Certificate Program

Certificate Program

On

Outcome Based Curriculum Development

Curriculum Development Center

National Institute of Technical Teachers Training & Research

(Deemed University under Distinct Category)

Ministry of Education, Government of India

Sector - 26, Chandigarh, UT, India.

Curriculum Development Centre

1. TABLE OF CONTENTS

2. SALIENT FEATURES

1.	Name	:	**Certificate Program on Outcome Based Curriculum Development**
2.	Duration	:	**01 Month**
3.	Frequency(Dates)	:	**Twice a Year (1st August - 31st August 2025) (15th February – 15th March 2026)**
4.	Hours per week	:	**35**
5.	Entry Qualification-cum- Admission Criterion	:	**Faculty & Staff of Universities / Academic Institutes / DTEs /BTEs / Any Graduate Aspiring to be Academician on first come first serve basis.**
6.	Student Intake	:	**30**
7.	Pattern	:	**Weekly Module**
8.	Mode	:	**Offline / Online**
9.	Scheme	:	**Multi Point Entry and Exit**
10.	Fee Structure	:	**20000 INR**

3. STUDY AND EVALUATION SCHEME

Duration of Modules	Module Title	L	P	Credit	Hours/ Module	Assessment Marks
1st Week	Module - I: Genesis of Outcome Based Education	15	20	1	35	50
2nd Week	Module - II: Curriculum Design Approaches	15	20	1	35	50
3rd Week	Module - III: Curriculum Implementation and Evaluation	15	20	1	35	50
4th Week	Module - IV: Free and Open Source Software For Curriculum	15	20	1	35	50
	Final Evaluation					100

Note: The evaluation of the student will be done at the end of the program in the last two days by the module teacher, HoD and HoD nominee from other department.

4. PROGRAM OUTCOMES

After undergoing the Certificate Programme on 'Outcome Based Curriculum Development', the students will be able to:

PO1: Comprehend the concept of Outcome Based Curriculum.

PO2: Design curriculum using systematic and scientific process.

PO3: Implementation and evaluate curriculum effectively.

PO4: Practice Free and Open Source Software for accomplishment of curriculum objectives.

5. MODULE - I
GENESIS OF OUTCOME BASED EDUCATION

L	P
15	20

RATIONALE

The primary objective to introduce the module on "Outcome-Based Education" is to nurture the philosophy of Outcome Based Education (OBE) and build the capacity and competencies of the faculty members. This module will equip educators with the knowledge, skills, and tools necessary to effectively implement and manage outcome-based education practices in their institutions. OBE is an approach to education to develop a system based on outcomes giving priority to ends, purposes, learning, accomplishments, and results

LEARNING OUTCOMES

After undergoing this module, the students will be able to:

LO1: Comprehend the OBE framework and principles for Higher Education Institutes

LO2: Frame the Course Outcomes and Program Outcomes aligned with OBE principles

LO3: Articulate the mapping and attainment of learning outcomes

LO4: Develop actionable plans for implementing OBE principles in participants' academic programs and courses.

LO5: Demonstrate the capabilities to systemize the curriculum plans in accordance to NEP-2020

THEORY CONTENTS

- OBE: Philosophy and Genesis
- Taxonomy of Educational Objectives

- Framing of COs in line with Blooms Taxonomy
- Articulating of OBE Components
- Graduate Attributes and their Importance in OBE
- Articulation mapping of OBE components
- OBE- Instructional strategies and Delivery Modes
- Systematic Approach to Instructional Design and Delivery
- Outcome-Based Teaching Learning Pedagogy
- OBE Assessment and Evaluation: Designing of Rubrics
- Design of framework model for attainment of the PEOs, POs and COs
- National Credit Framework and its Implications
- National Higher educational qualification Framework of UGC
- Curriculum Restructuring in Light of NEP-2020
- Role of OBE in NBA/NAAC/NIRF Accreditation

PRACTICE TASKS

- Practice on Course Outcomes formulation for different courses
- Develop Performance Indicators of POs for specific programme.
- Design Articulation matrix showing mapping of Learning Outcomes
- Practice usage of various Technology in Pedagogy for specific courses
- Practice on different ICT tools for Teaching Learning process
- Designing of Rubrics for various assessment techniques
- Detailing various parameters employed for different Accreditation
- Case Study – OBE Implementation
- Case Study: Curriculum restructuring as per NEP 2020

6. MODULE - II

CURRICULUM DESIGN APPROACHES

L	P
15	20

RATIONALE

This module is aimed at equipping the faculty and staff with planning and designing Outcome based Curricula as per needs of the industry. The participants will get exposure to various curriculum development related activities such as stages of curriculum development process, various models of curriculum design and preparing a curriculum document by following a systematic and scientific curriculum design process.

LEARNING OUTCOMES

After undergoing this module, the students will be able to:

LO1: Describe the concept, stages and models of curriculum development.

LO2: Assess current and future manpower needs.

LO3: Use appropriate methodology for curriculum design.

LO4: Design and revise outcome based curriculum as per needs of the world of work.

THEORY CONTENTS

- Concept of curriculum and syllabus
- Stages of curriculum development process
- Quality parameters of an ideal curriculum for technical education programme
- Need Analysis surveys
- Tools for conducting need analysis- questionnaires, interviews and observations.
- Assessing current and future manpower needs and its forecast
- Models of curriculum development based on various approaches
- Stakeholders of curriculum development, their perceptions and role
- Factors influencing curriculum decisions
- Data sources for curriculum design - students, subjects and society

- Various approaches in curriculum design-DACUM approach and Delphi technique.
- AICTE/UGC norms and standards for physical, human and informational resources.

PRACTICE TASKS

- Analysis of manpower assessment to identify suitable programmes
- Designing a questionnaire for getting feedback from various stakeholders
- Job analysis of specific categories of technical manpower working in the industry
- Activity analysis of specific categories of technical manpower working in the industry
- Practice on Outcome based Curriculum design of an academic programme with details of curriculum structure
- Practice on preparing details of theory contents for Outcome based Curriculum
- Practice on preparing details of practical exercises for Outcome based Curriculum
- Practice on writing instructional strategy
- Planning and organization of resources as per AICTE/UGC norms
- A case study on curriculum design

7. MODULE – III
EFFECTIVE CURRICULUM IMPLEMENTATION & EVALUATION

L	P
15	20

RATIONALE

Teaching-learning process in an educational programme depends on curriculum design, implementation and evaluation. The curriculum document is to be used for administering appropriate learning experiences to the students for developing desired competencies in them for gainful employment and their wholesome development. A variety of instructional strategies, methods, media and student evaluation systems are needed for effective curriculum implementation.

LEARNING OUTCOMES

After undergoing this Module the students will be able to:

LO1: Explain concept, important factors and indicators to implement curriculum effectively.

LO2: Select appropriate strategies to plan and deliver instructions in the classroom and evaluate students' performance on the desired competencies.

LO 3: Plan, execute and evaluate project work.

LO4: Audit and evaluate curriculum.

LO5: Develop soft skills, including communication and presentation skills.

THEORY CONTENTS

- Significance and Overview of Effective Curriculum Implementation
- Networking with Industries for Effective Curriculum Implementation
- Instructional Strategies for Effective Curriculum Implementation
  - Project Work - Planning, Execution and Evaluation

- Communication Skills
- Effective Presentation Skills
- Academic Planning and Audit
- Curriculum Evaluation
- Student Evaluation
- Attainment of POs and COs
- Ethics and Values
- Developing Soft Skills for Effective Curriculum Implementation

PRACTICE TASKS

- Prepare list of physical, human and informational resources required to implement a programme.
- Write complete proposal to evaluate the curriculum of a degree or diploma programme, including time-frame.
- Identify one 'Minor Project' and one 'Major Project' relevant to discipline with title, detailed objectives, methodology, resources required and time-frame.
- Write steps for selecting appropriate teaching strategies, methods and media of a given/choice subject/course
- Prepare 'Table of Specification' for a theory subject and set-up a Model Test Paper of a given/choice subject/course.
- Prepare an end-term 'Test' for the student evaluation of a given/choice subject/course, including objective, short-answer and long-answer type questions.
- Make a presentation on a given topic/topic of choice, using appropriate power-points and communication skills.
- Case studies on Ethics and Values

8. MODULE - IV

FREE AND OPEN SOURCE SOFTWARE FOR CURRICULUM

L	P
15	20

RATIONALE

National Skill Qualification Framework (NSQF) emphasizes on hands-on practice to develop the skills among students as per requirement of present and future needs of the industry. Free and Open Source Software (FOSS) play very important role in developing these skills to provide industry ready manpower. This module will help the participants to get exposure of various FOSS tools related to their area of work.

LEARNING OUTCOMES

After undergoing this module, the students will be able to:

LO1: Explore and practice various Free and Open Source tools

LO2: Perform automation tasks related to various applications

LO3: Execute tasks related IoT and Artificial Intelligence

LO4: Utilize open source tools for network security

LO5: Develop mini projects related to smart automation

THEORY CONTENTS

- Overview of Free Open Source Software
- FOSS Applications
- Smart Automation using FOSS
- Basic Automation Instructions

- Advanced Automation Instructions
- Internet of Things (IoT) using FOSS
- IoT Applications
- Artificial Intelligence (AI) using FOSS
- AI Applications
- Industrial IoT (IIOT) using FOSS
- IIoT Applications
- Cyber Security using Foss
- Data Science Analytics using FOSS

PRACTICE TASKS

- Practice on general application FOSS Tools.
- Practice basic automation functions for various applications using FOSS.
- Practice advanced automation functions for various applications using FOSS.
- Practice on IoT applications using FOSS.
- Practice on AI applications using FOSS.
- Demonstration of Industrial IoT.
- Demonstration of Open Source Cyber Security.
- Demonstration of Open Source Data Analytic Systems
- Case Studies / Projects.

9. REFERRENCES

1. Deepesh Divaakaran, " Outcome Based Education: A Practical Guide for Higher Education Teachers: From Theory to Practice - Achieving Academic Quality, Accreditation and Ranking"
2. Joshua Earnest and Shashi Kant Gupta, " Outcome-Based Curriculum in Engineering Education"
3. P. P. Noushad, " Designing and Implementing the Outcome-Based Education Framework"
4. Doll Ronald C; Allyn & Bacon " Curriculum Improvement" , Inc., Boston , USA
5. Finch Curtis, R and Grunkilton John R; Allyn and Bacon, Inc., Boston, USA Curriculum Development in Vocational and Technical Education-Planning, Content and Implementation
6. Taba, Hilda; Harcout Brace and World Curriculum Development-Theory and Practice
7. Tanner D and Tanner L, "Curriculum Development" McMillan Publishing Co. New York.
8. Aggarwal J.C. "Curriculum Reforms in India : World Overview", Doaba House, New Delhi
9. CPSC. "Aspects of Curriculum for Technician Education", Singapore
10. Malhotra MM. "Some perspectives in designing curriculum of Technician programmes ", CPSC, Singapore
11. Developing Communication Skills by Krishna Mohan and Meera Banerji; MacMillan India Ltd., Delhi
12. Cole, PG and Chan LKS; Teaching Principles and Practices; Prentice hall; New York
13. Gagne, RM and Briggs LJ; Principles of Instructional Design, New York, Holt, Rinehart and Winston, Inc
14. Ebel, RL and Frisbie, DA; Essentials of Educational Measurements; Prentice Hall of India Pvt. Ltd. New Delhi
15. Gronlund NE and Linn, RL; Measurement and Evaluation in teaching; Macmillan Publishing Company, New York
16. Malhotra, MM et el; A Systematic Approach to Student Evaluation in Technical Institutions; Journal of Education

10. RECOMMENDED WEBSITES

1. https://epgp.inflibnet.ac.in/
2. https://evaeducation.weebly.com/
3. https://www.scribd.com/presentation/647200333/EDS-6-MODULE-8-Approaches-to-Curriculum-Design
4. https://nptel.ac.in/
5. https://swayam.gov.in/
6. www.aicte-india.org
7. https://www.ugc.gov.in
8. https://freeopensourcesoftware.org//index.php
9. www.sociablemedia.com
10. www.edwardtufte.com
11. www.presentersuniversity.com
12. www.presentationcoach.com

11. EVALUATION AND ASSESSMENT CRITERION

The course will be facilitated through a combination of lectures, case studies, exercises and discussion, problem solving assignments and project work. The emphasis will be on learning through active participation of the participant in the teaching-learning process and engaging them in problem-solving. Candidate's soft skills, communication, aptitude, quality consciousness etc. will be ascertained by:

1. Formative Module Assessments
2. Summative End-term Evaluation

1. Module Assessment

The assessment will be evaluated on the basis of the theory, practical knowledge and skill acquired by the participant. This module assessment will be out of 50 marks each based on the following criterion:

S. No	Criterion	Marks
(i)	Punctuality	10
(ii)	Assignments / Quiz	10
(iii)	Case Studies / Project Work	15
(iv)	Exam	15
	Total	**50**

2. Final Assessment

The final assessment will include presentation with viva voice of the report submitted by the participant comprising project at the end of every module. The final evaluation will be carried out at the end of the program on the basis of the following criterion:

S. No	Criterion	Marks
(i)	Report Writing & Submission	50
(ii)	Presentation	25
(iii)	Viva-Voce	25
	Total	**100**

3. Certification

The participant can attend individual modules by adopting Multi-entry and Multi-exit NEP 2020 policy. Participant exiting after any module will get the respective module completion certificate. Later on participant may take admission in the next Module after producing the successful completion certificate of previous module. The final programme certificate will be awarded only after the completion of all four modules.

12. FEE STRUCTURE

Complete Programme : Rs 20,000/-

Individual Module : Rs 5000/-

The fee structure of the programme is flexible in reference to the Multiple Entry and Exit facility provided to the participants.

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