-problems: Assess the trade-offs between efficiency and resilience in supply chain policies
Evaluate the role of regional value chains in enhancing strategic autonomy
Analyze the impact of trade policies on supply chain diversification
Methodology Requirements:
Quantitative analysis of trade data
Scenario planning and risk assessment
Multi-stakeholder consultations

iv. **Problem 4: Migration Governance in the Global South**

Context: Climate change, economic disparities, and conflicts are driving increased migration flows within and from the Global South.

Research Question: How can countries in the Global South develop comprehensive migration governance frameworks that address both internal displacement and international migration while promoting human security?

Sub-problems: Analyse the effectiveness of existing migration governance mechanisms
Evaluate the role of regional organizations in migration management
Assess the integration of climate-induced migration in national policies
Methodology Requirements:
Mixed-methods approach combining quantitative migration data analysis
Qualitative interviews with migrants, policymakers, and NGOs
Policy impact assessment.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- **Assignment 1:** Strategic Policy Analysis Paper (30% of Course Grade)
  Duration: 6 weeks
  Word Limit: 4,000-5,000 words

Objective: Develop strategic thinking and policy analysis skills through in-depth examination of a contemporary global policy issue.

Requirements: Select one research problem from the provided list

Conduct comprehensive literature review

Develop policy recommendations based on evidence

Include stakeholder analysis and implementation strategy

Deliverables:

- Research proposal (Week 2)
- Literature review and methodology (Week 4)
- First draft for peer review (Week 5)
- Final paper with presentation (Week 6)

Assessment Criteria:

- Problem definition and research design (20%)
- Quality of analysis and use of evidence (30%)
- Innovation and feasibility of recommendations (25%)
- Writing quality and presentation (25%)

- **Assignment 2:** Policy Simulation Exercise (25% of Course Grade)

  Duration: 3 weeks

  Format: Group assignment (4-5 students per group)

  Objective: Apply multidisciplinary knowledge to solve complex policy problems through simulation and role-playing.

  Scenario: "Global Climate Finance Negotiations"

  Students represent different countries/stakeholders negotiating climate finance mechanisms for the Global South.

  Requirements: Research assigned country/stakeholder position

  Develop negotiation strategy based on national interests and global commitments

  Participate in structured negotiation sessions

  Produce final negotiation outcome document

  Deliverables:

  - Position paper (1,500 words)
  - Negotiation strategy document
  - Participation in simulation sessions
  - Reflection report on negotiation outcomes

  Assessment Criteria:

  - Quality of research and position development (30%)
  - Negotiation skills and strategic thinking (40%)
  - Collaboration and communication (30%)

- **Assignment 3:** Policy Innovation Project (25% of Course Grade)

  Duration: 4 weeks

  Format: Individual assignment

  Objective: Foster innovation and evidence-based decision-making through development of novel policy solutions.

  Requirements: Identify a specific policy gap or challenge in global governance

  Design an innovative policy intervention or mechanism

Develop implementation plan with pilot project proposal
Include monitoring and evaluation framework

Deliverables:

- Policy innovation brief (2,000 words)
- Implementation roadmap
- Presentation to external panel (policymakers/practitioners)

Assessment Criteria:

- Innovation and creativity (30%)
- Feasibility and evidence base (35%)
- Implementation strategy (35%)

- **Assignment 4:** Reflective Learning Portfolio (20% of Course Grade)

  Duration: Throughout the semester

  Format: Individual assignment

  Objective: Promote lifelong learning and professional growth through continuous reflection and skill development.

  Requirements: Weekly reflection entries on readings and discussions
  Documentation of skill development throughout the course
  Connection between course learning and career aspirations
  Self-assessment of progress against program outcomes

  Deliverables:

  - Digital learning portfolio
  - Mid-semester self-assessment
  - Final reflection essay (1,000 words)

  Assessment Criteria:

  - Depth of reflection and critical thinking (40%)
  - Evidence of learning and skill development (30%)
  - Connection to program outcomes and career goals (30%).

M) Suggested Specification Table for End Semester Theory Assessment (ETA):

Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit-1.0 Foundations of Global Policy Analysis	10
CO2	Unit-2.0 Contemporary Global Challenges	15
CO3	Unit-3.0 Regional Perspectives and India's Global Role	15
CO4	Unit-4.0 Strategic Policy Design and Implementation	15
CO5	Unit-5.0 Future of Global Policy Making and Stakeholder Engagement	15
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	International Organization and Global Governance	Weiss, T. G., & Wilkinson, R.	2021
2.	Power and Interdependence	Keohane, R. O., & Nye, J. S.	2019
3.	Environmental Politics and Governance in the Anthropocene	Pattberg, P., et al.	2020

b) Online Educational Resources (OER):

Reference Materials

1) United Nations Development Programme reports on Human Development
2) World Bank publications on Inclusive Growth
3) Government of India reports on social inclusion policies
4) Academic journals: World Development, Development Policy Review, Social Policy & Administration
5) Online Educational Resources (OER): Dtabases- JSTOR, ProQuest, Google Scholar
6) Government portals: Ministry of Social Justice and Empowerment
7) International organization websites: UN, World Bank, OECD

Q) Course Curriculum Developer

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1.	Prof. Parag Dubey	pdubey@nitttrbpl.ac.in

******

A)	**Course Title:** Leadership for Policy Transformation: Strategy, Negotiation and Governance	Deemed to be University under Distinct Category
B)	**Course Code:** MBAP15	
C)	**Pre- requisite (s):**	

D) **Rationale:** In today's dynamic and complex governance environments, public leaders must go beyond administrative functions to become strategic change agents. The course Leadership for Policy Transformation: Strategy, Negotiation, and Governance equips learners with the competencies required to lead transformational policy initiatives that address social, economic, and environmental challenges. It emphasizes leadership as a strategic function—integrating vision-setting, adaptive thinking, and ethical governance within the policy lifecycle. Learners explore how negotiation and consensus-building are essential to navigate institutional politics, intergovernmental relations, and stakeholder conflicts. Through theory and real-world cases, the course delves into how effective leadership can overcome inertia, mobilize coalitions, and translate policy visions into impactful governance outcomes. This course is ideal for aspiring policy leaders who seek to drive systemic change with clarity, collaboration, and courage.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
MBAP15.CO1	Analyze the theoretical foundations and models of leadership in the context of public policy formulation, implementation, and governance.
MBAP15.CO2	Evaluate strategic leadership practices and ethical dilemmas in real-world public policy scenarios, with an emphasis on integrity, transparency, and accountability.
MBAP15.CO3	Design stakeholder engagement and negotiation strategies to address complex governance challenges involving diverse policy actors and institutions.
MBAP15.CO4	Assess leadership roles and outcomes in case-based policy reforms by applying change management and policy transformation frameworks.
MBAP15.CO5	Synthesize interdisciplinary knowledge to propose innovative leadership approaches for systemic change in public governance through reflective portfolios and applied projects.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
MBAP15.CO1	2	1	1	-	-
MBAP15.CO2	2	1	1	-	-
MBAP15.CO3	2	2	1	-	-
MBAP15.CO4	2	1	1	-	-
MBAP15.CO5	2	1	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
MBAP15	OEC	Leadership for Policy Transformation: Strategy, Negotiation and Governance	45	30	-	45	120	04	50	70	50	-	-	-	170

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain various leadership styles and their relevance to policy governance. *TSO 1b.* Analyze leadership challenges in bureaucratic and democratic systems. *TSO 1c.* Distinguish between administrative, entrepreneurial, and transformative leadership roles.	**Unit 1.0: Foundations of Public Policy Leadership** 1.1 Definitions and evolution of leadership in public policy and governance 1.2 Leadership roles across the policy cycle: agenda-setting, formulation, implementation, evaluation 1.3 Leadership theories: trait, behavioral, contingency, transformational, servant leadership 1.4 Policy entrepreneurship and the role of change agents 1.5 Role of civil services, political leaders, and community leaders 1.6 Challenges of leading in the public vs. private sector	**CO1**
TSO 2a. Apply strategic planning tools to formulate actionable policy agendas. *TSO 2b.* Create a theory of change linking leadership vision to policy impact. *TSO 2c.* Evaluate leadership approaches in evidence-based policy design.	**Unit 2.0: Strategic Visioning and Policy Design** 2.9 Strategic thinking and long-term visioning in policy leadership 2.10 Crafting mission-driven public programs and aligning with national/international goals (e.g., SDGs, India@2047) 2.11 Policy design tools: logic models, theory of change, policy frameworks 2.12 Environmental scanning (PESTLE analysis), SWOT, stakeholder mapping 2.13 Innovation frameworks: design thinking, agile governance, public innovation labs 2.14 Aligning institutional capacity with policy ambitions	**CO2**
TSO 3a. Explain the structure and role of India's digital public infrastructure. Evaluate the impact of ethical leadership on public trust and legitimacy. *TSO 3b.* Identify governance gaps and propose ethical remedies in public systems. *TSO 3c.* Analyze real-world ethical conflicts in public leadership decisions.	**Unit 3.0: Leadership Ethics, Integrity, and Decision-Making** 3.1 Ethics and accountability in public policy leadership 3.2 Governance codes and institutional integrity mechanisms (e.g., Lokpal, CAG, RTI) 3.3 Ethical frameworks: deontological, consequentialist, virtue ethics in public service 3.4 Handling moral dilemmas in public decision-making (e.g., data privacy, budget trade-offs, surveillance)	**CO3**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
	3.5 Inclusion, gender sensitivity, and social equity in policy outcomes 3.6 Public trust and legitimacy	
TSO 4a. Design a multi-stakeholder engagement strategy for a controversial public policy. *TSO 4b.* Apply collaborative negotiation models to case-based policy scenarios. *TSO 4c.* Assess the role of political economy in coalition-building processes.	**Unit 4.0: Negotiation, Stakeholder Management, and Coalition Building** 4.1 Power and interest mapping: identifying key influencers in the policy ecosystem 4.2 Collaborative governance: engaging NGOs, media, citizen groups, and private sector 4.3 Multi-stakeholder dialogue frameworks: deliberative democracy, participatory budgeting, consensus-building 4.4 Conflict management styles and cross-cultural negotiation 4.5 Leading inter-governmental, inter-agency, and international collaborations 4.6 Role of digital media in stakeholder management	**CO4**
TSO 5a. Compare leadership approaches in successful and failed policy transformations. *TSO 5b.* Draw critical insights from case studies to inform future leadership practice. *TSO 5c.* Propose change strategies to overcome policy resistance and institutional inertia.	**Unit 5.0: Case Studies in Policy Leadership and Systemic Change** 5.1 Case studies of transformational leadership in India (e.g., Aadhaar, Swachh Bharat, PMGSY) and global reforms (e.g., New Zealand's public sector transformation, Rwanda's post-conflict rebuilding) 5.2 Leadership in crisis situations: pandemic management (COVID-19), disaster relief, fiscal crises 5.3 Institutional inertia and resistance to change in governance 5.4 Lessons from policy failures: demonetization, rural health missions, environmental clearance issues 5.5 Models for driving systemic change: change management, nudging, behavioral insights 5.6 Evaluating outcomes: theory vs. real-world constraints	**CO5**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. **Problem**: Learners will examine how leadership failures or gaps at various stages of the public policy cycle—such as agenda-setting, policy formulation, or execution—have influenced the long-term effectiveness of major Indian policy initiatives. Learners will submit a comparative policy leadership report analyzing two case studies (e.g., Mid-Day Meal Scheme and Make in India), focusing on missed leadership opportunities and offering recommendations for improved leadership practices in policy development**.**

ii. **Problem:** Learners will explore how the absence of alignment between visionary leadership and institutional capabilities has led to implementation failures in large-scale government programs. Learners will prepare a strategic policy gap analysis report highlighting leadership and design disconnects in missions like Smart Cities or Digital India, and propose revised frameworks for vision-led policy execution.

iii. **Problem:** Learners will investigate real-world ethical dilemmas encountered by public leaders, especially where competing interests and limited resources have challenged values of equity, transparency, or justice. Learners will develop a portfolio of ethical case studies, evaluating decision-making processes during events such as the COVID-19 pandemic relief rollout, and recommend frameworks for ethical leadership in future crises.

iv. **Problem:** Learners will analyze conflicts among stakeholders in contested policy environments—such as infrastructure projects, land reforms, or environmental clearances—and assess the role of leadership in facilitating or failing negotiation. Learners will submit a stakeholder conflict resolution report, with mapping, power analysis, and negotiation strategies for two selected policy cases (e.g., POSCO Odisha, Mumbai-Ahmedabad Bullet Train).

v. **Problem:** Learners will critically evaluate a transformational public policy reform in India, investigating the leadership actions that contributed to—or hindered—systemic change. Learners will present a comprehensive case study report on a reform such as Aadhaar, GST, or NEP 2020, detailing leadership decisions, institutional resistance, public response, and long-term policy implications.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- **Assignment 1:** Leadership Style Analysis: Learners will prepare a leadership profile report by selecting a notable public leader and analyzing their leadership style (e.g., transformational, transactional, or servant leadership) in relation to a specific public policy initiative.

- **Assignment 2:** Strategic Policy Design Framework: Learners will develop a strategic policy design portfolio by applying tools like Theory of Change or SWOT analysis to an existing or proposed government policy (e.g., Smart Cities, National Education Policy).

- **Assignment 3:** Public Ethics Audit: Learners will conduct an ethics audit report on a real-world public program by evaluating dilemmas, decision-making frameworks, and ethical consequences for stakeholders (e.g., Aadhaar, digital surveillance, or welfare distribution).

- **Assignment 4:** Stakeholder Engagement Plan: Learners will prepare a stakeholder negotiation and engagement plan by mapping stakeholders, analyzing conflicts, and proposing collaborative strategies for a contested public policy issue (e.g., land acquisition, environmental clearance).

- **Assignment 5:** Case Study on Policy Leadership and Change: Learners will submit a case study report analyzing a successful or failed transformational policy reform by examining the leader's approach, resistance management, and outcomes (e.g., Swachh Bharat Abhiyan, GST rollout, or COVID-19 crisis management).

b. Seminar Topics:

- Transformational Leadership in Public Policy: Indian and Global Perspectives
- Ethical Leadership and Public Trust in Governance
- Strategic Visioning for Policy Innovation in the Digital Age
- Stakeholder Conflict and Negotiation in Policy Implementation
- Role of Leadership in Crisis Management: Case of COVID-19 Governance
- Policy Entrepreneurship: Driving Systemic Change from Within the System
- Collaborative Leadership in Multi-Stakeholder Policy Networks
- Leadership Challenges in Federal vs. Local Policy Contexts
- The Political Economy of Policy Reform: Leading through Resistance
- Building Coalitions for Climate Policy and Environmental Justice

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0: Foundations of Public Policy Leadership	10
CO2	Unit 2.0: Strategic Visioning and Policy Design	10
CO3	Unit 3.0: Leadership Ethics, Integrity, and Decision-Making	15
CO4	Unit 4.0: Negotiation, Stakeholder Management, and Coalition Building	15
CO5	Unit 5.0: Case Studies in Policy Leadership and Systemic Change	20
Total		**70**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Title	Author(s)	Publisher and Edition with ISBN
1.	Leadership in Organizations	Gary Yukl	Pearson Education, 8th Ed., ISBN: 9789332587085
2.	The Fifth Discipline: The Art & Practice of The Learning Organization	Peter M. Senge	Crown Publishing, Revised Ed., ISBN: 9780385517256
3.	Leadership for the Public Service: Lessons from the Past	Paul 't Hart & John Uhr (Eds.)	ANU Press, 2018, ISBN: 9781760462562
4.	Public Leadership: Perspectives and Practices	Paul 't Hart & John Uhr (Eds.)	ANU Press, 2022, ISBN: 9781760465457
5.	Good to Great: Why Some Companies Make the Leap...	Jim Collins	Harper Business, 1st Ed., ISBN: 9780066620992
6.	Public Policy: Politics, Analysis, and Alternatives	Michael E. Kraft & Scott R. Furlong	CQ Press, 7th Ed., ISBN: 9781544374823
7.	Policy Paradox: The Art of Political Decision Making	Deborah Stone	W. W. Norton & Co., 3rd Ed., ISBN: 9780393912722
8.	The Politics of Policy Change	Daniel Béland & Alex Waddan	Georgetown Univ. Press, 2012, ISBN: 9781589018812
9.	Negotiation	Roy J. Lewicki, Bruce Barry, David M. Saunders	McGraw Hill, 7th Ed., ISBN: 9781259252961
10.	Ethics in Public Administration: A Philosophical Approach	Patrick J. Sheeran	Praeger Publishers, ISBN: 9780275956582

b) Online Educational Resources (OER):

1) https://www.niti.gov.in: Government policy innovation, India@2047 vision documents, digital governance, and emerging policy technologies
2) https://igptc.in: Indian Government Public Training Centre – public policy training modules and leadership development content
3) https://www.undp.org : Global governance practices, leadership in sustainable development, public service innovation
4) https://www.mygov.in: Citizen engagement platforms, participatory governance models, and policy feedback mechanisms

5) https://www.iimbx.edu.in: IIM Bangalore MOOCs on policy, governance, leadership, and public administration
6) https://swayam.gov.in: Free government-certified MOOCs on leadership, negotiation, ethics, governance, and policy transformation
7) https://www.oecd.org/governance: International best practices in public sector leadership, ethical governance, and evidence-based policy making
8) https://www.worldbank.org: Case studies and publications on public policy leadership, reform implementation, and stakeholder engagement
9) https://www.mooc.org: Online courses from global universities on transformational leadership and change management in public systems
10) https://hbr.org:Harvard Business Review articles on leadership strategies, negotiation, ethical dilemmas, and adaptive leadership

Q) Course Curriculum Developer

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1.	Prof. Roli Pradhan	rpradhanl@nitttrbpl.ac.in

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A)	**Course Title:** Project	Deemed to be University under Distinct Category
B)	**Course Code:** PD01	
C)	**Pre- requisite (s):**	

1. **Rationale:** The national policy on education has made provision for the implementation of outcome-based education, the design of imaginative curriculum, use of engaging pedagogy and formative assessment to assure the quality of education. The project-based instructional method is a learner-centric method that develops higher-order learning skills such as creative skills, critical thinking, investigative skills, analytical skills, entrepreneurship skills, incubation skills, communication skills and collaboration skills as mentioned in the NEP 2020. The project-based learning is systematically planned and implemented at the institute level across the programmes to exploit its full potential for learning. A guideline for managing and assessing the learners' project work is prepared to make all the stakeholders aware and educate them to assure quality learning through project work, make the process transparent and relevant.

2. Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
PD01	PD	Project	-	-	45	105	150	05	-	-	200	-	-	-	200

3. Broad guidelines for major project work

- The project's problems/themes/ should be relevant to current issues and practices of the industry/society.
- The project should address the majority of the outcomes at the programme level.
- Provision for self-assessment, assessment by teacher/expert should be incorporated to improve the quality of the project work and ensure a higher level of learning aligned to programme level outcomes.
- Provision to showcase a learning portfolio as a project output.
- The learners should be encouraged to publish the work (in the form of a paper, newspaper item, case study, report, etc.) after getting approval from the guide and the organization where the project is completed.

- The learners should submit the plagiarism check report during the final submission.
- Learners should record the output/ periodic achievements of significant interactions, feedback, discussions, and events at different milestones using a logbook.
- The schedule for project work is mentioned in table 1.
- The learners will be assessed during different stages of the project as per the rubrics mentioned in table 2.
- The project proposal and the report are to be prepared as per format 1 and format 2, respectively.

Table-1

4. Schedule of the Project work

S. No	Activities	Target Duration	Responsibility	Formative Assessment Marks Weightage	Output Expected
1.	**Conducting Orientation** • Rationale of the project • Credit of the project • Marks of the project • Expectations related to quality of project work • Road map of the project work	Week I	Dept. Team		
2.	**Stage 1: Project Planning**	Week II		20	
	• Preparation of synopsis/project proposal • Identification of project problem/theme • Interaction with the industry/organization resource person • Literature review • Tentative topic • Presentation and feedback (within department) • Finalization of topic • Preparation of project proposal/synopsis (as per format 1)				Draft Project Proposed
	• Presentation and assessment of project proposal • Approval of project proposal	Week IV	Dept. Team Using Rubric 1		Approved Project Proposal
3.	**Stage 2: Execution of Project Work as per the Project Proposal**	Week V		30	
	Execution of project work as per the action plan				
	Monitoring and assessment of progress and sharing of experience	Week VIII			
	Monitoring and assessment of progress and sharing of experience	Week XII			
4.	**Stage 3: Project Report Submission and Presentation**				
	Submission of draft report	Week XIV		20	Draft Report

S. No	Activities	Target Duration	Responsibility	Formative Assessment Marks Weightage	Output Expected
	• Presentation of draft project report • Internal assessment and review		Dept. Team		
	• Final submission • Presentation and assessment	Week XVI	Dept. Team and Expert		Final Project Report
	Submission of Report				

Format 1

Project Proposal

1. **Name of the Programme:**
2. **Broad Area/Theme of the Project:**
3. **Title of the Project:**
4. **Rationale:**
5. **Objectives:**
6. **Scope of the Project:**
7. **Project Outcomes:**

   i. Carry out research /investigation independently
   ii. Demonstrate a degree of mastery in areas of specialization and research
   iii. Use alternative strategies/methods
   iv. Demonstrate innovative abilities
   v. Exhibit project management abilities
   vi. Develop sustainable, environmentally and society-friendly output
   vii. Demonstrate lifelong learning skills, learning-to-learn skills, and self-learning skills
   viii. Adhere to professional ethics and values
   ix. Write a technical project report
   x. Defend project work

8. **Action Plan:**
9. **Literature Survey:**
10. **Proposed Methodology:**

    i. Resources required
    ii. Test
    iii. Sampling
    iv. Method
    v. Model
    vi. Any other (please specify)

11. **References:**
12. **Project Future Potential:**

Table 2

5. Assessment Rubrics for Project Work

S. No.	Criterion	Very Good (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
1.	**Project Planning** **Outcome:** Plan the Project Effectively				
1.1	**Rationale**	Clear and well-articulated. Strong justification based on real-world problems.	Depicts understanding of the background and purpose with some connection to practical or academic needs.	Rationale is stated but lacks depth or clarity. Justification is weak or only partially connected to real world problems.	Rationale is unclear. Fails to justify the need or relevance of the project.
1.2	**Literature Survey**	Comprehensive, well-structured review of relevant and up-to-date literature.	Adequate review covering relevant literature. Shows a good understanding of the topic.	Basic literature review with limited relevance or scope. Shows minimal understanding of the subject area.	Inadequate or poorly organized literature review. Sources are outdated, irrelevant, or insufficient.
1.3	**Outcome Proposed**	Proposed outcomes are well defined, realistic, and highly relevant to the problem statement.	Outcomes are adequately-stated and relevant to the problem statement.	Outcomes are defined but lack clarity. They are somewhat relevant but are vague.	Outcomes are poorly defined. They lack relevance to the problem statement.
2.	**Project Execution** **Outcome:** Execute the project as per the laid-down criteria				
2.1	**Appropriateness of the Methodology Adopted**	Methodology is highly appropriate and clearly aligned with project problem. Demonstrates deep understanding and use of tools/ techniques/ procedures.	Methodology is suitably aligned with the project problem. Shows good understanding and use of tools/ techniques/ procedures.	Methodology is somewhat appropriate but lack clarity or alignment with project problem. Shows basic understanding and use of tools/ techniques/ procedures.	Methodology is inappropriate, poorly explained. Shows little understanding and use of tools/ techniques/ procedures.
2.2	**Feasibility of Solution**	The proposed solution is highly feasible with clear consideration of time, resources, skills and constraints. Execution is practical.	The proposed solution is generally feasible with minor limitations. Resources and timelines are mostly considered. Some adjustments are needed for the project to be practical.	The proposed solution is partially feasible but shows gaps in planning or resource estimation. Face challenges in execution.	The proposed solution is not feasible due to unrealistic assumptions and poor planning. Execution appears impractical.
2.3	**Newness of the Project Work**	Project demonstrates high originality or innovation. Introduces a novel concept, approach, or solution that is significant different from existing work.	Project shows some originality. Modifies or improves existing ideas or solutions in a meaningful way. Offers partial innovation.	Project has limited newness. Mostly based on existing ideas with minor adjustments. Lacks significant innovation.	Project lacks originality. Direct replication of existing work with no new contribution.

S. No.	Criterion	Very Good (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
2.4	**Resourcefulness**	Demonstrates exceptional initiativeness and creativity in utilizing/arranging resources effectively.	Shows good use of resources and tools. Demonstrate moderate initiativeness and creativity in utilizing/ arranging resources.	Makes basic use of resources with limited initiative. Relies heavily on guidance.	Shows poor ability of utilizing/arranging resources.
2.5	**Sustainability**	Project demonstrates strong sustainability considering all aspects like- environmental, economic, and social impacts.	Project demonstrates moderate sustainability practices considering some aspects like-environmental, economic, and social impacts.	Project demonstrates limited sustainability practices considering some aspects like-environmental, economic, and social impacts.	Project lacks sustainability considerations.
2.6	**Maintaining Daily Diary or Log Book**	Diary/log book is consistently and meticulously maintained. Entries are detailed, dated, and clearly reflect daily progress.	Diary/log book is periodically maintained with relevant entries. Most entries are dated and show a good record of activities and progress.	Diary/log book is maintained irregularly. Entries are brief or lack detail.	Diary/log book is poorly maintained or mostly incomplete. Important entries are missing or unclear.
3. Quality of Product/Process **Outcome:** Ensure the Quality of Product/Process					
3.1	**Originality of Product**	The final product is original and creative. It presents unique features, functions, or designs not found in existing solutions.	The final product is somewhat original with some creative elements or improvements over existing ideas.	The product has limited originality. Mostly based on existing ideas or minor modifications.	The product lacks originality. It is a direct reproduction of existing work with no new features or creative input.
3.2	**Cost Effectiveness of Product/Process**	Process and/ product are highly cost-effective. Optimal use of resources. Demonstrates strong value-for-money.	Process and/ product are reasonably cost-effective. Resources are mostly used wisely, with acceptable cost.	Process and/ product show limited cost-effectiveness.	Process and/ product are not cost-effective. Inefficient use of resources.
3.3	**Proposed Outcomes Achieved**	All proposed outcomes are fully achieved.	Most of the proposed outcomes are achieved with satisfactory quality.	Some proposed outcomes are achieved with minor gaps.	A few or none of the proposed outcomes are achieved.
4. Project Report Writing **Outcome:** Write Quality Project Report					
4.1	**Style and Language**	Language is clear, precise, and academically appropriate throughout. Style is	Language is generally clear and appropriate. Style is mostly formal and consistent. The	Language is understandable, but is informal. Style occasionally deviates from the formal	Language is unclear, informal, or inappropriate for a technical report. Style is inconsistent

S. No.	Criterion	Very Good (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
		formal, consistent, and well-suited, hence enhancing the overall quality of the report.	quality of the report is acceptable.	standards. The quality of the report is moderate	and affects the quality of the report.
4.2	**Quality of Related Diagrams/Drawings/Graphs in Project Report**	Diagrams/ drawings/ graphs are highly relevant, accurate, well-labelled and neatly presented.	Diagrams/ drawings/ graphs are mostly accurate, clear, and mostly relevant to the content. Properly labelled and adequately formatted.	Diagrams/ drawings/ graphs are present but lack clarity, proper labelling, or relevance.	Diagrams/ drawings/ graphs are missing/ incorrect, or poorly presented.
4.3	**Future Scope of Project**	Demonstrates deep insight into how the project can be expanded/ improved/ applied in broader contexts.	Demonstrates awareness of how the project can be expanded/ improved/ applied in broader context, though some aspects may need more depth	Limited insight into how the project could be developed further.	No clear future scope identified or missing. Lacks understanding of how the project could be extended or applied further.
5. Quality of Presentation **Outcome**: Demonstrate Good Presentation Skills					
5.1	**Comprehension of Concepts, Design and Methodology**	Demonstrates thorough understanding of underlying concepts, design and methodology.	Demonstrates good understanding of underlying concepts, design and methodology with minor gaps.	Demonstrates basic understanding of underlying concepts, design and methodology, but explanations are limited or partially correct with misconceptions developed.	Demonstrate poor or insufficient understanding of underlying concepts, design and methodology. Unable to explain or justify the approach clearly.
5.2	**Communication Skills**	Communicates ideas with exceptional clarity, fluency, and confidence. Language is precise and professional. Engages the audience effectively. Actively listens and responds thoughtfully.	Communicates clearly and confidently with minor lapses. Language is appropriate, and ideas are conveyed well. Demonstrate good listening skills.	Communicates basic ideas but with occasional lack of clarity or fluency. May struggle with appropriate vocabulary or organization of thoughts. Demonstrate fair listening skills.	Struggles to communicate ideas clearly. Lacks fluency, coherence, or appropriate vocabulary. Responses are unclear or incorrect. Poor listening and interaction with audience.
5.3	**Slide Organization**	Slides are visually appealing, well-organized, and professionally designed. Content is concise, relevant, and supports verbal presentation effectively. Excellent	Slides are well-structured. Content is mostly relevant and supports the spoken presentation. Visuals are used appropriately. Minor issues in font	Slides have a basic structure but are cluttered. Lack proper visual support. Too much of text. Font size and colour is not appealing.	Slides are poorly designed or difficult to read. Content is disorganized, excessive, or irrelevant. Visuals are missing or irrelevant. Font size and colour are poor.

S. No.	Criterion	Very Good (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
		use of visuals (e.g., graphs, images, icons). Fonts, size, colours, and layout enhance readability.	size, colour, and layout.		
5.4	**Ability to Defend Questions**	Responds to all questions confidently, accurately and with deep understanding and proper justifications.	Responds to most questions correctly and confidently. Demonstrates good understanding with minor gaps in Justifications.	Responds to basic questions with partial accuracy. Shows limited understanding with weak justifications.	Unable to answer questions clearly or correctly. Responses reflect poor understanding.

Format 2

Project Report

1. **Name of the Programme:**
2. **Broad Area/Theme of the Project:**
3. **Title of the Project:**
4. **Rationale:**
5. **Objectives:**
6. **Scope of the Project:**
7. **Literature Survey:**
8. **Methodology used (as applicable):**
   i. Resources used
   ii. Test
   iii. Sampling
   iv. Method
   v. Model
   vi. Any other (please specify)
9. **Observation, Analysis, and Interpretation:**
10. **Reporting of Results and Conclusion:**
11. **Project Future Potential:**
12. **References:**
13. **Bibliography:**
14. **Annexure (as applicable):**

D) Course Curriculum Development Team

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Course Curriculum Detailing- Online Spell -1

A)	**Course Title:** Research Methodology	Deemed to be University under Distinct Category
B)	**Course Code:** PC01	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course deals with the principles of research and significant phases of research using realistic plans to be followed. After completing the course, the researcher can choose the research field, research topic and formulate the research problem. The research methodology course provides an idea of literature review, critical thinking and logical reasoning, designing experiments, data analysis and interpretation, thesis writing, scientific writing, and presentation skills. The need, therefore, is for those concerned with research to pay due attention to designing and adhering to the appropriate methodology to improve the quality of research. The course emphasizes the principles of effective research and the need for a proactive approach in a successful research program. The researchers will get an insight into the privilege, honour, and associated research responsibilities.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
PC01.CO1	Explain the basic concepts of research
PC01.CO2	Review the relevant literature effectively and efficiently
PC01.CO3	Make use of the guidelines to progress from the choice of the broad field of research to a specific topic of research
PC01.CO4	Apply critical thinking and analytical thinking in research methodology
PC01.CO5	Analyze well-structured research proposals and research papers invoking clearly outlined principles

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)		
	PO-1 An ability to independently carry out research /investigation and development work to solve practical problems.	**PO-2** An ability to write and present a substantial technical report/document.	**PO-3** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
PC01.CO1	3	3	2
PC01.CO2	3	3	2
PC01.CO3	3	-	3
PC01.CO4	3	-	3
PC01.CO5	3	1	3

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
PC01	PC	Research Methodology	30	-	-	30	60	02	30	50	20	-	-	-	100

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the History and Evolution of research and innovation *TSO 1b.* Classify the different types of research *TSO 1c.* Describe the step involved in the research *TSO 1d.* Explain the Relevance of Research for Innovation, Technology Development, and social relevance *TSO 1e.* State the importance of Hypotheses in Research	**Unit-1.0 Basic Concepts of Research** 1.1 History and Evolution of research and innovation 1.2 Types of Research 1.3 Research innovation and social relevance 1.4 Mandatory Steps in Research 1.5 Relevance of Research for Innovation and Technology Development 1.6 Importance of Hypotheses in Research	**CO1**
TSO 2a. Describe the Importance of Literature Review *TSO 2b.* Present a comprehensive overview of relevant research and theories on the topic *TSO 2c.* Apply strategies for good Literature Search *TSO 2d.* Organize Referencing Ethics, Paraphrasing, and Summarizing *TSO 2e.* Make use of literature review tools	**Unit-2.0 Literature Review** 2.1 Importance of Literature Review 2.2 Characteristics of Good Literature Review 2.3 Review and Strategies for Good Literature Search 2.4 Referencing Ethics, Paraphrasing and Summarizing 2.5 Tools for literature review	**CO2**
TSO 3a. Classify the data types for analysis *TSO 3b.* Design experiments *TSO 3c.* Describe the methods of data collection *TSO 3d.* Draw valid conclusions from sampling methods, statistical analysis *TSO 3e.* Identify the Research problem *TSO 3f.* Demonstrate narrowing down the problem *TSO 3g.* List the Factors to be considered for the selection of the problem	**Unit-3.0 Research Problem Formulation** 3.1 Data collection, data analysis, data types, and interpretation 3.2 Designing of Experiments 3.3 Methods of data collection 3.4 Sampling methods, statistical analysis, and displaying of data 3.5 Research problem identification 3.6 Narrowing down the problem 3.7 Factors to be considered for the selection of the problem	**CO3**
TSO 4a. Construct Out of the Box Thinking problem *TSO 4b.* Interpret Transformation to Impossible Thinking *TSO 4c.* Distinguish Convergent and Divergent Thinking *TSO 4d.* Evaluate the selection of idea *TSO 4e.* Evaluate the line of reason for thinking critically *TSO 4f.* Compare Critical and Analytical Thinking in Research Methodology	**Unit-4.0 Critical and Analytical Thinking** 4.7 Out-of-Box Thinking 4.8 Transformation to Impossible Thinking 4.9 Convergent and Divergent Thinking 4.10 Generation, Evaluation, and Selection of Ideas 4.11 Critical thinking 4.12 Comparison of Critical and Analytical Thinking	**CO4**
TSO 5a. Illustrate the Structure of a Good Research Proposal	**Unit -5.0 Research Proposal**	**CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 5b. Write good research proposal *TSO 5c.* List the tips for compilation *TSO 5d.* Classify the types of scientific report *TSO 5e.* Develop structure and components of the conference *TSO 5f.* Write the report with ethics and scientific conduct *TSO 5g.* Analyze the presenting work is from another source with or without consent of the original author	5.7 Getting Started to Write a Research Proposal 5.8 Tips for Compilation 5.9 Scientific writing: types of scientific report 5.10 Structure and components of a conference 5.11 Arts of writing, ethics, and scientific conduct 5.12 Journal articles and thesis writing 5.13 Plagiarism	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

Research is a unique combination of art and science. Research is presumed to be associated with unpredictable uncertainties and variable degrees of technological endeavour. Research methodology is a systematic approach to reducing the degree of uncertainties. It helps in shaping the research orientation of a researcher. In this module, students were introduced to various aspects of research methodology. The students have been exposed to effective methods of problem definition, literature survey, reading and analysing research papers, design of experiments, ethical issues, and academic standard issues.

i. This part of the task is structured to test the researcher's comprehension skills and ability to adapt quickly to the rudimentary phase of the research cycle. The list of tasks to be performed is as follows.

- Identification of "Specific Field of Research" of the researcher's interest.
- Through a literature search, two doctoral theses have to be chosen that are closely related to an identified specific field of research
- The Abstract and Chapters on the Introduction, Conclusions, and Future recommendations of the two theses have to be reviewed

ii. Based upon the above-referred review, a technical note should be developed highlighting the:

- Introduction to the Identified "Specific Field of Research"
- Assumptions of the individual thesis
- Techniques invoked along with its merits and constraints of the individual thesis
- Relative differences in the approaches and scope of the two theses
- Views on the feasibility of incorporating the recommended suggestions of individual thesis
- Appreciation of the individual thesis reviewed with emphasis on introduction, problem definition and suggested future work

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

c. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

d. Seminar Topics:

- The Role of Literature Review in Building Research Frameworks
- Digital Tools for Research Data Collection and Management
- AI and Machine Learning in Research Methodology

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit-1.0 Basic Concepts of Research	08
CO2	Unit-2.0 Literature Review	08
CO3	Unit-3.0 Research Problem Formulation	12
CO4	Unit-4.0 Critical and Analytical Thinking	12
CO5	Unit -5.0 Research Proposal	10
Total		**50**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	The Craft of Research	Booth W. C, Colomb and G.G Williams	Chicago University Press
2.	Research Methods	Willium M.K and Trochim. (2003)	2nd Edition, Biztantra Publications
3.	The Foundation of Research	Jonathan Grix. (2004)	Palgrave Study Guides
4.	The Post Graduate Research	Wisker Gina. (2001)	Palgrave
5.	The Unwritten Rules of Ph.D research	Rugg G. and Petre M. (2004)	Open University Press

b) Online Educational Resources (OER):

1) https://www.youtube.com/watch?v=TEqYnV6KWfY
2) https://www.youtube.com/watch?v=hECPeKv5tPM
3) https://www.youtube.com/watch?v=G3DUaQokOK8
4) https://onlinecourses.nptel.ac.in/noc23_ge36/preview
5) https://nptel.ac.in/courses/121106007
6) https://www.youtube.com/watch?v=E2gGF1rburw
7) https://www.youtube.com/watch?v=E2gGF1rburw&list=PLyqSpQzTE6M8F_P8lgjvmqiDEoFGLzG4h
8) https://www.youtube.com/watch?v=NNPiJ20JcFI&list=PLyqSpQzTE6M8F_P8lgjvmqiDEoFGLzG4h&index=8

Q) Course Curriculum Developer

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A)	**Course Title:** Curriculum & Assessment	Deemed to be University under Distinct Category
B)	**Course Code:** PC02	
C)	**Pre- requisite (s):**	

D) **Rationale:** National Education Policy (NEP) 2020 envisions many innovations and reforms in the higher education. Major reforms mentioned are overhauling of curriculum, assessment and pedagogy. One of the major reforms is outcome-based curriculum design and development in the context of NEP:2020. Accordingly, all universities and institutions have started transforming the curriculum of higher education programmes to align with national policy directives and stakeholder's need in the changed context and era of industry 4.0 and skills demands. Many challenges and issues are envisaged in curriculum design & development, implementation, pedagogy and assessment in the context of NEP 2020.

The course curriculum on curriculum and assessment aims to deliberate on capability and capacity building of learners, policy makers, teachers etc. trainers on different reforms in curriculum design & development, pedagogy and assessment.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
PC02.CO1	Develop awareness about the key concepts of outcome-based education and curriculum in the context of higher education.
PC02.CO2	Design innovative programme structure with scheme of studies and assessment as per the curriculum and assessment reforms envisaged in NEP 2020.
PC02.CO3	Implement the curriculum effectively to ensure the achievement of stated learning outcomes.
PC02.CO4	Revise the existing programme curriculum based on curriculum evaluation.
PC02.CO5	Assess the learners' performance by using the appropriate tools of assessment, as per need.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)		
	PO-1 An ability to independently carry out research /investigation and development work to solve practical problems.	**PO-2** An ability to write and present a substantial technical report/document.	**PO-3** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
PC02.CO1	1	1	3
PC02.CO2	3	3	3
PC02.CO3	2	1	3
PC02.CO4	3	3	3
PC02.CO5	1	1	3

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
PC02	PC	Curriculum and Assessment	30	-	-	30	60	02	20	30	50	-	-	-	100

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the concept of outcome-based education *TSO 1b.* Differentiate between outcome-based curriculum and conventional curriculum. *TSO 1c.* Identify the curriculum reforms envisaged in NEP 2020 *TSO 1d.* Distinguish between curriculum and syllabus *TSO 1e.* Identify the key stakeholders of curriculum document	**Unit-1.0 Outcome Based Education and Curriculum** 1.1 Outcome Based Education (OBE) and curriculum. 1.2 Curriculum reforms in the context of NEP 2020- multidisciplinary and holistic curriculum. 1.3 Curriculum &syllabus- purposes and scope 1.4 Stakeholders of curriculum document, 1.5 Characteristics of good Curriculum document. 1.6 Policy directives for outcome-based curriculum development-NBA, AICTE and UGC	**CO1**
TSO 2a. Use contemporary approaches for design and development of curriculum. *TSO 2b.* Identify the key stages in curriculum planning, design and development. *TSO 2c.* Conduct need assessment from stakeholders (students, teachers, industry and alumni). *TSO 2d.* Use the need assessment results to arrive at curriculum design decisions. *TSO 2e.* Develop programme structure with scheme of studies and assessment for multidisciplinary programme. *TSO 2f.* Integrate the key curriculum and assessment reforms outlined in NEP 2020. *TSO 2g.* Describe the key components of outcome-based curriculum document. *TSO 2h.* Identify the unique features of multidisciplinary outcome-based curriculum	**Unit-2.0 Outcome Based Curriculum Design & Development** 2.1 Approaches of Curriculum Development: Tyler and Taba Model. 2.2 Stages of curriculum development-: Curriculum planning & design 2.3 Need assessment for curriculum design and development from different stakeholders. Design of tools for need assessment. 2.4 NEP 2020 curriculum and assessment reforms. 2.5 Innovative and flexible Programme Structure Development– Scheme of studies and scheme of assessment. 2.6 Flexible curriculum – Integration of emerging areas/technology in programme structure development. 2.7 Unique features of multidisciplinary outcome-based curriculum. 2.8 Elements/ Components of whole programme curriculum document. 2.9 Elements/Components of course curriculum document. 2.10 Domains of learning and course outcomes. Formulating course outcomes.	**CO2**
TSO 3d. Identify the roles of different stakeholders in effective curriculum implementation.	**Unit-3.0 Curriculum Implementations & Evaluation**	**CO3, CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 3e. Evolve strategies for effective curriculum implementation. *TSO 3f.* Solve issues and challenges faced during effective implementation of curriculum. *TSO 3g.* Analyze critical factors that influence the success or failure of curriculum implementation. *TSO 3h.* Apply the CIPP model to review and evaluate curriculum. *TSO 3i.* Revise the curriculum of programme and courses. *TSO 3j.* Develop e-contents for specific topic/sub topic as per outcomes stated.	3.6 Effective Curriculum Implementation: Issues and Challenges. 3.7 Innovative pedagogical methods /strategies for effective curriculum implementation, use of ICT for teaching learning. 3.8 Role of different stakeholders in effective curriculum implementation. 3.9 Factors influencing curriculum implementations, institutional support, teacher's competence, and student's engagement, entry level knowledge, skills and attitude etc. 3.10 CIPP model of curriculum evaluation. 3.11 Curriculum evaluation –strategies for effective implementation of curriculum. 3.12 Develop action plan for review and revision of existing programme and courses curriculum, based on evaluation results and emerging trends in education world of work 3.13 Role of teachers in effective curriculum implementation & evaluation considering the four pillars of NEP 2020- Access, Equity, Quality and Accountability. 3.14 Frameworks for Learning/Instructional material development: ADDIE and ASSURE 3.15 Leaning /Instructional materials development (e-contents).	
TSO 4b. Identify the purposes of outcome-based assessment *TSO 4c.* Differentiate between assessment, measurement and evaluation. *TSO 4d.* Apply appropriate assessment tools to assess the course outcomes across different learning domains. *TSO 4e.* Design rubrics for assessing student's performance during multiple tasks. *TSO 4f.* Design specification table *TSO 4g.* Design different types of questions	**Unit-4.0 Learners' Assessment** 4.1 Assessment, Measurement and Evaluation. 4.2 Characteristics of assessment – Validity, Reliability, Objectivity and Practicability. 4.3 Basic concepts of outcome-based assessment: Assessment for learning, Assessment of learning, Assessment as learning, Assessment before learning, process and product assessment. Issues and challenges in assessment. 4.4 Criterion Reference Testing (CRT) and Norms Reference Testing (NRT). 4.5 Direct and indirect tools of assessment 4.6 Assessment of outcomes in Cognitive, Affective, and Psychomotor domain.	**CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
	4.7 Rubrics based assessment: Design of Rubric for assessing Project work, Industrial Training, Seminar, Laboratory experiences, workshop experiences, etc. 4.8 Design of Specification table for assessment in cognitive and psychomotor domain. 4.9 Different types of questions-Multiple choice questions, short answer question, structured essay questions, etc. 4.10 Bloom's taxonomy and design of question paper.	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

i. Carry out the need assessment from different stakeholders and analyze the same to draw the curricular decisions for development of multidisciplinary flexible programme structure of Diploma/Degree programmes.

ii. Identify the norms of project, internship and industrial training in AICTE and UGC guidelines for integration in curriculum design and development.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Prepare a basket of emerging technology courses, open elective courses, emerging stream specific courses, NEP courses, NEP courses as per need of specific programme for integration in programme structure across the programme.
- Develop most valid and reliable T-L and assessment tool for effective implementation and assessment of capstone/major project work.
- Features of NCrF for Curriculum Design and Development
- Unique features of NHEQF
- Innovative programme structure development by integration of academic, experiential learning and vocational component.

b. Seminar Topics:

- Emerging and futuristic models and approaches of curriculum design and development
- NEP envisions and curriculum ad Assessment Reforms.
- Categorize the cluster of programme courses, as pre the different category of courses.
- Map the appropriate courses as per the different category of courses.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0 Outcome Based Education and Curriculum	04
CO2	Unit 2.0 Outcome Based Curriculum Design & Development	10
CO3, CO4	Unit 3.0 Curriculum Implementations & Evaluation	08
CO5	Unit 4.0 Learners' Assessment	08
Total		**30**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Curriculum: Foundations, Principles & Theories	Ornstein, A.C	Pearson; 7th edition (6 January 2016), ISBN-10: 0134060350, ISBN-13: 978-0134060354
2.	Concept-based Curriculum and Instruction	Erickson, H.L.	Publisher: Corwin; 1st edition (1 August 2006), ISBN-10: 141291700X, ISBN-13: 978-1412917001

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
3.	Principles of Curriculum Construction	Balasara, M	Kanishka; First Edition (1 January 2017), ISBN-10: 8173916217 ISBN-13: 978-8173916212
4.	Advanced Curriculum Construction	Prasad, J. &Kaushik, V. K	Publisher: Kanishka Prakshan; First Edition (1 January 2009), ISBN-10: 8173916772, ISBN-13: 978-8173916779
5.	'Curriculum theory and practice'	Smith, M. K. (1996, 2000)	www.infed.org/biblio/b-curric.htm.
6.	Outcome-Based Curriculum in Engineering Education	Shashi Kant Gupta, Joshua Earnest	PHI Learning; 1st edition (1 November 2021)
7.	Outcome Based Education: A Practical Guide for Higher Education Teachers	Deepesh Divaakaran	Notion Press (30 June 2023); Notion Press Media Pvt Ltd, ISBN-13: 979-8890268945
8.	Designing and Implementing the Outcome-Based Education Framework: Theory and Practice	P P Noushad	Springer (14 December 2024), ISBN-10: 9819604397, ISBN-13: 978-9819604395
9.	Assessment for Learning	Paul Black, Chris Harrison, Clara Lee, Bethan Marshall, Dylan Wiliam	Open University Press (16 September 2003), ISBN-10: 0335212972 ISBN-13: 978-0335212972
10.	ASSESSMENT FOR LEARNING [Paperback]	DR.A.JAHITHA BEGUM, DR.G.LOKANA DHA REDDY	RAKHI PRAKASHAN; First Edition (1 January 2015), ISBN-10: 9385195247 ISBN-13: 978-9385195242
11.	Curriculum Implementation and Instruction	Abayomi Oluwatelure Temitayo	LAP Lambert Academic Publishing (2 March 2011), ISBN-10: 9783843362740, ISBN-13: 978-3843362740

b) Online Educational Resources (OER):

1) https://onlinecourses.swayam2.ac.in/ntr24_ed10/preview
2) https://nptel.ac.in/courses/127105017
3) https://onlinecourses.swayam2.ac.in/ntr20_ed03/preview
4) https://onlinecourses.swayam2.ac.in/ntr22_ed16/preview
5) https://onlinecourses.swayam2.ac.in/ntr19_ed16/preview
6) https://www.youtube.com/watch?v=zhvzu8WkQs4
7) http://youtube.com/watch?v=vRKRQi2QnAQ&t=5s

Q) Course Curriculum Developer

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A)	**Course Title:** Indian Knowledge System (IKS)	Deemed to be University under Distinct Category
B)	**Course Code:** NEP06	
C)	**Pre- requisite (s):**	

D) **Rationale:** This course will survey the basic structure and operative dimensions of Indian knowledge system. With the new education policy-NEP 2020 focusing on Indian Knowledge Systems (IKS) and Traditions of India. This course introduces the learners to the rich and varied knowledge traditions of India from antiquity to the present. This also helps the learner to know and understand their own systems and traditions which are imperative for any real development and progress. Also, it helps the learner to think independently and originally adopting Indian frameworks and models for solving the problems related to world of work where the student is supposed to perform.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
NEP06.CO1	Identify the rich heritage and legacy residing in our Indian Knowledge systems.
NEP06.CO2	Correlate the technological & philosophical concepts of IKS with engineering domain specific problems and local problems for finding out possible solutions

F) **Suggested Course Articulation Matrix (CAM):**

Course Outcomes (COs)	Programme Outcomes (POs)				
	PO-1 Apply knowledge of management theories and practices to solve business problems.	**PO-2** Foster Analytical and critical thinking abilities for data-based decision-making.	**PO-3** Ability to develop Value based Leadership ability.	**PO-4** Ability to understand, analyze and communicate global, economic, legal, and ethical aspects of business.	**PO-5** Ability to lead themselves and others in the achievement of organizational goals, contributing effectively to a team environment.
NEP06.CO1	1	-	1	-	-
NEP06.CO2	1	1	1	-	-

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
NEP06	NEP	Indian Knowledge System (IKS)	15	-	-	15	30	01	25	-	25	-	-	-	50

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the architecture of the Ancient Indian Knowledge Systems. *TSO 1b.* List the salient features of IKS. *TSO 1c.* Comprehend the given IKS model. *TSO 1d.* Identify the role and relevance of the given IKS model in contemporary society.	**Unit-1.0 Introduction to Indian Knowledge Systems** 1.1 Overview of IKS 1.2 Organization of IKS – चतुर्दश-विद्यास्थानं 1.3 Conception and Constitution of Knowledge in Indian Tradition 1.4 The Oral Tradition 1.5 Models and Strategies of IKS	**CO1**
TSO 2a. Enlist the importance of Veda, Vedanga, Visaya, Siksaka. *TSO 2b.* Describe the given IKS domain. *TSO 2c.* Identify elements of mentioned IKS domains that are relevant to Technical Education System. *TSO 2d.* Correlate the elements of mentioned IKS domains with given engineering domain.	**Unit-2.0 Overview of IKS domains and relevance in current Technical Education System.** 2.1 The Vedas as the basis of IKS 2.2 Overview of all the six Vedāṅgas 2.3 Relevance of following IKS domains in present Technical Education System: • Arthashastra (Indian economics and political systems) • Ganita and Jyamiti (Indian Mathematics, Astronomy and Geometry • Rasayana (Indian Chemical Sciences)	**CO1, CO2**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
	• Ayurveda (Indian Biological Sciences / Diet & Nutrition) • Jyotish Vidya (Observational astronomy and calendar systems) • Prakriti Vidya (Indian system of Terrestrial/ Material Sciences/ Ecology and Atmospheric Sciences) • Vastu Vidya (Indian system of Aesthetics-Iconography and built-environment /Architecture) • Nyaya Shastra (Indian systems of Social Ethics, Logic and Law) • Shilpa and Natya Shastra (Indian Classical Arts: Performing and Fine Arts) • Sankhya and Yoga Darshna (Indian psychology, Yoga and consciousness studies) • Vrikshayurveda (Plant Science / Sustainable agriculture/food preservation methods)	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems:

a. Relevance of Ayurveda in Modern Healthcare

- Problem: How can Ayurvedic principles be integrated into modern medical practices to provide holistic healthcare solutions?
- Focus: Researching the efficacy of Ayurvedic treatments in chronic diseases, lifestyle disorders, and preventive healthcare, and exploring ways to bridge Ayurveda with modern healthcare systems.

b. Vedic Astronomy and Modern Astrophysics: A Comparative Study

- Problem: What are the similarities and differences between ancient Vedic astronomy and modern astrophysical theories?
- Focus: Exploring ancient Indian astronomical texts like the *Surya Siddhanta* and their insights into planetary motions, eclipses, and cosmology, and comparing these with contemporary astronomical models.

c. Yoga and Mental Health: A Scientific Perspective

- Problem: How can the practice of Yoga and its underlying philosophical principles contribute to mental health therapies in modern psychology?
- Focus: Exploring the psychological benefits of yogic practices like meditation, pranayama, and asanas, and scientifically evaluating their impact on anxiety, depression, and stress management.

d. The Role of Ancient Indian Agriculture in Sustainable Farming Practices

- Problem: How can ancient Indian agricultural practices, such as organic farming and crop rotation, be applied to address contemporary challenges in sustainable agriculture?
- Focus: Investigating ancient texts like the *Krishi-Parashara* and traditional knowledge in water management, soil conservation, and sustainable farming, and adapting these to modern agricultural practices.

e. Vedic Mathematics and Its Role in Contemporary Education

- Problem: How can Vedic Mathematics techniques be integrated into modern education systems to enhance students' computational skills and logical reasoning?
- Focus: Researching the techniques of Vedic Mathematics and exploring their effectiveness in improving mathematical literacy and problem-solving abilities among students.

f. Natyashastra and Its Influence on Modern Theatre and Performing Arts

- Problem: What are the enduring influences of *Natyashastra*, the ancient Indian treatise on performing arts, on modern theatre, dance, and cinema?
- Focus: Analyzing the principles of *Natyashastra* in terms of aesthetics, drama, and performance, and exploring its relevance and application in contemporary performing arts.

g. Traditional Indian Water Management Systems: Lessons for the Future

- Problem: How can traditional water management systems, like step wells and rainwater harvesting structures from ancient India, be revived to solve modern water scarcity issues?
- Focus: Investigating ancient Indian water management practices and their sustainability, and exploring their application in current water conservation efforts and urban planning.

h. Ancient Indian Contributions to Astronomy and Navigation

- Problem: What were the contributions of ancient Indian scholars to the field of navigation and astronomy, and how can this knowledge be applied in modern scientific advancements?
- Focus: Exploring the contributions of ancient Indian navigators and astronomers in calculating planetary positions, timekeeping, and navigation, and their influence on global knowledge systems.

i. Military Science in Ancient India and Its Lessons for Modern Defense Strategies

- Problem: What can modern military strategists learn from ancient Indian military texts like *Niyuddha Kala* and *Arthashastra*?
- Focus: Studying ancient Indian warfare techniques, battle strategies, and defense technologies, and their relevance in contemporary military science and national defense planning.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

i. Comparative Study of Ayurveda and Modern Medicine

- Objective: Compare the principles of Ayurveda with modern medicine in the treatment of common diseases.
- Assignment: Select a particular health issue (e.g., diabetes, hypertension) and compare Ayurvedic approaches with modern medical treatments. Discuss the strengths and limitations of both systems.

ii. Contributions of Ancient Indian Mathematicians

- Objective: Explore the contributions of ancient Indian mathematicians like Aryabhata, Bhaskara, and Brahmagupta.
- Assignment: Write a research paper on a specific mathematical concept (e.g., zero, algebra) developed by ancient Indian scholars and its relevance in modern mathematics.

iii. Analysis of Vedic Astronomy and Its Accuracy

- Objective: Understand how ancient Indian astronomers calculated celestial movements.
- Assignment: Analyze a Vedic astronomical text, such as the Surya Siddhanta, and discuss its accuracy in predicting celestial phenomena like solar or lunar eclipses.

iv. Traditional Water Management Systems in India

- Objective: Investigate ancient Indian water management techniques and their sustainability.
- Assignment: Select a traditional water conservation structure (e.g., step wells, tanks) and analyze its design, efficiency, and potential application in addressing modern water scarcity.

v. Impact of Yoga on Mental and Physical Health

- Objective: Explore the benefits of Yoga on mental and physical well-being.
- Assignment: Research the scientific basis of a particular Yoga practice (e.g., pranayama, meditation) and its impact on health, using both ancient texts and modern scientific studies.

vi. Sustainable Agriculture Practices in Ancient India

- Objective: Investigate traditional agricultural methods in ancient India and their relevance today.
- Assignment: Study a specific ancient agricultural practice (e.g., organic farming, crop rotation) and evaluate how it can address current challenges like soil degradation or climate change.

vii. Chandashastra (Prosody) and Its Application in Modern Poetry

- Objective: Understand the significance of Chandashastra in shaping poetic meter and structure.
- Assignment: Select a Vedic meter (chandas) from Chandashastra and compare its structure with modern poetic forms, analyzing similarities and differences.

viii. Study of Natyashastra and Its Influence on Modern Performing Arts

- Objective: Analyze the influence of Natyashastra on modern performing arts.

- Assignment: Research a section of Natyashastra related to drama or dance, and explain how its principles are applied or can be applied in modern theatre or cinema.

ix. Indian Metallurgy: Ancient Innovations and Modern Applications

- Objective: Understand ancient Indian metallurgical practices and their significance.
- Assignment: Study an ancient Indian metallurgical achievement, such as the rust-resistant Iron Pillar of Delhi, and analyze the scientific techniques used. Compare this with modern metallurgical practices.

b. Seminar Topics:

- "Ayurveda: The Ancient Science of Healing in Modern Healthcare"
- "Mathematical Brilliance of Ancient India: Contributions of Aryabhata and Beyond"
- "Vedic Astronomy: Insights from the Cosmos in Ancient India"
- "Sanskrit and Artificial Intelligence: The Linguistic Bridge to Future Technologies"
- "Iron Pillar of Delhi: The Science Behind Ancient Indian Metallurgy"
- "Yoga for Mental Health: A Scientific Exploration of Ancient Practices"
- "Ancient Indian Water Management Systems: Lessons for Sustainable Development"
- "Ethics in the Mahabharata: Leadership Lessons for the Modern World"
- "Vedic Mathematics: Speed and Simplicity in Problem Solving"
- "Natyashastra: The Ancient Indian Treatise on Performing Arts"
- "Logic and Disputation in Ancient India: The Role of Anviksiki"
- "Traditional Indian Agriculture: Pathways to Sustainable Farming"
- "The Science of Consciousness: Vedantic Insights and Modern Neuroscience"
- "Ancient Indian Contributions to Navigation and Maritime Science"
- "Chandashastra: The Science of Prosody in Sanskrit Poetry"
- "Military Strategies of Ancient India: Lessons from the Arthashastra"
- "Environmental Conservation in Ancient Indian Philosophy: Vedic Insights"
- "Traditional Indian Medicine: Exploring the Efficacy of Siddha and Unani Systems"
- "Agricultural Economics in Ancient India: Insights from Arthashastra and Krishi-Parashara"
- "Traditional Indian Knowledge in Climate Change Adaptation"

M) Suggested Specification Table for End Semester Theory Assessment (ETA): (Not Applicable)

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Introduction to Indian Knowledge System: Concepts and Applications	Archak, K.B. (2012).	Kaveri Books, New Delhi ISBN-13:978-9391818203
2.	Introduction To Indian Knowledge System: Concepts and Applications	Mahadevan, B. Bhat, Vinayak Rajat Nagendra Pavana R.N.	PHI, ISBN: 9789391818203
3.	Glimpse into Kautilya's Arthashastra	Ramachandrudu P. (2010)	Sanskrit Academy, Hyderabad ISBN:9788380171074
4.	"Introduction" in Studies in Epics and Purāṇas, (Eds.)	KM Munshi and N Chandrashekara Aiyer	Bhartiya Vidya Bhavan

b) Online Educational Resources (OER):

1) http://bhavana.org.in
2) www.academia.edu/23254393/Science_in_Ancient_India_-_an_educational_module
3) www.academia.edu/23305766/Technology_in_Ancient_India_-_Michel_Danino
4) www.hamsi.org.nz/http://insaindia.res.in/journals/ijhs.php
5) www.niscair.res.in/sciencecommunication/ResearchJournals/rejour/ijtk/ijtk0.asp
6) www-history.mcs.st-andrews.ac.uk/Indexes/Indians.html
7) Swami Harshananda. "A bird's eye view of vedas". R K Math. Bangalore.,http:// rkmathbangalore. org/Books/ABirdsEyeViewOfTheVedas.pdf.
8) Sanskrit Prosody, https://en.wikipedia.org/wiki/Sanskrit_prosody.
9) Vartak, P.V. (1995). "Veda and Jyotish," Part II, Chapter 2, in Issues in Veda and Astrology, H Pandya (Ed.), pp 65 – 73.

Q) Course Curriculum Developer

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Course Curriculum Detailing- Online Spell -2

A)	**Course Title:** MOOC Creation	Deemed to be University under Distinct Category
B)	**Course Code:** PC03	
C)	**Pre- requisite (s):**	

D) **Rationale:** The exponential growth of online education, accelerated by global digital transformation, has created an unprecedented demand for high-quality Massive Open Online Courses (MOOCs). Engineering professionals are increasingly required to share their expertise through digital platforms, conduct training programs, and contribute to knowledge dissemination on a global scale. This course addresses the critical need to develop competencies in educational technology design, content creation, and online pedagogy. Students will gain practical experience in conceptualizing, designing, developing, and deploying MOOCs that can reach thousands of learners worldwide. The course integrates engineering problem-solving approaches with educational design principles, enabling graduates to create impactful learning experiences in their respective engineering disciplines. The course aligns with Industry 4.0 requirements, where professionals must not only possess technical expertise but also the ability to transfer knowledge effectively through digital mediums. This skill is particularly valuable for careers in academia, corporate training, consulting, and entrepreneurship in the education technology sector.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected toensuretheaccomplishmentoffollowingindustryexpectedcourseoutcomesbythelearners.

Course Outcomes (COs)	Course Outcome Statements
PC03.CO1	Develop a comprehensive MOOC course structure using instructional design principles.
PC03.CO2	Prepare sample e-content lessons.
PC03.CO3	Produce sample digital media content.
PC03.CO4	Upload the MOOC course structure and its components as per the given guidelines on the LMS.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)		
	PO-1 Independently carry out research/ investigation, and development work to solve practical problems.	**PO-2** Write and present a substantial technical report/ document.	**PO-3** Demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor's program
PC03.CO1	3	3	3
PC03.CO2	2	2	3
PC03.CO3	2	2	3
PC03.CO4	-	2	2

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
PC03	PC	MOOC Creation	30	-	-	30	60	02	20	30	50	-	-	-	100

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the evolution, characteristics, and types of MOOCs. *TSO 1b.* Interpret learner demographics, motivations, and challenges in MOOC environments. *TSO 1c.* Apply instructional design framework and models for MOOC development. *TSO 1d.* Formulate MOOC outcomes. *TSO 1e.* Design the MOOC course structure.	**Unit-1.0 Foundation of MOOC Design** 1.1 History and evolution of MOOCs. 1.2 MOOCs types and their characteristics. 1.3 Role of learning theories in MOOC design. 1.4 Learner psychology in massive open environments. 1.5 Instructional design frameworks and Models – ADDIE, SAM, Advance Organizer. 1.6 MOOC Components. 1.7 Formulating MOOC outcomes. 1.8 Content structuring and organisation	**CO1**
TSO 2a. Explain the philosophy of self-learning material development. *TSO 2b.* Integrate principles of microlearning and media design for content creation. *TSO 2c.* Integrate elements of Dale's Cone of Experience and principles of micro-learning in the development of lessons. *TSO 2d.* Prepare a bank of OER to be integrated into the MOOC. *TSO 2e.* Prepare a lesson/s along with assessment questions and discussion forum statement as per the given guideline	**Unit-2.0 E-Content Lesson Development** 2.1 Philosophy for the development of self-learning material. 2.2 Principles of microlearning and Media design. 2.3 Dale's cone of experience. 2.4 Intellectual Property rights, OER and Creative Commons licenses. 2.5 Designing MCQ and Discussion forum. 2.6 Rubrics for ''Prepare a sample prototype E Content'' 2.7 Sample format/s for the development of lessons mentioned in the course structure.	**CO2**
TSO 3a. Design graphics, animation, presentation and interactive content using media design principles. *TSO 3b.* Create a sample podcast for MOOC. *TSO 3c.* Write a sample video script for the selected MOOC lesson. *TSO 3d.* Write a shooting script. *TSO 3e.* Plan for video production. *TSO 3f.* Present to camera in studio. *TSO 3g.* Edit the video and sound file for finalisation of the sample video.	**Unit-3.0 Digital Media Production** 3.1 Video production pipeline – Video production vocabulary. 3.2 Multi-camera studio production. 3.3 Podcast creation. 3.4 Video script development. 3.5 Graphics design and animation. 3.6 Shooting script development. 3.7 Interactive content creation tools. 3.8 Audio and video editing.	**CO3**
TSO 4a. Describe features of the SWAYAM MOOCs. *TSO 4b.* Design the course structure on ePrashikshan. *TSO 4c.* Verify that all MOOC components developed adhere to LMS guidelines.	**Unit-4.0 MOOC Course Configuration on LMS and its Guidelines** 4.1 SWAYAM Guidelines for MOOC development. 4.2 Overview of SWAYAM MOOC structure.	**CO5**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 4d. Upload MOOC components on ePrashikshan. *TSO 4e.* Test the MOOC course using the pre-launch checklist.	4.3 LMS (ePrashikshan) and its features for MOOC 4.4 LMS-specific guidelines for video duration, file formats, accessibility standards, copyright policies, and assessment requirements 4.5 LMS structure design aspects aligned to course structure (course builder) 4.6 Steps for uploading the MOOC component on LMS 4.7 Steps for publishing MOOC content 4.8 Pre-launch Checklist for LMS - Test all links and embedded media, Review course flow from a learner's perspective, Check quiz functionality and grading settings, test for cross-device and browser compatibility 4.9 Pilot and beta testing	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems (10 marks- part of term work)

i. Prepare a review paper based on the latest research on the theme related to MOOC design/ delivery/ Assessment of Effectiveness of content/ Effectiveness of activities.

ii. Compare the MOOC course structure of various MOOCs offered on different platforms and present.

iii. Compare different video formats used in various MOOCs offered on different platforms and present.

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s): A portfolio consisting of the following- (6 Marks each)

- Design of Course Builder and Flyer
- Create a bank of OERs related to the MOOC topic.
- Design of Sample e-content lesson along with SAQs
- Design of Presentation and video recording
- Design of Assessment MCQs for the sample content produced

b. Seminar presentation: Presentation of the MOOC developed in the seminar (10 Marks)

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit 1.0 Foundation of MOOC Design	03
CO2	Unit 2.0 E-Content Lesson Development	06
CO3	Unit 3.0 Digital Media Production	15
CO4	Unit 4.0 MOOC Course Configuration on LMS and its Guidelines	06
Total		**30**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work:

S. No.	Name of Equipment, Tools and Software	Broad Specifications	Relevant Experience / Practical Number
1.	Multi-camera studio setup with teleprompter, chroma key set, storage system, lights and audio equipment	Three video cameras set up, HD/ 4K, with Camera Control Unit, Tripod, HD/ 4K recorder, Recording media, Studio lights, different types of microphones and storage system.	All
2.	DSLR Camera setup	Digital HD/ 4K still plus video camera with flash and recording media.	All
3.	Hi-end computer systems	HP Workstation with Intel Core i9 13900 Processor, 32 GB, 1 TB HDD for video editing and graphics preparation.	All
4.	Graphics designing software	Adobe Creative Suite CS 4, Adobe Creative Cloud 2025, Canva	All
5.	Video editing software	Adobe Creative Suite CS 4, Adobe Creative Cloud 2025	All
6.	Sound editing software	Adobe Creative Suite CS 4, Adobe Creative Cloud 2025	All

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	The Cambridge Handbook of Multimedia Learning	Edited by Richard E. Mayer, University of California, Santa Barbara, and Logan Fiorella, University of Georgia	Cambridge University Press, 3rd Edition, Online ISBN: 9781108894333 https://doi.org/10.1017/9781108894333

b) Online Educational Resources (OER):

1) https://storage.googleapis.com/swayam2_central/swayam1/wqimgtest_f8b95943-b963-49b9-85ed-416f2e15d1b4.pdf
2) https://storage.googleapis.com/swayam2_central/swayam1/UGC_Gazette-Credit_Framework_for_Online_Courses_through_SWAYAM.pdf
3) https://storage.googleapis.com/swayam2_central/swayam1/wqimgtest_9da02ba8-bdd8-409c-afdb-645e6dbc544f.pdf
4) https://swayam.gov.in
5) https://pmevidya.education.gov.in/swayam-portal.html
6) https://swayam.inflibnet.ac.in
7) https://spoken-tutorial.org
8) https://epgp.inflibnet.ac.in
9) https://search.creativecommons.org

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A)	**Course Title:** Learner Centric Instructional Methods	Deemed to be University under Distinct Category
B)	**Course Code:** PC04	
C)	**Pre- requisite (s):**	

D) **Rationale:** For planning and implementing a teaching learning session, number of instructional choices are involved, of which one of the vital decisions is regarding the instructional methods to be employed. Learner-centric approaches have proven more effective than traditional teacher-centric methods because they actively engage students in the learning process, empowering them to achieve intended outcomes through meaningful participation. Building on this foundation, Artificial Intelligence has emerged as a transformative force in contemporary education, creating new possibilities for personalized learning, adaptive instruction, and intelligent tutoring systems. This course introduces learners to a comprehensive range of learner centric instructional methods, including these AI-enhanced pedagogical approaches, enabling them to strategically match content with effective delivery strategies. Such alignment becomes particularly valuable for those considering teaching careers in educational institution. Furthermore, the course benefits all learners by equipping them with methods they can immediately apply to enhance their own learning experiences.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
PC04.CO1	Apply the principles of learning to enhance the effectiveness of instructional process to achieve intended learning outcomes in different domains.
PC04.CO2	Plan to use appropriate instructional method effectively for developing learning outcomes.
PC04.CO3	Interpret the suitability of small group methods to enhance teaching learning effectiveness ensuring learner participation.
PC04.CO4	Devise effective strategy using appropriate learner centred instructional methods and AI tools for a given content.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)		
	PO-1 An ability to independently carry out research /investigation and development work to solve practical problems.	**PO-2** An ability to write and present a substantial technical report/document.	**PO-3** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
PC04.CO1	-	2	3
PC04.CO2	2	2	2
PC04.CO3	2	2	2
PC04.CO4	2	2	2

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
PC04	PC	Learner Centric Instructional Methods	30	-	-	30	60	02	30	50	20	-	-	-	100

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Justify the need for a variety of instructional methods to attain learning outcomes. *TSO 1b.* Formulate learning outcomes at different taxonomic levels of Cognitive, Affective and Psychomotor domains. *TSO 1c.* Enhance effectiveness of session integrating principles of learning and events of instruction. *TSO 1d.* Classify different types of instructional methods and strategies. *TSO 1e.* Identify potential issues and concerns associated with Teacher centric method *TSO 1f.* Develop an instructional session plan.	**Unit -1.0 Learning Principles and Instructional Methods** 1.1 Learning in different Domains, Learning Outcomes in different domains 1.2 Principles of Learning and Events of Instruction 1.3 Need for Variety of Instructional Methods 1.4 Classification of Instructional Methods and Strategies: Learner Centric and Teacher Centric Methods 1.5 Instruction Session Planning and Implementation	**CO1**
TSO 2a. Use tutorial method effectively. *TSO 2b.* Employ assignment method to develop the pre-determined outcomes. *TSO 2c.* Plan to use laboratory and workshop as an effective instructional method for developing practical skills. *TSO 2d.* Interpret the different techniques of developing workshop related skills. *TSO 2e.* Use project work effectively in teaching-learning situations. *TSO 2f.* Describe how problem-based learning can build critical thinking and reasoning skills.	**Unit-2.0 Interactive and Action Oriented Instructional Methods** 2.1 Question-Answer Technique 2.2 Tutorial Method 2.3 Assignment Method 2.4 Laboratory Work 2.5 Workshop Method 2.6 Project work 2.7 Problem Based Learning	**CO2**
TSO 3a. Use seminar method effectively. *TSO 3b.* Employ case study and group discussion. *TSO 3c.* Explain the strategy to improve the effectiveness of classroom teaching-learning process using Buzz Group method.	**Unit-3.0 Small Group Instructional Methods** 3.1 Seminar Method 3.2 Case Study Method 3.3 Group Discussion 3.4 Buzz Group Session 3.5 Brain Storming Technique	**CO3**
TSO 4a. Describe the principles and advantages of individualized instruction. *TSO 4b.* Explain the need and abilities required for self-learning. *TSO 4c.* Justify the need for variety of ICT Based Techniques for enhancing learning. *TSO 4d.* Explain the way blended and flipped learning approaches can be applied in teaching learning process for improving students' learning. *TSO 4e.* Analyze how AI can enhance effectiveness of instructional sessions.	**Unit-4.0 Online Learning Methods** 4.1 Individualized learning 4.2 Self-Learning 4.3 ICT Based Techniques to enhance Learning (E-learning Platforms: MOOCs, LMS, Educational Apps and Tools, Online Collaboration Tools) 4.4 Applications of AI in Education, AI-powered virtual laboratories 4.5 AI-Powered Personalized Learning Systems: Intelligent Tutoring Systems,	**CO4**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 4f. Evaluate AI-powered personalized learning systems and their effectiveness.	Adaptive Learning Platforms, AI Chatbots for Education 4.6 Blended and Flipped Learning Approach	

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

a. Perform a literature review on the features and effectiveness of instructional methods that have evolved during recent years.

b. Find out the common barriers perceived in an educational institution in adopting learner-centric instructional strategies.

c. Evaluate the learner satisfaction and motivation, comparing conventional lecture methods and learner-centric approaches

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- Formulate learning outcomes at different taxonomic levels of Cognitive, Affective and Psychomotor domains for an identified course.
- Develop a simple case with brief for an identified course.
- Identify the practical outcomes to be developed through lab experiences for an identified course.
- Identify topics in your area where project method (both minor and major) can be used.
- Prepare instructional session plan for at least three lessons from a selected course.
- Implement the instructional session plan developed in Assignment a4 and upload the recorded video of simulated experience.

b. Seminar Topics:

- Inquiry-Based Learning: Fostering Critical Thinking and Student Investigation
- Theories of Learning
- Learning Styles
- Digital Tools for Student-Centered Education
- Differentiated Instruction process
- Student Self-Assessment
- Gamification and Game-Based Learning
- Experiential Learning: Learning through Direct Experience and Reflection

M) Suggested Specification Table for End Semester Theory Assessment (ETA): Questions may be designed based on the higher taxonomy level of cognitive domain.

COs	Relevant Unit Number and Title	Marks
CO1	Unit-1.0 Learning Principles and Instructional Methods	14
CO2	Unit-2.0 Interactive and Action Oriented Instructional Methods	14
CO3	Unit-3.0 Small Group Instructional Methods	12
CO4	Unit-4.0 Online Learning Methods	10
Total		**50**

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Teaching Strategies: A Guide to Effective Instruction	Orlich, Donald C., Harder, Robert J., Trevisan, Michael S., Brown, Abbie H., and Miller, Darcy E.	Cengage Learning, Eleventh Edition, 2017, ISBN: 978-1305960787
2.	Methods and Techniques of Teaching	Kochhar, S. K.	Sterling Publishers, 2018 ISBN: 978-8120700710
3.	A Taxonomy for Learning, Teaching and Assessing - A revision of Bloom's taxonomy of Educational Objectives	Anderson, L. W., and Krathwohl, D. R.	Pearson Education, First Edition, 2001 ISBN: 978-0801319037
4.	Effective Teaching Methods: Research-Based Practice	Borich, Gary D.	Pearson, Tenth Edition, 2021, ISBN: 978-0136794271
5.	Devise Teaching Strategies and Select Teaching Methods: Module No.2	Banthiya N. K., Earnest Joshua, Mathew Susan S. (Ed.)	TTTI Bhopal, 1999

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
6.	Teaching Strategies: A Guide to Effective Instruction	Donald C. Orlich, Robert J. Harder, Michael S. Trevisan, Abbie H. Brown, Darcy E. Miller	Cengage Learning, 2016, Eleventh Edition, ISBN: 978-1305960787
7.	Advanced Teaching Methods for the Technology Classroom	Petrina, Stephen	IGI Global, 2010, ISBN: 978- 1599043371
8.	Theory and Practice of Case Method of Instruction	Bahttacharya, B.	Excel Books, 2015, ISBN: 9788174465588
9.	Artificial Intelligence in Education: Promises and Implications for Teaching and Learning	Holmes, Wayne, Bialik, Maya, and Fadel, Charles	Center for Curriculum Redesign, 2019, ISBN: 978-1794237111
10.	AI for Teaching and Learning: A Guide for Educators	Chen, Li, Dede, Chris	Harvard Education Press, 2021, ISBN: 978-1682536094

b) Online Educational Resources (OER):

1) http://nufosece.ru/fipofoq.pdf; “Teaching Strategies: A Guide to Better Instruction”
2) http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1413&context=asdpapers; Tools for learning: Technology and teaching strategies Michelle Eady and Lori Lockyer
3) https://onlinecourses.swayam2.ac.in/ntr24_ed52/preview; “Basic Instructional Methods”
4) https://onlinecourses.swayam2.ac.in/ntr24_ed49/preview; “Advanced Instructional Methods”
5) https://nittt.ac.in/modules/Module-4.pdf; “Module 4: Instructional Planning and Delivery”
6) http://unesdoc.unesco.org/images/0010/001095/109590eo.pdf; Delors, J. et al. 1996, Learning: The Treasure Within. Report to UNESCO of the International Commission on Education for the Twenty-First Century. Paris, UNESCO
7) https://www.edx.org/course/artificial-intelligence-in-education; "AI in Education: Fundamentals and Application
8) https://www.coursera.org/specializations/ai-for-teaching-and-learning; "AI for Teaching and Learning Specialization"
9) https://www.unesco.org/en/articles/artificial-intelligence-education-challenges-and-opportunities-sustainable-development; "UNESCO AI in Education Guidelines"
10) https://onlinecourses.swayam2.ac.in/ntr25_ed40/preview, “Integration of Artificial Intelligence in Educational Practices”

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A)	**Course Title:** Intellectual Property Rights (IPR)	Deemed to be University under Distinct Category
B)	**Course Code:** NEP07	
C)	**Pre- requisite (s):**	

D) **Rationale:** Intellectual Property Rights encourage continued creativity and artistic innovation, enriching cultural heritage and promoting diversity in the creative industries by safeguarding the rights of creators and artists under appropriate acts/laws. This course will enable the students to protect their inventions, creative work/assets/product under intellectual property Rights such as patents, copyrights, trademarks, Geographical Indications, Industrial designs, layout of Integrated Circuit design, trade secrets, Traditional knowledge, Plant varieties and Farmer's protection under various IPR laws and acts to succeed in their career and avoid unnecessary litigations.

E) **Course Outcomes (COs):** After the completion of the course, teachers are expected to ensure the accomplishment of following industry expected course outcomes by the learners.

Course Outcomes (COs)	Course Outcome Statements
NEP07.CO1	Realize the need and significance of Intellectual property (IP), Intellectual Property Rights (IPR) and IPR policy in India.
NEP07.CO2	Protect your innovative product and creative original work under Patent, Copy right, Trademark, Geographical Indication and Plant variety and Farmer's right.
NEP07.CO3	Protect your innovative product under Industrial Design/ Layout design of Integrated Circuit/Trade secret.

F) Suggested Course Articulation Matrix (CAM):

Course Outcomes (COs)	Programme Outcomes (POs)					
	PO-1 An ability to independently carry out research /investigation and development work to solve practical problems.	**PO-2** An ability to write and present a substantial technical report/document .	**PO-3** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program	**PO-4** An ability to use different advanced software tools for analysis and design in the field of Green Te chnology.	**PO-5** An ability to acquire professional and intellectual integrity, ethics of research and an understanding of responsibility to contribute to the community for sustainable development of society.	**PO-6** An ability to engage in life-long learning with a high level of commitment to improve kno wledge and competence continuously .
NEP07.CO1	2	2	1	-	2	2
NEP07.CO2	2	2	1	1	2	2
NEP07.CO3	2	2	1	1	2	2

Legend: High (3), Medium (2), Low (1) and No mapping (-)

G) Teaching & Learning and Assessment Scheme:

Course Code	Course Category	Course Titles	Teaching & Learning Scheme (Hours)						Assessment Scheme (Marks)						Total Marks (TA+TWA+LA)
			Theory Component (TC)		Lab Instruction (LI)	Term Work (TW) + Self Learning (SL)	Total Hours (TC+LI+TW+ SL) (For 15 Weeks)	Total Credits (C)	Theory Assessment (TA)		Term work & Self-Learning Assessment (TWA)		Lab Assessment (LA)		
			Input (I)	Tutorial (T)					Progressive Theory Assessment (PTA)	End Theory Assessment (ETA)	Progressive Term Work Assessment (PTWA)	End Term Work Assessment (ETWA)	Progressive Lab Assessment (PLA)	End Laboratory Assessment (ELA)	
NEP07	NEP	Intellectual Property Rights (IPR)	15	-	-	15	30	01	25	-	25	-	-	-	50

H) Course Curriculum Detailing: For attainment of course outcomes, the students are expected to perform/ undergo various activities through classroom, laboratories/ workshops/ term work, self-learning/ field sessions. As per the requirements of NEP 2020, unique features like green skills, multidisciplinary aspects, societal connect, IKS, renewable energy are integrated appropriately.

I) Theory Session Outcomes (TSOs) and Units:

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 1a. Explain the concept of Intellectual Property (IP) and Intellectual Property Right (IPR). *TSO 1b.* Enlist the types of IPR and the type of protection it offers to a product. *TSO 1c.* With the example of any product explain how the IPR is enforced on a product *TSO 1d.* Name the Legislations Covering different types of IPRs in India. *TSO 1e.* Explain the need and significance of IPR policy in an Institution. *TSO 1f.* Differentiate between limited and unlimited IP with examples	**Unit-1.0 Introduction to IP, IPR and its enforcement** 1.1 IP and IPR – Concept, need and its significance 1.2 Types of IPR – Patent, Copyright, Trademark, Geographical Indications, Industrial designs, Layout design of Integrated Circuit, trade secret, Traditional knowledge, Plant varieties and farmer's rights 1.3 Enforcement of IP on a given product, Overlapping rights 1.4 Legislations Covering IPRs in India 1.5 IPR Policy – Need and significance 1.6 Limited life and Unlimited life IPS	**CO1**
TSO 2a. Explain the need and significance of patent/Copyright/GI/ Plant variety and farmer's right/Traditional knowledge *TSO 2b.* Enlist the criteria for protection under patent/Copyright/GI/ Plant variety and farmer's right/Traditional knowledge *TSO 2c.* List the work protected under patent/Copyright/GI/ Plant variety and farmer's right/Traditional knowledge *TSO 2d.* Mention the legislation set up in India and fees applicable for getting Patent/Copyright/GI/ Plant variety and farmer's right. Also mention the tenure of protection *TSO 2e.* Describe in brief every step of process of patenting/Copyright /GI with the help of a flowchart	**Unit-2.0 Patent, Copyright and related rights, Geographical Indications, Plant Varity and farmer's right, Traditional knowledge** 2.1 Patent - Need and significance of patent, patentable and non-patentable inventions, types of Patent, tenure, legislation and organization set up in India, fees and brief procedure of patent filling in India indicating every step, Infringement, Commercialization of a patent. 2.2 Copyright and related rights - Need and significance of Copyright and related rights, entitlement to protection of copyright, works protected, tenure, legislation and organization set up in India, role of Copyright Board, copy right society, assignment and licensing, fees, brief procedure and infringement. 2.3 Geographical Indications (GI)- Need and significance of GI, entitlement to protection of GI, works protected, classes of GI, tenure, legislation and organization set up in India and fees, Passing and infringement of GI. 2.4 Plant Variety & Farmer's Rights – Need and significance, entitlement to protection of plant varieties, register able plant varieties in India, Duration of protection for a registered new plant variety. 2.5 Traditional knowledge (TK) – Significance, Agreement on TK and its protection.	**CO2**

Major Theory Session Outcomes (TSOs)	Units	Relevant CO Number(s)
TSO 3a. Explain the need and significance of Industrial Design/ Layout design of Integrated Circuit/Trademark/Trade secret. *TSO 3b.* Enlist the criteria for protection under of Industrial Design/ Layout design of Integrated Circuit/ Trademark/Trade secret. *TSO 3c.* List the work protected under Industrial Design/ Layout design of Integrated Circuit/Trademark/Trade secret. *TSO 3d.* Mention the legislation set up in India, fees, tenure infringement and remedies applicable for getting Industrial Design/ Layout design of Integrated Circuit, also mention the tenure of protection *TSO 3e.* Explain the strategies to protect trade secret in India with 2 examples	**Unit-3.0 Layout design of Integrated Circuits Industrial Designs, Trademark and Trade secrets,** 3.1 Layout design of Integrated Circuits - Need and significance of protection of layout designs for Integrated Circuits. entitlement to protection, works protected, tenure, legislation and organization set up in India and fees, and Infringement. 3.2 Industrial Designs - Need and significance of Industrial Designs, entitlement to protection of designs, works protected, tenure, who can apply, legislation and organization set up in India and fees, Infringement of design right. 3.3 Trademark – Need and significance, Types of trademark**,** entitlement to protection of trademark, tenure, legislation and organization set up in India and fees, who can apply, Procedure for filing application for Trademark, Passing and infringement of trademark. 3.4 Trade secret- Need and significance of Trade secret protection. entitlement to protection, works protected, tenure, legislation and organization set up in India and fees, strategies to protect trade secret in India.	**CO3**

J) Suggested Laboratory Experiences: (Not Applicable)

K) Suggested Research Based Problems

Note: Depending on the requirement of each laboratory experience, micro project and research-based problems, the performance may be conducted in online/offline mode and accordingly appropriate assessment tools may be used.

L) Suggested Term Work (TW):

a. Assignment(s):

Questions/Problems/Numerical/Exercises to be provided by the course teacher in line with the targeted COs.

- A product is always protected simultaneously by more than one type of IPR and there is always the overlapping of rights. Considering the example of purple pill or any other product, highlight the enforcement of IP particularly Patent, Copyright, Trademark, design, and trade secret.

- Mr. Ram has created and designed an innovative website. Analyze the appropriate protection mechanism/s for that website.
- Is certification mark different from collective mark? Analyze and answer
- Who can register geographical indication in India?
- Is it possible to register the shape and configuration of a shock absorber under Industrial Design act in India? Analyze and answer
- What is the need of protection of IC Layout design?
- Differentiate between assignment and licensing in case of Copyright.
- Whether attributes of patented product can be protected by trade-secret? Analyze and answer
- Describe strategies used to protect trade secrets in Research Organizations and software companies.

M) Suggested Specification Table for End Semester Theory Assessment (ETA): (Not Applicable)

N) Suggested Instructional/Implementation Strategies: Different Instructional/ Implementation Strategies may be appropriately used in online and offline mode, as per the requirement of the outcome to be achieved. Some of them are improved lecture, tutorial, case method, group discussion, industrial visits, industrial training, field trips, portfolio based, learning, role play, live demonstrations in classrooms, lab, field information and communications technology (ICT)based teaching learning, blended or flipped mode, brainstorming, expert session, video clippings, use of open educational resources (OER), MOOCs etc. To ensure learning, research-based problems may be designed and implemented.

O) Major Equipment, Tools and Software for Laboratory and Research Work: (Not Applicable)

P) Suggested Learning Resources:

a) Books

S. No.	Titles	Author(s)	Publisher and Edition with ISBN
1.	Fundamentals of Intellectual Property Rights: For Students, Industrialist and Patent Lawyers	Ramakrishna B and Anil kumar H.S.	Notion Press, 1 January 2017 ISBN-10 1946556319 ISBN-13 978-1946556318
2.	Intellectual Property Law	Narayan P.	Eastern Law House Private Ltd 1 January 2001, ISBN-10 8171772684 ISBN-13 978-8171772681
3.	Intellectual Property Rights: Text and Cases	Radhakrishnan R., Balasubramanian S	Excel Books July 30, 2008 July 30, 2008, ISBN-10: 8174466096 ISBN-13: 978-8174466099
4.	Law Relating to Intellectual Property	Wasehra B. L	Universal Law Publishing January 2016, ISBN-13 978-9350350300
5.	Intellectual Property Law	Meenu Paul	Allahabad Law Agency, ISBN-10: 8190286714, ISBN-13 : 978-8190286718
6.	Law of Intellectual Property	Myneni S. R.	Asia Law House (1 January 2019) ISBN-10: 9388437233 ISBN-13: 978-9388437233

b) Online Educational Resources (OER):

1) https://ipindia.gov.in/
2) https://nptel.ac.in/courses/109106137
3) https://books.openedition.org/iheid/652?lang=en

Others:

1) E book - https://dst.gov.in/sites/default/files/E-BOOK%20IPR.pdf
2) WIPO Intellectual Property Handbook
3) The Intellectual Property Handbook: A Practical Guide for Franchise, Business, and IP
4) Counsel Second Edition by Christopher P. Bussert, James R. Sims III
5) IPR Handbook for Pharma Students and Researchers Parikshit Bansal, Pharma Med Press, 2015
6) https://www.kaggle.com/rohankayan/years-of-experience-and-salary-dataset

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16. Annexure

16.1 Common Courses across the all M. Tech., MBA and M.Sc. programmes

S. No.	Common Courses Title
1.	Basics of Artificial Intelligence and Machine Learning
2.	Sports, Yoga & Meditation
3.	Open Educational Resources
4.	Professional Ethics
5.	Financial Literacy
6.	Engineering Economics
7.	Project
8.	Research Methodology
9.	Curriculum & Assessment
10.	Indian Knowledge System (IKS)
11.	Dissertation Part -I
12.	Dissertation Part - II
13.	MOOC Creation
14.	Learner Centric Instructional Methods
15.	Intellectual Property Rights (IPR)

Deemed to be University under
Distinct Category

NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH (NITTTR), BHOPAL

(Deemed to be University under Distinct Category)

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