SWAYAM Courses: At a Glance

FREE ONLINE EDUCATION
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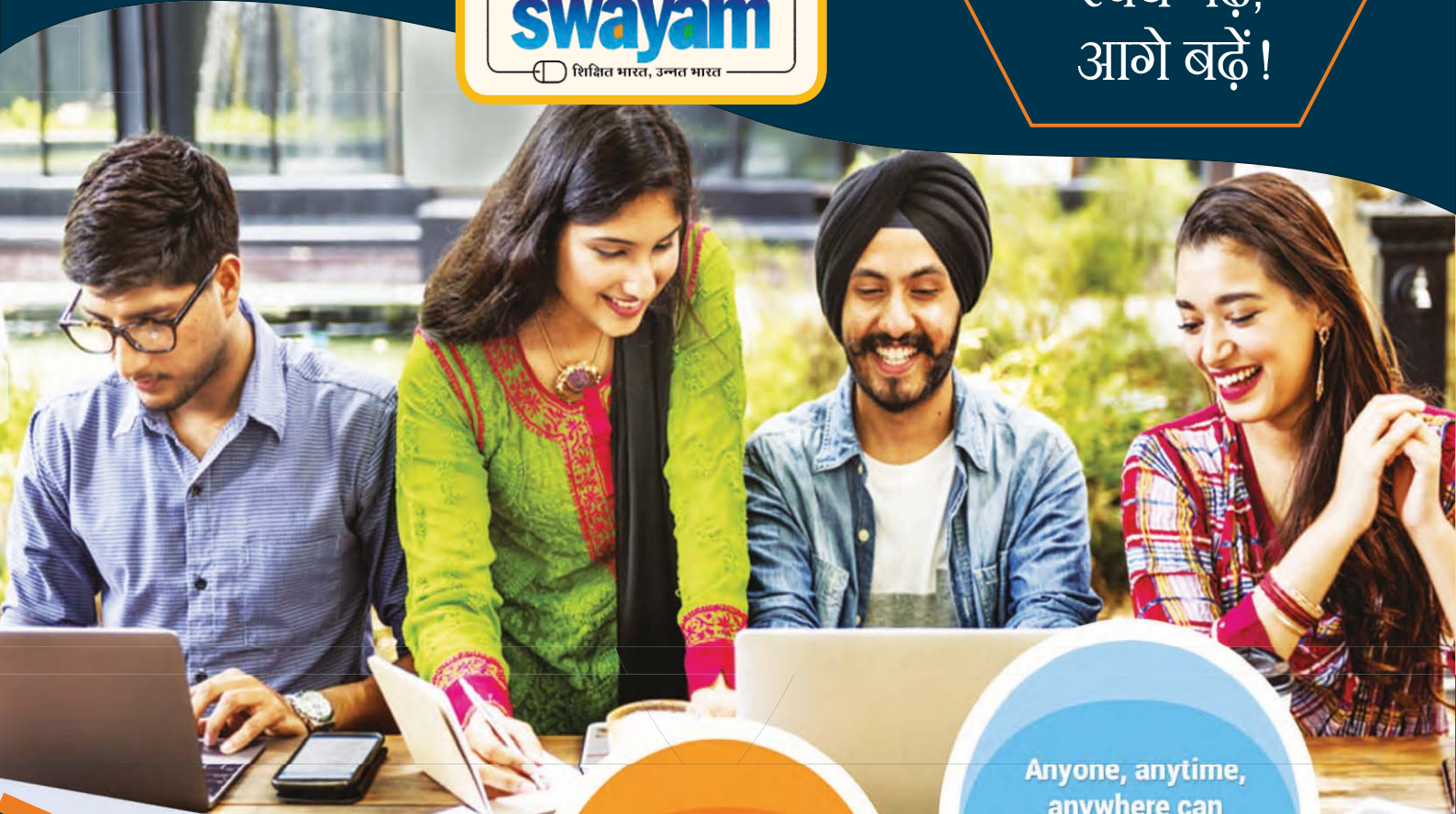
स्वयं पढ़ें,
आगे बढ़ें !

Thousands of Massive Open Online Courses available by best teachers from top institutions.

Anyone, anytime, anywhere can learn through mobile or laptop absolutely free.

Ministry of Human Resource Development
Government of India

सत्यमेव जयते

July 2018

The Indian higher education system is one of the oldest and largest in the world with 903 universities including Instituions of National Importance, 41, 012 colleges, 3.66 crore students and 12.84 lakh teachers. This massification of higher education brings along with it many issues which confront the higher education of our country today like, the issues of access, equity, relevance, quality, management and financing.

The ICT plays a major role in addressing these issues. In this context, Massive Open online courses are very successfully bridging the digital divide as through these courses quality education can be brought at the doorstep of every learner at virtually no cost. I congratulate the Ministry of Human Resource Development for this noble initiative which will bring a marked improvement in the quality of education being imparted in our country.The project would also help the students and teachers to update their knowledge and skills especially for those located in rural/backward/remote areas and would help the nation move towards an information-rich society.

I congratulate, Prof Rajnish Jain, Secretary, UGC, Dr(Mrs) Pankaj Mittal, Additional Secretary, UGC and her team in bringing out this document which will be very handy information booklet for our Vice Chancellors.

Wishing you all the best.

Prof. D P Singh
Chairman, UGC

Foreword

The phenomenal growth of ICT in the education system has had a tremendous impact globally. India has been quick enough to leverage technology for teaching learning processes as ICT has facilitated the accessibility to education andpromoting quality teaching and learning to learners of all age groups across the length and breadth of the country. Taking cognizance of such advancements , the Ministry of Human Resource Development, Government of India launched SWAYAM (Study Webs ofActive Learning for Young Aspiring Minds), an indigenously developed platform aimed at providing learningopportunities to the learners through MOOCs (Massive Open Online Course) free of cost in a structured manner.

MHRD has identified nine National Coordinators for developing MOOCs from School to PG level on the platform , namely- NCERT for school education from 9th to 12th; NIOS for out of school children from 9th to 12th; Consortium for Educational Communication(CEC), an IUC of UGC, for Non-technology UG programmes; UGC for Non-technology PG programmes; IGNOU for Diploma and Certificate programmes; NPTEL for Technical/ Engineering UG & PG degree programmes; IIM for management programmes, NITTR, Chennai for Teacher Training programmes and AICTE for self paced programmes.

The MOOCS courses on Swayam being run by these National Coordinators (except for NPTEL) in the coming semester beginning from July, 2018 arecompiled in this document for easy reference of the Vice Chancellors and academicians.

I compliment my colleagues, Dr(Mrs) Pankaj Mittal, Additional Secretary, UGC and Dr Diksha Rajput, Publication Officer and her team in editing and compiling this document which will work as a ready reckoner for our users.

My Good Wishes for all.

Prof Rajnish Jain
Secretary, UGC

The MOOCs on the SWAYAM are high quality, curriculum-based, interactive content in different subjects across disciplines of social sciences, arts, fine arts, humanities, natural & mathematical sciences, linguistics, languages, technology, management, teacher training and skill sector. These courses are developed by the best faculty of the country carefully chosen from various educational institutions across the country from Secondary till Post-Graduation level. The basic philosophy of MOOCS on SWAYAM is free learning for Any one, Any time, Any where (AAA) with the facility of credit transfer for upto 20% of the courses in a programme.

The MOOCS on SWAYAM follow a Four Quadrant Approach comprising of Quadrant-I - e-Tutorial, which contains Video and Audio Content in an organised form, Animation, Simulations, video demonstrations, Virtual Labs, etc. , Quadrant-II - e-Content, which contains PDF, Text, e-Books, illustrations, video demonstrations, documents and Interactive simulations; Quadrant-III - Web Resources, Open source Content on Internet, Case Studies, books including e-books, research papers & journals, Articles, etc. and Quadrant-IV - Self-Assessment, which contains Problems and Solutions, which could be in the form of Multiple Choice Questions, Fill in the blanks, Matching Questions, Short Answer Questions, Long Answer Questions, Quizzes, Assignments and solutions, Discussion forum topics and setting up the FAQs, Clarifications on general misconceptions etc.

This document SWAYAM Courses : At a Glance " is a compilation of the Courses developed by the Course Coordinators/Instructors of eight National Coordinators and gives a bird's eye view of the Course objectives, learning outcomes, course duration, credits and profile of the course coordinator for the learner. It is hoped that this document will enable learners and institutions to make informed choices about the MOOCS courses to be pursued in the coming semester, commencing from July, 2018.

The compilation and production of this document would not have been possible without the active support of my colleagues in UGC, Dr Diksha Rajput, Mr Abhishek Anand and in INFLIBNET, Dr Jagdish Arora and Dr Abhishek Kumar. I am grateful to them for their support.

Wishing you a happy learning.

Dr(Mrs) Pankaj Mittal
Additional Secretary, UGC

**National Institute of Technical Teachers
Training and Research**

Teacher Education Certificate Courses

MHRD

FREE ONLINE EDUCATION

swayam

शिक्षित भारत, उन्नत भारत

Teacher Education Certificate Courses

Contents

DR.S.RENUKADEVI

Professor & Head, Dept. of Engineering Education National Institute Of Technical Teachers Training & Research (NITTTR)

TYPE OF COURSE : Teacher Education Certificate Course

INTENDED AUDIENCE : PG Engineering Students/Teachers working in Polytechnic/Engineering Colleges/Universities with minimum Qualification PG – All Science/Engineering/Technology Disciplines (M.Sc/M.E/M.Tech/M.S (By research)

PRE-REQUISITES : Teacher of Engineering/Science Subjects

COURSE DURATION : 9 weeks (August 27 to October 28, 2018)

EXAM DATE : November 2018

NO OF CREDITS : 3

OBJECTIVE OF COURSE

- Establish the need for understanding learners in teaching learning process
- Understand the modern day learner's personality characteristics
- Appreciate the importance of personality tests and inventories
- Comprehend strategies for motivating students
- Apply techniques for improving the personality of present day learners thereby improving classroom teaching
- Use the basic counseling skills for student issues
- Comprehend NLP strategies for solving student issues

LEARNING OUTCOME

The course is expected to make a shift in the teaching learning process with enhanced competencies in teachers for handling present day learners.

COURSE PLAN

Week 1: Teaching Learning Process

Week 2: Student characteristics

Week 3: Psychological Testing

Week 4: Student Motivation

Week 5: Physical and Cognitive development

Week 6: Emotional Intelligence and Relationship Management

Week 7: NeuroLinguistic Programming

Week 8: Counselling Skills

Week 9: Summary and Assessment

ABOUT INSTRUCTOR

Dr. S. Renukadeviis currently Professor and Head of Department of Engineering Education, NITTTR, Chennai. She holds a Doctorate in Computer Applications (Engg Education), M.phil in Computer Science and Masters in Computer Application. She has 28 years of experience in teaching and research, of which 23 years in teacher training and research at NITTTRc. Her expertise includes Pedagogy, Educational Psychology, Soft Skills, Computer applications in education & training and Gender Development/Studies. She has coordinated more than 250 short term programmes and acted as resource person in several national and international programmes. She has been coordinating the M.tech (HRD) programme of the institute. She has authored more than 40 research papers and contributed chapters in books. She has produced 4 Ph.D dissertations and currently guiding 3 scholars in Engineering Education. She has attended several National and International conferences and presented papers. She has visited Germany, UK, Ireland and Malta. Her interest in Student Psychology has resulted in new methodologies in teacher training. She is a trained NLP practitioner. She has conducted an international school psychology conference of ISPA (US). She is affiliated to psychology organisations such as IAAP(Regional President) and InSPA(State President, TN).

DR. G.JANARDHANAN
Associate Professor & Head
i/c Centre for Envi. Management, NITTTR

DR. V.SHANMUGANEETHI
Asst. Professor, Dept. of Computer
Science and Engineering

DR. KSA DINESH KUMAR
Asst. Professor, Dept. of Civil
Engineering

TYPE OF COURSE : Teacher Education Certificate Course
INTENDED AUDIENCE : Teachers from Technical institutions

COURSE DURATION : 8 weeks (August 27 to October 22, 2018)
EXAM DATE : November 2018
NO OF CREDITS : 3

PRE-REQUISITES : Basic knowledge of Teaching Learning Practice

OBJECTIVE OF COURSE

To scientifically design the assessment tool for assessing the quantitative and qualitative performance of a student.

LEARNING OUTCOME

To apply various assessment methodologies in the teaching learning practice.

COURSE PLAN

Week 1: Introduction to Assessment – Evaluation – Need for the Assessment – Different forms of Evaluation – Diagnostic Assessment – Formative Assessment – Summative Evaluation – Graduate Attributes and Assessment

Week 2: Complexity of the questions – Mapping Two-dimensional approach of preparing the Instructional objectives with complexity of questions – Factual Questions – Conceptual Questions – Procedural knowledge Questions – Meta- Cognitive Questions

Week 3: Types of Evaluation – Norm reference – Criterion reference – Types of questions – Supply type – Selection type – Numerical problem solving.

Week 4: Introduction to Table of Specifications (TOS) – Modules vs Levels in the TOS – Scheme of Evaluation in TOS – Factors to be considered for preparing TOS.

Week 5: Characteristics of evaluation tool – Validation of the tool - Reliability – Validity vs Reliability – Logical and statistical validity – Usability – Discrimination factors in the Evaluation tool

Week 6: Standardized Tests versus Informal Classroom Tests - Standardized Achievement Test Batteries - Achievement Tests in Specific Areas - Customized Achievement Tests - Individual Achievement Tests - Achievement and Aptitude Tests - Scholastic Aptitude and Learning Ability - Group Tests of Learning Ability

Week 7: Introduction to Rubrics – Need for the rubrics – Holistic rubric – Analytic rubric – preparation of Criteria for Rubrics – Consolidation of rubric values

Week 8: Methods of Interpreting Test Scores - Grade Norms - Percentile Rank - Standard Scores - Profiles - Skill Analysis - Cautions in Interpreting Test Scores

ABOUT INSTRUCTOR

Dr.V.Shanmuganeethi, Assistant Professor, Department of Computer Science and Engineering. He has been working in the domain of web technologies, Cloud computing, programming Paradigm, Instructional technologies and Teaching – Learning Practices and Principles. He has coordinated more than 150 training programmes on CSE discipline and Engineering Education. Dr.G.Janardhanan, Associate Professor & Head i.c , Centre for Environmental Management . He has been working in the domain of Civil Engineering, Environmental science, Sustainable development, Smart City, Instructional technologies and Teaching – Learning Practices and Principles.He has developed various projects for Engineering Education includes e-content development and Virtual Laboratory. Dr. K S A Dinesh Kumar, Assistant Professor, Department of Civil Engineering. He has been working in the domain of Structural Engineering, Geographical Information System, Sustainable development, Smart City, Instructional technologies and Teaching – Learning Practices and Principles. He has coordinated more than 100 training programmes on Sustainable Development, Green building and Engineering Education.

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Science and Engineering

DR. KSA DINESH KUMAR
Asst. Professor, Dept. of Civil
Engineering

TYPE OF COURSE	: Teacher Education Certificate Course	**COURSE DURATION** :	4 weeks (19ᵗʰ Nov to 18ᵗʰ Dec, 2018)
INTENDED AUDIENCE	: Teachers from Technical institutions	**EXAM DATE** :	December 2018
		NO OF CREDITS :	2
PRE-REQUISITES	: Basic skills in using Web		

OBJECTIVE OF COURSE

To use MOODLE Learning Management System to improve active and collaborative learning environment.
To organize and store course content in a secure web-based environment where the students can access

LEARNING OUTCOME

To practice MOODLE LMS for class room teaching, sharing learning material and student assessment.

COURSE PLAN

Week 1:

Introduction to Learning Management System (LMS) – Learning Theories - Instructional Technology with Pedagogy – Applications of Educational Technology – Content Management System (CMS) and LMS – Features of LMS – Assignment - Introduction to MOODLE LMS – Facts and figures of MOODLE LMS – MOODLE Installation and configuration – Assignment

Week 2:

Course Creation and Management – Course Category – Course Format – Course study Plan – Course Activity – Assignment - Chat – Choice – External tool – Forum – Glossary – Lesson – Quiz – SCROM Package – Survey – Wiki - Course Resources – e-Book – File Management – Folder Management – Video Content – Audio Content - Page – URL Management

Week 3:

Course Administration – Enroll users in Courses – Filters - Report Generation - Grade book setup for course - Site Administration in MOODLE LMS – Notification – Users – Grades – Badges –Plugins - Security – Appearance – Front page Settings

Week 4:

User Management – User Accounts – User Actions – User Profile – Upload user Details – User Permissions – User Policies – Define Roles - Question bank — Import and Export functions – Third party SCORM pack questionnaire

ABOUT INSTRUCTOR

Dr.V.Shanmuganeethi, Assistant Professor, Department of Computer Science and Engineering. He has been working in the domain of web technologies, Cloud computing, programming Paradigm, Instructional technologies and Teaching – Learning Practices and Principles. He has coordinated more than 150 training programmes on CSE discipline and Engineering Education. **Dr.G.Janardhanan,** Associate Professor & Head i.c. Centre for Environmental Management . He has been working in the domain of Civil Engineering, Environmental science, Sustainable development, Smart City, Instructional technologies and Teaching – Learning Practices and Principles.He has developed various projects for Engineering Education includes e-content development and Virtual Laboratory. **Dr. K S A Dinesh Kumar**, Assistant Professor, Department of Civil Engineering. He has been working in the domain of Structural Engineering, Geographical Information System, Sustainable development, Smart City, Instructional technologies and Teaching – Learning Practices and Principles. He has coordinated more than 100 training programmes on Sustainable Development, Green building and Engineering Education.

E-CONTENT DEVELOPMENT

DR. P. MALLIGA
Associate Professor & Head, Centre for Educational Media and Technology, National Institute of Technical Teachers Training & Research (NITTTR)

SHRI. FELIX AROKIYA RAJ, A.P.
Assistant Professor, Centre for Educational Media and Technology, National Institute Of Technical Teachers Training & Research (NITTTR)

TYPE OF COURSE	: Teacher Education Certificate Course	**COURSE DURATION**	: 8 weeks (August 27 to October 22, 2018)
INTENDED AUDIENCE	: Teachers, Research Scholars, Instructional Designer, E-Learning Specialist, Teacher Certification Programme	**EXAM DATE**	: November 2018
		NO OF CREDITS	: 3
PRE-REQUISITES	: Knowledge of basic digital literacy like internet browsing, email communication		

OBJECTIVE OF COURSE

With the advent of Internet and world wide web (www), the access to information has become very easy and the entire world is moving towards digitization. Twenty first century students learn in a global classroom and not necessarily within four walls. They are more inclined to find information by accessing the Internet through mobile phones and computers, or chatting with friends on a social networking site. The advancements in technology and the plethora of powerful and innovative digital devices and tools have a great potential to improve educational outcomes. Educators must understand that the use of digital content and devices will improve teaching and learning and thus enhance educational opportunities and benefit the Millennial. This course on E-content development is meant to understand the meaning and standards of E-content, learning objects, designing and development of digital resources for teaching and learning. Thus this course aims in providing the knowledge and skill for teachers to cater to present day learners and their learning styles.

LEARNING OUTCOME

Develop Multimedia content or E-content using web tools by applying the principles of Instructional Design.

COURSE PLAN

Week 1: E-learning

Understand E-Learning with respect to its need, trends, benefits and challenges

Modules: E-Learning – Scope and Types, E-Learning Trends, Millennial Learners, E-Learning Technologies, E-Learning Benefits and Challenges, Need for E-Content Development

Week 2: Instructional Design Models

Identify the multimedia principles and elements for E-Learning

Modules: E-Content Nature and Scope, E-Content Elements, Multimedia Principles, Instructional Design Models, Life Cycle of E-Content, Learning Objects & Standards

Week 3: E-learning Standards and Tools

Explain the components of Authoring Tools and E-Learning standards

Modules: Content Authoring Tools & Usage, E-Learning Authoring Tools and Technologies, SCORM & Tin Can API, Free/Cloud Authoring Tools

Week 4: E-Publishing

Describe the salient features of E-Content Development Tools

Modules: Documentation & Bookmarking Tools, E-Publishing, Concept of creating E-Books, Presentation Tools, Online Collaborative Tools

Week 5: Graphics and Animation

Develop Graphics /Images for brochure cover page

Modules: Graphics and Image File Formats, GIMP & its features, Animation Types and its usage, Animation Tool Features

Week 6: Audio and Podcasting

Apply the audio editing techniques for creating podcasts

Modules: Basic Principles of Sound, Audio Recording Tools, Audio Editing Techniques, Use of Podcasting in Education

Week 7: Screencast Videos

Develop the E-Content using Social Media Networks Modules: Creating Screen-cast Video, Video Uploading & Sharing, Education Channel Analytics, Photo Slideshow Creation

Week 8: Creating Video lessons and Quizzes

Understand the techniques to create customized lessons

Modules: Customized lessons using TED-ED, Online Quizzes, Survey Forms

ABOUT INSTRUCTOR

Dr. P. Malliga is working as Senior System Analyst and Head in charge of Centre for Educational Media and Technology, National Institute of Technical Teachers Training and Research, Taramani, Chennai. She has got 28 years of experience in Teaching and Research and Development. Her areas of interest in training include ICT enabled learning and Teaching, Instructional Design, E-learning and Open Education. She has published 20 research papers in refereed National / International journals and Conferences in the area of Computer Science and Engineering, ICT based Education and Training, Educational Technology. She has contributed to leading Material (Course Material) on Instructional Design for E-learning for MCA Distance Mode program for Anna University. She has conducted around 350 courses for Polytechnic consultancy projects for producing multimedia instructional materials on Computer Networks; producing 10 CBTs on 10 different subjects of Computer Science; producing studio based video lectures on Computer Science subjects for satellite based education through Gyandarshan. She has authored a self Instructional and Engineering College teachers in the areas of Computer Science and Educational Technology. She has trained around 400 Overseas Teachers in the areas of Information Technology, Educational Video Production and Educational Media Production for E-learning. A. P. Felix Arokiya Raj is an assistant professor in the Center for Educational Media & Technology (CEMT) of National Institute of Technical Teachers Training and Research (NITTTR) Chennai. He specializes in the areas of E-Learning Technologies and Instructional Resource Development. He obtained his Master's in Electronic Media Informatics from Anna University, Chennai. His PhD research study is on effective MOOC design. He has been involved in E-Content development and Instructional Design for NMEICT project.

DR. G.JANARDHANAN
Associate Professor & Head i/c Centre
for Envi.Management, NITTTR

DR. V.SHANMUGANEETHI
Asst. Professor, Dept. of Computer
Science and Engineering

DR. KSA DINESH KUMAR
Asst. Professor, Dept. of Civil
Engineering

TYPE OF COURSE	: Teacher Education Certificate Course	**COURSE DURATION**	: 8 weeks (Sept 02 to Oct 29, 2018)
INTENDED AUDIENCE	: Faculty member of all technical institutions & Aspiring Teachers	**EXAM DATE**	: December 2018
		NO OF CREDITS	: 3
PRE-REQUISITES	: Faculty members should have knowledge / experience in classroom instruction.		

OBJECTIVE OF COURSE

In the end of this course the participants will be able to:
- Design an effective lesson utilizing instructional technology resources and integrate into a blended learning environment.
- Develop a plan to implement blended learning into your classroom.
- Explore online FOSS resources and digital tools as an integral component of blendedlearning.
- Integrate blending into laboratory instruction.
- Understand how objectives of blended learning will impact decisions about institutional planning.
- Evaluate the idea of a flipped classroom Gain understanding of what it really means to flip your classroom.
- Explore different formative and summative assessment strategies for a blended classroom
- Design and develop assessment timeline.

LEARNING OUTCOME

The participants will be design and develop their blended classroom for developing better knowledge society. The faculty members will have the necessary skills and resources to provide a blended and flipped classroom environment for their students. It promotes better student engagement and student achievement.

COURSE PLAN

Week 1: Introduction and Blended Learning Models: An overview, definition, and introduction to Teaching with technology – Benefits and Challenges of Blended Learning

Week 2: Designing Blended Classroom: Instructional Design Models – Process of Blending Learning - Different models of blended learning – Design for Blended Learning - Explore how to help students transition smoothly from traditional education to blended learning.

Week 3: Tools & Resources for creating Blended Classroom:

Explore the choices of software, hardware, and facilities – Practice exercise to create blending environment – Content creation – Assessment tools.

Week 4: Reengineering Role of FacultyMembers & Redesigning the educational institution:Discover the role of the teacher is digital learning – Student activity and collaboration - Transition from traditional classroom to Virtual classroom – Infrastructure requirements.

Week 5: Blending of Laboratory courses: Virtual Laboratory:

Role of Laboratory – Conceptual knowledge and procedural knowledge – Blending through Virtual laboratory – Assessment

Week 6: Blending with SWAYAM Courses / NMEICT:

Learn the steps of the design process to begin development of your own blended learning implementation using SWAYAM / NPTEL Courses.

Week 7: Venturing into Flipped classroom. Introductionto flipped classrooms – The golden rules of flipping–Student engagement in Flipping.

Week 8: Framing Assessment for Blended Learning:How does it work –Framing Formative and Summative assessment – Development of Assessment plan – Preparation of Rubrics.

ABOUT INSTRUCTOR

Dr. G. Janardhanan, Associate Professor & Head i/c , Centre for Environmental Management . He has been working in the domain of Civil and Environmental Engineering, Sustainable development, Instructional technologies and Teaching – Learning Practices. He has coordinated more than 100 training programmes both Nationally and Internationally in the area of Sustainable Development, Green building concepts, Water Quality Analysis, Geoenvironmental Engineering, Blended and Flipped Classroom, Technology Enabled Teaching Learning, Student Evaluation and Instructional Design and Delivery. He has transformed through training more than 260 international participants and 2500 plus national participants. He has developed virtual laboratory for environmental engineering laboratory and handled several national and international projects in the area of engineering, technology and Engineering Education. **Dr. V. Shanmuganeethi,** Assistant Professor, Department of Computer Science and Engineering. He has been working in the domain of web technologies, Cloud computing, programming Paradigm, Instructional technologies and Teaching – Learning Practices and Principles. He has coordinated more than 150 training programmes on CSE discipline and Engineering Education. **Dr. K. S. A. Dinesh Kumar,** Assistant Professor, Department of Civil Engineering. He has been working in the domain of Structural Engineering, Geographical Information System, Sustainable development, Smart City, Instructional technologies and Teaching – Learning Practices and Principles. He has coordinated more than 100 training programmes on Sustainable Development, Green building and Engineering Education. He has developed various projects for Engineering Education includes e-content development and Virtual Laboratory.

DR. G.JANARDHANAN
Associate Professor & Head i/c Centre for Envi.Management, NITTTR

DR. V.SHANMUGANEETHI
Asst. Professor, Dept. of Computer Science and Engineering

DR. KSA DINESH KUMAR
Asst. Professor, Dept. of Civil Engineering

TYPE OF COURSE : Teacher Education Certificate Course	**COURSE DURATION** :	4 weeks (Oct 29 to Nov 26, 2018)
INTENDED AUDIENCE : Faculty member of all technical institutions & Aspiring Teachers	**EXAM DATE** :	December 2018
	NO OF CREDITS :	2
PRE-REQUISITES : Faculty members should have knowledge / experience in classroom instruction.		

OBJECTIVE OF COURSE

In the end of this course the participants will be able to:
- Design an effective laboratory utilizing technology enabled VLAB technology resources and integrate into a mainstream environment.
- Enhance the large group of studentinstruction in laboratory and deepening their knowledge.
- Explore online FOSS resources and digital tools as an integral component of laboratory instruction.
- Develop flipped approach to integrate theory and practice of laboratory instruction.
- Explore different formative and summative assessment strategies for a laboratory assessment.

LEARNING OUTCOME

The participants will be design and develop their laboratory instruction using virtual laboratory increating better knowledge society. The faculty members will have the necessary skills and resources to provide a virtual laboratory environment for their students. It promotes better student engagement and student achievement.

COURSE PLAN

Week 1: Introduction: An overview, definition, and introduction to laboratories in technical education – Different types of Laboratory instruction - Benefits and Challenges in laboratory instruction – Present status and the path ahead.

Week 2: Enhancing laboratory instruction using virtual laboratories:Simulation versus real experimentation – Computer in the laboratory - Explore how to help students transition smoothly from traditional Laboratory to Virtual Laboratory – Procedural learning to Conceptual learning – Online tools and resources for virtual laboratory - Learn the steps of the design process to begin development of your own implementation using Vlab - NMEICT.

Week 3: PerformanceAssessment in Laboratory:

How does it work –Framing Formative and Summative assessment for laboratory instruction – Development of Assessment plan – Preparation of Rubrics.Explore the choices of software, hardware, and facilities – Practice exercise to create blending environment – Content creation – Assessment tools.

Week 4: Future look of laboratory instruction and academic practice:Discover the role of the teacher is Technology enabled laboratory instruction – Changing Physical Appearance – Student activity and Closercollaboration.

ABOUT INSTRUCTOR

Dr. G. Janardhanan, Associate Professor & Head i/c , Centre for Environmental Management . He has been working in the domain of Civil and Environmental Engineering, Sustainable development, Instructional technologies and Teaching – Learning Practices. He has coordinated more than 100 training programmes both Nationally and Internationally in the area of Sustainable Development, Green building concepts, Water Quality Analysis, Geoenvironmental Engineering, Blended and Flipped Classroom, Technology Enabled Teaching Learning, Student Evaluation and Instructional Design and Delivery. He has transformed through training more than 260 international participants and 2500 plus national participants. He has developed virtual laboratory for environmental engineering laboratory and handled several national and international projects in the area of engineering, technology and Engineering Education. **Dr. V.Shanmuganeethi,** Assistant Professor, Department of Computer Science and Engineering. He has been working in the domain of web technologies, Cloud computing, programming Paradigm, Instructional technologies and Teaching – Learning Practices and Principles. He has coordinated more than 150 training programmes on CSE discipline and Engineering Education. **Dr. K. S. A. Dinesh Kumar,** Assistant Professor, Department of Civil Engineering. He has been working in the domain of Structural Engineering, Geographical Information System, Sustainable development, Smart City, Instructional technologies and Teaching – Learning Practices and Principles. He has coordinated more than 100 training programmes on Sustainable Development, Green building and Engineering Education. He has developed various projects for Engineering Education includes e-content development and Virtual Laboratory.

PROF. DR. E.S.M.SURESH
**Professor & Head, Department of Civil Engineering, National Institute of
Technical Teachers Training & Research.
(NITTTR)**

TYPE OF COURSE : Teacher Education Certificate Course

INTENDED AUDIENCE : PG Engineering Students/Teachers working in Polytechnic/Engineering Colleges/Universities with minimum Qualification PG – All Science/Engineering/Technology Disciplines (M.Sc/M.E/M.Tech/M.S (By research)

COURSE DURATION : 8 weeks (Aug 13 to Oct 08, 2018)

EXAM DATE : December 2018

NO OF CREDITS : 3

PRE-REQUISITES : Preferably Undergone Training in Pedagogy

OBJECTIVE OF COURSE

Engineering practice and its related technologies have become global in scope and scale. To be effective, today's engineering graduate must not only be grounded in scientific and mathematical fundamentals, engineering principles and design, but must also have a global outlook and the broader skills to work in society in both home country and internationally.The quality issues of technical education system are required to be identified and strategies for application of principles of TQM, Re-engineering and Benchmarking be considered. This course is meant to senior teachers who are working in Polytechnic and Engineering colleges who are involved in quality assurance and accreditation process.

LEARNING OUTCOME

Improving quality Education in Engineering education. Develop different strategies to enhance the quality of education. Applying outcome Based learning and assessment systems.

COURSE PLAN

Week 1: Quality Assurance in Engineering Education-Overview (Introduction), Module1: Strategic Planning- Functions of Education Management

Week 2: Module1: Institutional Vision Mission and Mandate, Steps involved in strategic planning process, Work Plan Action Plan, Leadership qualities, Autonomy, Internal Revenue Generation and Utilization, Academic Performance Indicators

Week 3: Module 2: Institutional Development- Institutional development Models, Centre of Excellence

Week 4: Module 2: Industry Institution community partnership models, Industrial Consultancy, Research and Development

Week 5: Module 3: Total Quality Management in Engineering Education- Leadership, Concepts of Quality Management, QMS/QC Tools, Assessment of Quality, Application of TQM in Engineering Education

Week 6: Module 4: Educational Project Management-Project Management Principles, PERT/CPM, Applications of Network Techniques, Time analysis, Cost Planning and Control, Cost Tradeoff- Resource Planning and Monitoring, Project management software packages

Week 7: Module 5: Outcome Based Education & Accreditation- Overview of OBE &Accreditation, Course Outcome, Programme Educational Objectives, Mapping of Course outcome - Programme outcome

Week 8: Module 5: Assessment of Attainment of PEO.PO & CO, Accreditation Criteria &Parameters, SAR Preparations.

ABOUT INSTRUCTOR

Prof. Dr. E.S.M .Suresh is working as Professor and Head of Civil Engineering at National Institute of Technical Teachers Training and Research , Chennai, India (MHRD, Govt. of India). He has got 28 years of experience in Teaching and Research. He is conducting Faculty Training Programs for Polytechnic and Engineering College Teachers. He has completed more than 400 training for Polytechnic/Engineering College faculty. He has conducted more than 10 International Training Programs. He is guiding Ph.D Scholars in the area of Engineering Education and Civil Engineering. (6 got Awarded and 5 more are working under his guideship). He is the Expert Member of National Board of Accreditation and evaluated the Civil Engineering Programs at Diploma, Degree and Post Graduate level. He has been recognized as an expert by UNESCO Bangkok on MOOCs in Higher Education. He has visited countries viz. USA, The Netherlands, Germany, France, Belgium, Singapore, Malaysia and China.

PROF. S. DHANAPAL
Professor & Head, (Retd), Centre for Curriculum Development, National Institute Of Technical Teachers Training & Research.
(NITTTR)

TYPE OF COURSE	: Teachers Training Certificate Course	**COURSE DURATION** :	8 weeks (24th Sep to 16th Nov, 2018)
INTENDED AUDIENCE :	Faculty members of Technical Institutions	**EXAM DATE** :	24th November, 2018
		NO OF CREDITS :	3
PRE-REQUISITES :	Reasonable knowledge of the student services, industry partnership, Institutional organization, accreditation requirements and achievements of one's own institution		

OBJECTIVE OF COURSE

Strategic Planning helps a technical institution to proactively shape its future and determine the path and milestones that determine actual performance. In the bottom-up approach the teachers and staff of the institution take the responsibility of developing and managing the strategic plan. This course has the objective of providing the teachers with the knowledge and skills needed for developing a strategic plan, particularly the need for a plan, developing vision and mission statements, SWOT analysis, identifying thrust areas and objectives, developing work plan and action plan and carrying out the strategic plan (strategic management).

LEARNING OUTCOME

* Initiate the strategic planning process for the institution
* Clarify the mandate of the organisation
* Develop Vision and Mission statements.
* Conduct SWOT analysis for the institute
* Identify Thrust Areas which are the strategic directions of the institute
* Develop Work Plan and Action Plans for implementing the Thrust Areas
* Implement the strategic plan for the institution
* Monitor the implementation and evaluate the results achieved
* Revise the strategic plan

COURSE PLAN

Week 1: Module 1: Strategic Planning, need, Module 2: Reasons for strategic planning, Module 3: Alternatives for strategic planning, Assignment: Identify the need for Strategic Planning for your institution

Week 2: Module 1: Decision on strategic planning, Module 2: Strategic planning group, Module 3: Training members of the group, Assignment: Exercise on steps in developing strategic planning

Week 3: Module 1: Defining mandate, Module 2: Clarifying mandate for an organisation, Assignment: Develop the Mandate for an institution

Week 4: Module 1: Components and attributes of Vision and Mission statements for an institution, Module 2: Developing vision and mission statements, Assignment: Develop Vision and Mission statements for your organisation consistent with Mandate

Week 5: Module 1: Components Purpose of SWOT analysis, information sources, tool development, Module 2: Data collection and analysis

Assignment: 1. Develop tools for SWOT analysis, 2. Carry out SWOT analysis for your organisation Mandate

Week 6: Module 1: Identification of thrust areas and prioritising them, Module 2: Identify objectives for thrust areas, Module 3: Write objective statements, Assignment: 1. Identify Thrust areas and Writing objectives

Week 7: Module 1: Prepare work plan and develop action plan, Assignment: 1. Preparing Work Plan and Action Plan for your organisation

Week 8: Module 1: Identification of Strategic management process, ToR for Strategic Management Group, Module 2: Seven key factors for sustaining the process, Module 3: structures, linkages and procedures for the process, Assignment: 1. Develop ToR for Management Group and develop structures and linkages for the Process

ABOUT INSTRUCTOR

Extensive experience in developing Strategic Plans for technical education institutions. Carried out Strategic Planning for 15 polytechnics in the North Eastern States under World Bank Assisted Project (Tech Ed III). Part of the expert team for developing Strategic Plan for a leading Engineering College in Tamilnadu. Has trained several teachers in the Strategic Planning process for technical institutions.

DR. SUNIL DUTT
Professor & Head, Department of Education & Educational Management, National Institute of Technical Teachers Training & Research, Chandigarh

TYPE OF COURSE	: Teachers Training Certificate Course	**COURSE DURATION** :	8 weeks (15th Oct to 07th Dec, 2018)
INTENDED AUDIENCE :	Teachers working in Educational	**EXAM DATE** :	15th December, 2018
	Institutions and other professionals	**NO OF CREDITS** :	2
	to enable them develop Self-learning materials in their subjects		
PRE-REQUISITES :	Teachers working in Technical Institutions with UGC/AICTE prescribed qualifications		

OBJECTIVE OF COURSE

In order that learners learn in their own time and at their own pace with little or no supervision, self- learning materials are designed to facilitate the learning process. Self-directed learning can be challenging, even for the brightest and most motivated students. The course introduces the learner to the need: New challenges and trends; concept of Learning Material and its purposes; essential characteristics of SLMs; general principles of Learning Material Development; process of developing Self Learning Material; structure of Self Learning Materials; producing prototype; validation

LEARNING OUTCOME

After the course is over, participants will be able to develop self-learning material (both print and computer Assisted) on any topic of their choice in their areas of specialization.

COURSE PLAN

Week 01: Self Learning Material – Need, New Challenges & Trends, concept, Characteristics & Types

Week 02: Systematic Approach to Instructional Design – Steps, Task Analysis and Learning Outcomes

Week 03: Principles and Process of Development of Self Learning Material

Week 04: e-content Generation and Integration of Graphics in Self Learning Material

Week 05: Computer Assisted Instruction-Design & Development

Week 06: Self Learning Material – Content Organization & Presentation

Week 07: Quality Assurance and Intellectual Property Rights

Week 08: Validation – Its need and methodology; Responsibility and Obligations

Total duration of the course is 20 hours. Each week contains videos (2 to 6; each of about 10 minutes duration), e-content, Discussion forums/quizzes/Assignment and time for studying web link resources

ABOUT INSTRUCTOR

Dr. Sunil Dutt is presently Professor & Head, Department of Education and Educational Management at National Institute of Technical Teachers Training & Research, Chandigarh. He holds M.Sc. (Hons) Chemistry; M.Ed. and Ph.D. (Education). He has about 2 and half years industrial and 33 years of teaching and research experience. His areas of specialization include Educational Technology, Research Methodology, Guidance & Counselling, Measurement & Evaluation and Educational Management. He has guided 34 Ph.D. dissertations and contributed 59 research publications in International & National Journals and published six text books. He has coordinated about 275 short term courses and taught subjects like 'Research Methodology', 'HRD & Training Methods', 'Education Project Planning & Management', 'Psychology of Adult Learning' and 'Principles of Management'. He has developed 03 video films, 18 CAI packages/self-learning material; Coordinated 12 Research & Development studies; coordinated testing services/activities under IRG etc.

DR. RAJESH KUMAR DIXIT
Professor, Department of Civil and Environmental Engineering,,
NITTTR Bhopal

TYPE OF COURSE	: Teacher Education certificate course	**COURSE DURATION** :	8 weeks (30th July to 21st Sept, 2018)
INTENDED AUDIENCE :	Teachers of engineering colleges.	**EXAM DATE** :	There is no final examination in this MOOC
		NO OF CREDITS :	3

OBJECTIVE OF COURSE

To prepare the participants (means teachers or potential teachers of engineering colleges) to:
a. Design (redesign) the undergraduate engineering programme in line with outcome based accreditation based on NBA criteria.
b. Implement and evaluate undergraduate engineering programme in line with outcome based accreditation based on NBA criteria.
c. Identify and collect appropriate data for various criteria.
d. Prepare the self assessment report (SAR) for undergraduate engineering programmes.
e. Face the NBA evaluation team.
f. Prepare response/ documents for post visit activities.

LEARNING OUTCOME

This course on accreditation will prepare the participants to take up accreditation related activities for undergraduate engineering programmes including preparing Self-Assessment Report.

COURSE PLAN

Week 1:

Module 1: Introduction to accreditation

Module 2: Outcome based Education

Week 2:

Module 3: Vision, Mission and PEOs

Module 4: POs and PSOs

Week 3:

Module 5: Course Outcomes and Mapping with POs and PSOs

Module 6: Curriculum structure, Curriculum gap and Content beyond syllabus

Week 4:

Module 7: Teaching learning processes

Module 8: Attainment of POs, PSOs and Cos

Week 5:

Module 9: Criteria related to students : Students' Performance

Module 10 : Criteria related to faculty : Faculty Information and Contributions

Week 6:

Module 11: Facilities and Technical Support

Module 12: Continuous Improvement

Module 13: First Year Academics

Week 7 :

Module 14: Student Support Systems

Module 15: Governance, Institutional Support and Finances

Week 8:

Module 16: Applying for Accreditation and Visit

Module 17: Problem Solving: Difficulties Encountered

ABOUT INSTRUCTOR

Prof.R.K.Dixit is currently working as Professor in the Department of Civil and Environmental Engineering at National Institute of Technical Teachers' Training and Research, Bhopal. He is having 33 years of experience in training, education, research, industry, consultancy and extension activities. He has published more than 50 research papers. He has conducted more than 50 visits for accreditation of under-graduate and post graduate engineering programmes as well as diploma (engineering) programmes as a chairman and an expert-member. He has been consultant, the World Bank, The Govt. of Madagascar, National Project Implementation Unit and various state governments for technical education.

PROF. JOSHUA EARNEST

Professor, Department of Civil and Environmental Engineering,
NITTTR Bhopal

TYPE OF COURSE : Teacher Education Certificate Course

INTENDED AUDIENCE : The course is mainly intended for those technical teachers who are interested in understanding or developing engineering education curricula. Teachers could be of any discipline..

PRE-REQUISITES : Any engineering, pharmacy or architectural graduate.

COURSE DURATION : 4 weeks (Aug 13 to Sept 10, 2018.)

EXAM DATE : September 2018

NO OF CREDITS : 2

OBJECTIVE OF COURSE

Comprehend different types of curriculum approaches to plan to design of relevant outcome-based engineering curricula of technical education programmes to fulfill the need of the industry/society by comprehending.

LEARNING OUTCOME

a. Select the relevant approach(s) for the developing curriculum for the given occupation.
b. Evolve the activities of the different stages for developing the given curriculum.
c. Design relevant need identification tools for different technical occupations.
d. Evolve relevant curriculum designs for an outcome-based curriculum (OBC).

COURSE PLAN

Week-1

Learning Outcome: Select the relevant approach(s) for the developing curriculum for the given occupation

Week-2

Learning Outcome: Evolve the activities of the different stages for developing the given curriculum

Week-3

Learning Outcome: Design relevant need identification tools for different technical occupations

Week-4

Learning Outcome: Evolve relevant curriculum designs for an outcome-based curriculum (OBC)

ABOUT INSTRUCTOR

Prof. Joshua Earnest is currently working as Professor in National Institute of Technical Teachers Training and Research (NITTTR), Bhopal. He is having an industrial experience of about 6 years and 31 years of experience in education, teaching, training, research, consultancy and research. He has published 2 technology books one targeted for the industry and other for the university system. 1 book related to curriculum development along with Prof. B. L. Gupta, and 2 modules related to engineering education along with other co-faculty of NITTTR Bhopal. He has published several international papers related to engineering education over the past several years. Prof. Joshua Earnest is B. Sc (Engg). in Electrical Engineering, an M.Tech. in Heavy Electrical Equipment, M. Tech Ed., and a Ph. D. in Technical Education.

PROF. B. L. GUPTA
Professor, Department of Management and Dean Academics and Research
National Institute of Technical Teachers' Training and Research,
Bhopal

TYPE OF COURSE	:	Certificate	**COURSE DURATION**	:	8 weeks (August 13 to October 08, 2018)
INTENDED AUDIENCE	:	Since it is teacher training programme so teachers of Polytechnics	**EXAM DATE**	:	November 2018
			NO OF CREDITS	:	3

PRE-REQUISITES : Pre-requisites of the course. Any teacher or potential teacher of polytechnics may enrol for the programme

OBJECTIVE OF COURSE

To prepare the participants (means teachers or potential teachers of polytechnics) to:
a. Make preparation to satisfy requirements of NBA criteria
b. Prepare the self assessment report for Diploma engineering programmes.
c. Facilitate on site evaluation by NBA evaluation team

COURSE PLAN

Week 01:-

Module 1 Overview of NBA

Week 02 :

Module 2 Vision, mission and Programme educational objectives

Week 03 :

Module 3Programme curriculum and teaching learning process

Week 04 :

Module 3 Programme curriculum and teaching learning process

Week 05 :

Module 4Course outcomes and outcomes

Week 06 :

Module 5students' Performance

Module 6 Faculty information and Contribution

Module 7 Facility and technical support

Week 07 :

Module 8 Continuous improvement

Module 9 Student Support System

Module 10 Governance, institutional support and financial resources

Week 08 :

Module 11Documentation for accreditation

Module 12Preparation for obtaining NBA

Module 13Preparation for NBA Evaluation team visit

Module 14Facilitating on site visit of NBA evaluation team

ABOUT INSTRUCTOR

Prof. B. L. Gupta is currently working as Professor in Department of Management, National Institute of Technical Teachers' Training and Research, Bhopal. He is also holding the post of Dean Academics and Research. He is having 35 years of experience in education, teaching, training, consultancy, extension and research. He has published 22 reference books and more than 60 research papers. Prof. Gupta has conducted more than 70 training programmes on accreditation. Prof. B. L. Gupta is B. E. Civil, LL. B., M. Tech Ed., Ph. D. in Technical Education, MBA in Human resource management, PG Diploma in marketing, and PG Diploma in Operation Management.
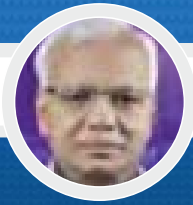
DR. D. SINGH KARAULIA
Professor of Computer Science, National Institute of Technical Teacher's Training and Research, Bhopal

TYPE OF COURSE	: Teacher Education Certificate Course	**COURSE DURATION :**	4 weeks (15th Oct to 14th Nov, 2018)
INTENDED AUDIENCE :	PG / Faculty teaching PG engineering programme	**EXAM DATE** :	17th November, 2018
		NO OF CREDITS :	2

PRE-REQUISITES : Faculty Training on "Accreditation of UG Programmes" Conducted by NITTTRs – preferable but not necessary

OBJECTIVE OF COURSE

After completion of this course participants will be able to fill up the Self Appraisal Report (SAR) of PG engineering programme for NBA accreditation

LEARNING OUTCOME

- Articulate curriculum development aspects, PEOs, POs, and COs
- Design Course Articulation Matrix, and assess attainment of POs
- Compile student's data and faculty contribution records
- Document laboratories & research facilities
- Record evidence based continuous improvement

COURSE PLAN

Week 1:

Significance of Accreditation, OBA, Accreditation process, pre-qualifier, premise & criteria of accreditation, basic institutional information, articulating vision, mission and PEOs, programme curriculum, teaching & learning processes.

Week 2:

Articulating Program Outcomes (POs), Course Outcomes (COs), and designing a Course Articulation Matrix, attainment of Programme Outcomes.

Week 3:

Compiling admitted students & successfully graduated student's data, success rate, professional activities, and faculty contributions.

Week 4:

Laboratories & research facilities; continuous improvement.

ABOUT INSTRUCTOR

A Professor at NITTTR, Bhopal experienced in training, education, research, consultancy & extension activities, and served as programme evaluator as member of NBA Expert Committees.

DR. RANJAN DASGUPTA
Professor, Department of Computer Science and Engineering, NITTTR, Kolkata

RAJEEV CHATTERJEE
Assistant Professor, Department of Computer Science and Engineering, NITTTR, Kolkata

TYPE OF COURSE : Teacher Certificate Course

INTENDED AUDIENCE : Faculty members of Technical Institution

PRE-REQUISITES : Faculty members should have exposure in various web-based application and interest in distance mode of Teaching-learning system.

COURSE DURATION : 12 weeks (27th August to 16th Nov, 2018)

EXAM DATE : December 2018

NO OF CREDITS : 4

OBJECTIVE OF COURSE

Learning Management System (LMS) is a course that will empower the teachers of the higher education to develop their courses in the e-learning platform. This will also aware them of the various features available in the LMS. After going through the course learners' will be able to:

- Explain the concept e-learning
- Demonstrate the fundamentals of Learning Management System
- Explain various learning methods, learning approaches, learning styles
- Demonstrate content development using standards such as SCORM and LTSA
- Explain internet technology, social media
- Use of ADDIE model for e-content development based on MOODLE platform
- Explain Security and plagiarism related to LMS

LEARNING MANAGEMENT SYSTEM

LEARNING OUTCOME

The SWAYAM/MOOC course on Learning Management System (LMS) is a first-hand experience for the teachers of the higher education institutes especially those related the technical domain. The course will demonstrate the various terminologies related to the domain of e-learning or Technology Enabled Learning (TEL). Apart from this the learner will be able to develop a learning content related to a course of particular domain using the state of art technology and standards available on SWAYAM/MOOC platform.

COURSE PLAN

Week 01:- E-learning Fundamentals

Week 02:- LMS fundamentals, Major features of LMS

Week 03:- Learning methods, Learning Domains, Learning Approach, Types of learning, Adult learning approach

Week 04:- SCORM and LTSA

Week 05:- Internet Technology

Week 06:- Technology and use, Social Media

Week 07:- Learning 2.0, LMS more than content delivery

Week 08:- LMS Design issues, MOODLE, ADDIE model

Week 09:- Security and LMS

Week 10:- Plagiarism and LMS

Week 11-12:- Preparing faculty for LMS/ SWAYAM use.

ABOUT INSTRUCTOR

Dr. Ranjan Dasgupta, Professor, Department of Computer Science and Engineering is working at NITTTR, Kolkata for more than 25 years and is actively engaged in various teaching learning process. He has coordinated more than 200 training programs on Database Management System(DBMS), Webpage Design, Software Engineering and allied areas. His research interest includes Cloud computing, e-learning, Software engineering.

Rajeev Chatterjee, Assistant Professor, Department of Computer Science and Engineering is working at NITTTR, Kolkata for near about 18 years and is actively engaged in the domain of Technology Enabled Learning (TEL), Confidence Based Learning (CBL), IT infrastructure development, Computer Network etc. He has coordinated more than 150 training programs on IP based networking, e-learning, e-content development and IT infrastructure development.

LABORATORY AND WORKSHOP MANAGEMENT

DR. DIPANKAR BOSE
Professor, Department of Mechanical Engineering, National Institute of Technical Teachers' Training and Research, Kolkata

DR. SAMIRAN MANDAL
Professor, Department of Mechanical Engineering, National Institute of Technical Teachers' Training and Research, Kolkata

DR. SUBRATA MONDAL
Assistant Professor, Department of Mechanical Engineering, National Institute of Technical Teachers' Training and Research, Kolkata

TYPE OF COURSE	: Teacher Certificate Course	**COURSE DURATION** :	8 weeks (23 Aug to 21 Sep, 2018)
INTENDED AUDIENCE :	Faculty members of Technical Institution	**EXAM DATE** :	November 2018
		NO OF CREDITS :	2
PRE-REQUISITES	: Any teacher or potential teacher of technical institution may enrol for the programme		

OBJECTIVE OF COURSE

After successful completion of the course the participants will be able to
- To explore methodology of laboratory/workshop learning
- To explore various aspects of training for instructors, and management issues
- To explore safety management for laboratory/workshop

LEARNING OUTCOME

Module 1
1. Explain aims of laboratory and workshop classes, 2. Describe the purpose and nature of activities in laboratory and workshop.

Module 2
1. Explain the steps in planning a laboratory class, 2. Develop expected outcomes of laboratory class, 3. Prepare instruction sheet for laboratory class, 4. Develop lesson plan for a laboratory class, 5. Explain the steps for conducting a laboratory class, 6. Plan the demonstration of a laboratory class, 7. Guide the students to conduct/perform experiment/job in laboratory/ workshop

Module 3
1. Explain the nature of performance based assessment, 2. Describe the main steps of performance based assessment, 3. Explain the basis of performance based assessment, 4. Explain the common methods of observing, recording and scoring, 5. Develop rubrics for performance based assessment in laboratory

Module 4
1. Explain non-motivational issues of the students in attending practice classes, 2. Know the steps for encouragement of motivation in laboratory works to the students, 3. Explain role of instructors in managing practice classes, 4. Describe the various aspects of management of manpower (technical staff) and students, 5. Plan management of machines/equipment and consumables

Module 5
1. Discuss various common hazards in laboratory/workshop

Module 6
1. Describe overall safety management issues to be followed in conducting laboratory and workshop activities. 2. Describe the details of protective equipment required for safety management in laboratory and workshop. 3. Explain various safe operating procedures to be followed for safety aspects of laboratory/workshop users.

Module 7
1. Explain objectives of training , 2. Know learning methods of training , 3. Plan training strategies of instructors, 4. Explain categorization of instructors for selection of training providers, 5. Know various types of training providers.

Module 8
1. Describe the details of wastes produced in conducting laboratory and workshop classes. 2. Explain different methodologies in managing waste in laboratory and workshops.

COURSE PLAN

Week 1- Introduction (aims of laboratory and workshop classes), the purpose and nature of activities in laboratory and workshop.

Week 2- Nature of learning process in laboratory and workshop, methodology of laboratory and workshop learning.

Week 3 - Basis of evaluation in laboratory and workshop, and various parameters for the performance assessment of laboratory and workshop classes.

Week 4 - Management issues such as management of classroom, manpower, resources.

Week 5 - Common hazards in laboratory and workshops.

Week 6 - Safety management in laboratory and workshops, personal protective equipment etc.

Week 7 - Training aspects of Laboratory instructors.

Week 8 - Waste management in laboratories and workshops, common violations in waste management in laboratory/workshop

ABOUT INSTRUCTOR

Dr. Dipankar Bose, Professor, Department of Mechanical Engineering, at National Institute of Technical Teachers' Training and Research, Kolkata has been working in the domain of Manufacturing Technology, Fluid Mechanics and Pedagogical Aspects of Laboratory Teaching. He has coordinated more than 100 training programs on Mechanical Engineering discipline and Engineering Education.

Dr. Samiran Mandal, Professor, Department of Mechanical Engineering, at National Institute of Technical Teachers 'Training and Research, Kolkata has been working in the domain of Manufacturing Technology, Product Design, Robotics and Research Methodology. He has coordinated more than 150 training programs on Manufacturing Technology and Teaching Learning Systems.

Dr. Subrata Mondal, Assistant Professor, Department of Mechanical Engineering at National Institute of Technical Teachers 'Training and Research, Kolkata has been working in the domain of Advanced Applications of Material Science & Engineering, Biomaterials, Water Treatment and Safety Aspects of Laboratory. He has coordinated training programs on Material Science, Nanotechnology, Water Treatment, Safety Management of Laboratory etc.

DR. KIRAN SAKSENA
**Professor and Ex-Head, Department of Education & Research,
N.I.T.T.T.R. Bhopal.**

TYPE OF COURSE	: Teacher Training Certificate Course	**COURSE DURATION** :	4 weeks (15th Oct 2018 to 12th Nov 2018)
INTENDED AUDIENCE :	UG/PG/Diploma/Certificate/School	**EXAM DATE** :	December 2018
	Practising / Potential technical teachers	**NO OF CREDITS** :	2

OBJECTIVE OF COURSE

The course is intended to enable the practicing and probable teachers to:
- Appreciate the process of learning from different perspectives and apply the principles of learning to enhance the effectiveness of learning and instruction.
- Support to achieve the intended learning outcomes at different taxonomic levels in cognitive, affective and psycho-motor domains.
- Design the instructional process to achieve intended learning outcomes

LEARNING OUTCOME

The course will enable the teachers to:
1. Explain the process of learning from different perspectives.
2. Suggest the activities for classroom/ Lab instruction sessions in view of principles of learning derived from different perspectives.
3. Manage variables affecting the process of learning to enhance its effectiveness
4. Use inventories / tools to identify the individual differences among learners.
5. Suggest strategies to address individual differences among learners
6. Formulate learning outcomes at different taxonomic levels in Cognitive, Affective and Psychomotor domains.
7. Design learning and instruction events as per Gagne's nine events
8. Prepare an instructional plan based on events

COURSE PLAN

Week 01:

Unit One: Human Learning: An Overview: Process and Principles of Human Learning as derived from different perspectives: Behaviourism, Congitivism, Constructivism, Social Learning., Experiential Learning, Action Learning and Collaborative Learning

Week 02:

Variables Affecting Human Learning, Inventories/tools to assess identified variables and Learning styles of students

Week 03:

Domains of Learning- Domains of learning, Four pillars of learning and Taxonomic level in Cognitive, Affective and Psychomotor Domain.

Week 04:

Instruction: Process of learning and Instruction, Instructional events by Robert M Gange

ABOUT INSTRUCTOR

Dr. Kiran Saksena is a Professor and senior faculty member and has more than 33 years of experience of designing and conducting training programmes for technical teachers, developing learning resources, conducting research for systemic development, handling national and international consultancy projects. She has guided research studies at postgraduate and doctorate level, presented / published more than 35 research papers in many national and International Seminars. She is internationally trained in countries like U.K., Philippines and U.S.A. (1999) in specialized areas and skills. She is a practising counsellor and an excellent soft skills trainer. Prof. Kiran Saksena is Ph.D. (Education), M.Ed., M.A. (Applied Psychology) (University Gold Medalist) and P.G. Diploma in Human Resources Management (IGNOU).

स्वयं पढ़ें,
आगे बढ़ें !

Ministry of Human Resource Development
Government of India

July 2018