FREE ONLINE EDUCATION

swayam

शिक्षित भारत, उन्नत भारत

(323) COURSES OFFERED IN SEMESTER STARTING JULY 2017

swayam.gov.in

ONLINE STUDY

सत्यमेव जयते

Ministry of Human Resource Development
Government of India

'SWAYAM'

Study Webs of Active-learning for Young Aspiring Minds

The Indian e-Learning Platform

As per 'Digital India' Initiative, MHRD has initiated to develop & make available 'Massive Online Open Courses (MOOCs)' to the learners through out the country. The Ministry of HRD, has accordingly embarked on a major and new initiative called 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM), which will provide one integrated platform and portal for online courses, using information and communication technology (ICT) and covering all higher education subjects and skill sector courses to ensure that the every student in our country has access to the best quality higher education at the affordable cost.

SWAYAM is initiated by Government of India, to take best teaching learning resources to all, including the most disadvantaged.

The three cardinal principles of Education Policy viz., access, equity and quality shall be achieved by providing high quality e-content to all learners in the country through SWAYAM. Courses delivered through SWAYAM are available free of cost to the learners, are delivered by best of the teaching fraternity.

MHRD has constituted, National MOOCs Coordinators (NMCs), numbering 8 that have been entrusted as under with the responsibilities to ensure MOOCs are developed & delivered in various disciplines and ultimately subjects are covered fully.

The NMCs are University Grants Commission (UGC), contributing to 'Non Engineering Post Graduation Degree Programme; IIT Madras and other groups of NPTEL, contributing to Technical / Engineering UG & PG degree programme; Consortium for Education Communication (CEC), contributing to Non Technology Under Graduation degree programme; Indira Gandhi National Open University (IGNOU), contributing to Diploma and Certificates Programme; NCERT, contributing to School Education from 9th to 12th; National Institute of Open Schooling (NIOS); Indian Institute of Management (IIM) Bangalore, contributing to Management Programme, & other IIMs and National Institute of Technical Teachers Training & Research (NITTTR), contributing to Teacher Training Programme.

The Subject Matter Experts (chosen by the NMCs) have been hosting courses, taught in classrooms from 9th class till post-graduation in a number of disciplines that can be accessed by anyone, anywhere at any time. In this process academicians from hundreds of institutions through out the country are involved in developing & delivering MOOCs through SWAYAM in almost all disciplines from senior schooling to Post Graduation wherein it is intended to develop world class content.

The MHRD has developed a detailed "MOOCs Guidelines, 2017" (Page 71-86) and funding for development & delivery of MOOCs is being provided by MHRD through institutions.

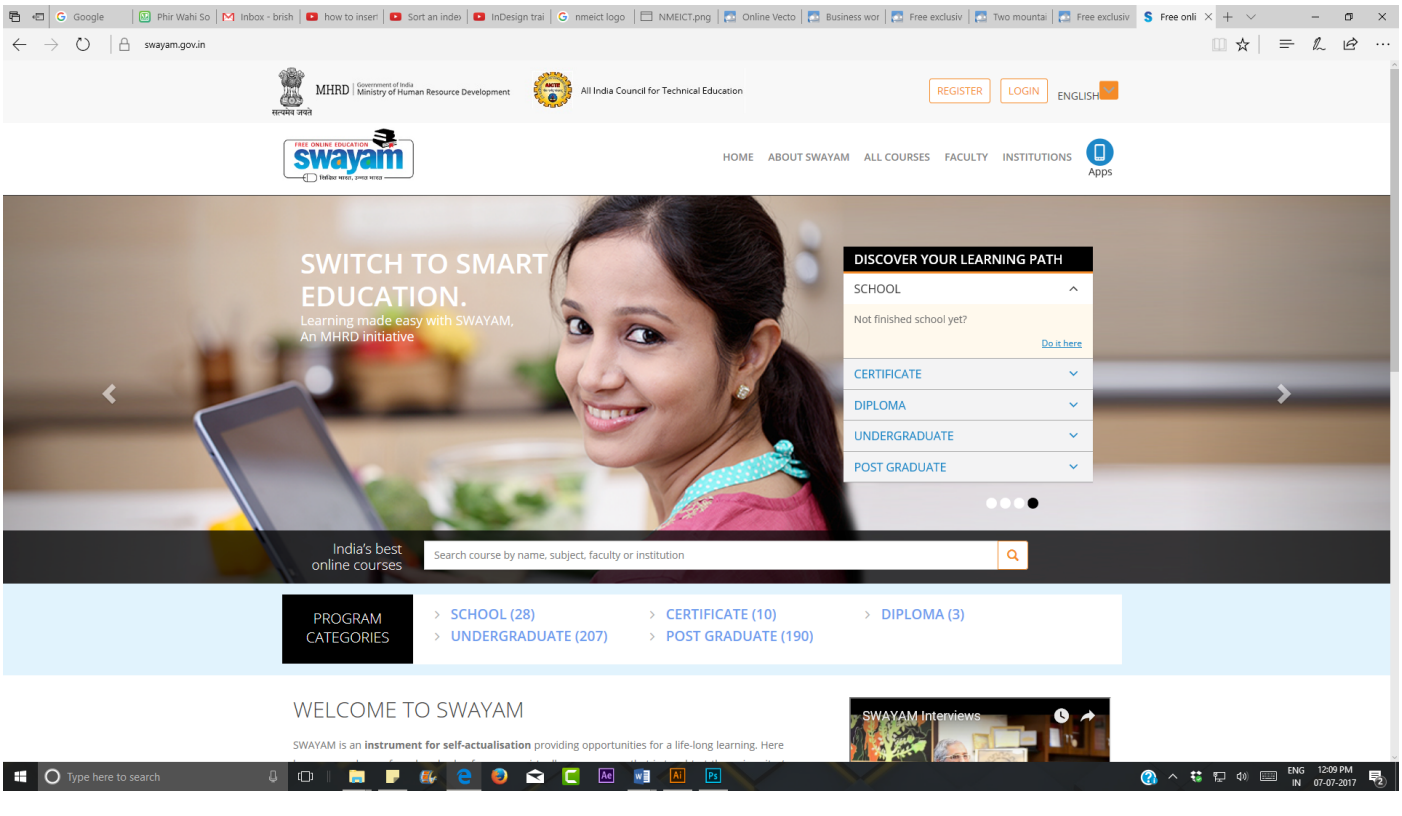
The courses hosted on SWAYAM are developed in 4 quadrants – (i) e-Tutorial: video lecture

(using audio-video, multi-media, animation and state of the art pedagogy / technology), (ii) e-Text: specially prepared reading material that can be downloaded /

printed (iii) Discussion forum: for raising doubts and clarifying them on a near real time basis by Course Coordinator or his team and (iv) Assignments: which shall contain; Problems and Solutions that could be in the form of Multiple Choice Questions, Fill in the blanks, Matching Questions, Short Questions, Long Questions, Quizzes, Assignments and solutions, FAQs and providing Clarifications on general misconceptions. Assignments are checked & assessment/ feedback made available to registered students.

Development of SWAYAM Platform has been entrusted to 'All India Institute of Technical Education (AICTE)' in March 2016, for in-house development, accordingly, the High quality IT Platform has been developed by the Microsoft. With additional features, the Phase-II, SWAYAM is operational w.e.f 27th June 2017. The Pllatform is intended to host about 2000 courses and 80000 hours of learning material, within 2-3 years, on SWAYAM: covering school, under-graduate, post-graduate, engineering, law and other professional courses. The AICTE is also hosting the entire content on 'SWAYAM Cloud', which is expected to grow and support about 3 Crore users with 10 lakh concurrent connections, in a few years.

UGC and AICTE have issued 'Credit Framework for online learning courses through SWAYAM, Regulation 2016' (Page 87-99 (http://www.ugc.ac.in/pdfnews/0272836_moocs.pdf); allowing upto 20% Online courses taken through SWAYAM, to be counted for credit. Grades earned by successful students studying in conventional Institutes shall be transferred to the academic record of such Students. The MHRD, with effect from 16th November 2016, has on Trial basis, made public the SWAYAM portal "https://swayam.gov.in". A screen short of the Platform is shown as under. At present about 434 Online courses are listed on SWAYAM and about 260 MOOCs have already been delivered, attended by above 74,000 Learners thought India.



place, each week, which is followed by assignment or case studies given by the Expert to the registered students. The Teaching Assistance (TA), associated with the Experts delivering the MOOCs, shall check assignments and assess them and feedback on this shall be provided to students on regular basis. In order to earn credits, registered students shall be asked to appear end-examination, which shall be proctored. On successful completion of each course, the institution offering the course would issue the certificate and the student shall get credits transferred into their marks certificate, issued by parent institution.

Discussion forum and interaction with peer group & Mentor shall be carried out on 'Discussion Forum' on the SWAYAM. Discussion forum shall be made very active and the students shall be encouraged to ask numerous questions to experts & post queries on SWAYAM platform on a daily basis. Frequently Asked Questions (based on the SMEs' past experience) shall be posted along.

The Video's from Online Courses, available on SWAYAM platform, shall also be used for transmission in 'SWAYAM Prabha' (the 24X7, 32 educational DTH channels already launched by the MHRD on 15th August 2016, using G-SAT-15 Satellite). Attempt shall be made to synchronise course scheduling on SWAYAM Prabha channels with the courses delivered on SWAYAM platform.

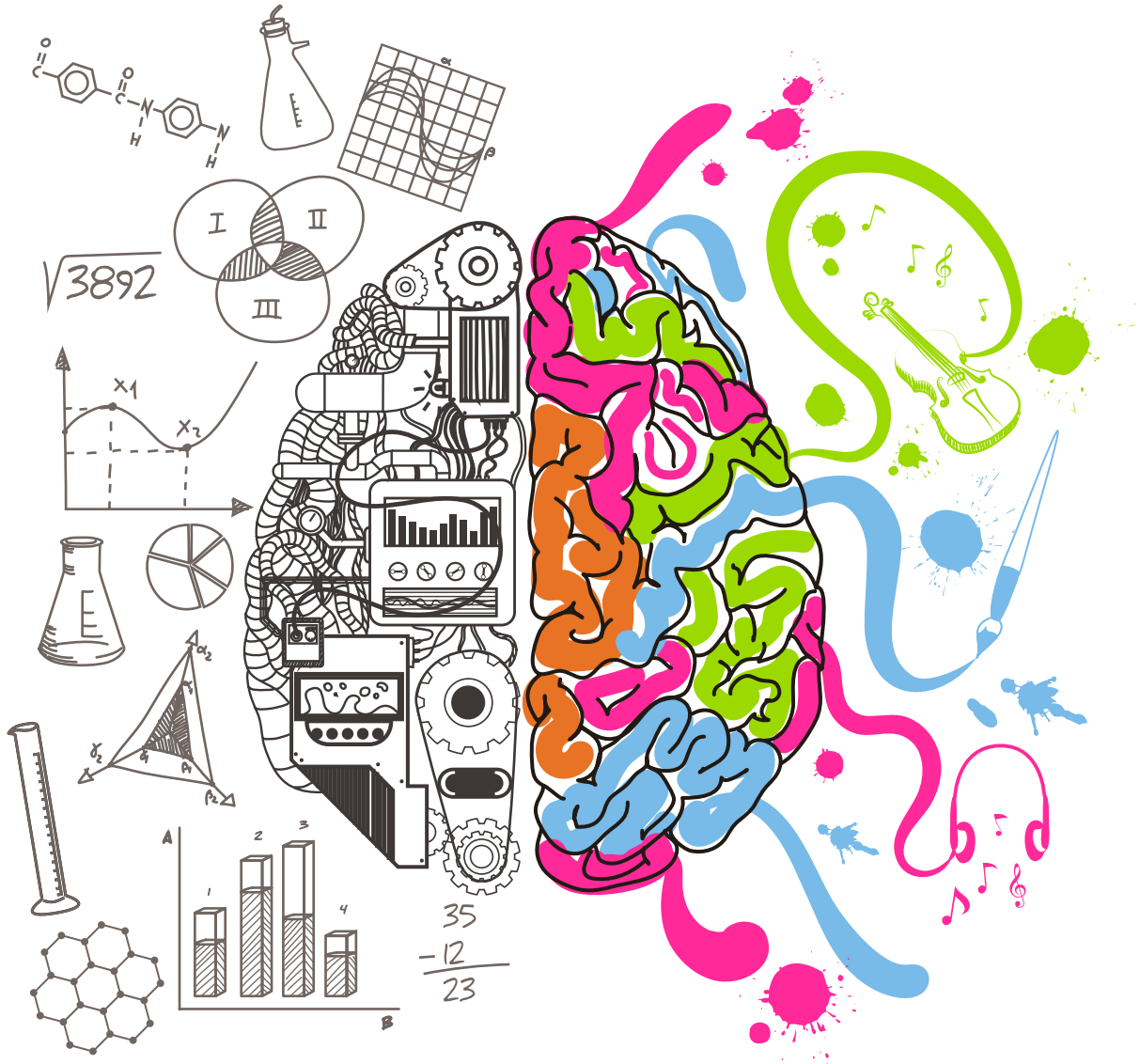
SWAYAM courses are now open to foreign students also, however credits transfer, if any, to such students shall take place through Local partner(s) only.

The Online Courses delivered on SWAYAM, are going to reduce the digital divide. It shall, turn out to be a disruptive technology and change the present business model of higher education. Since the MOOCs on SWAYAM is integrated with conventional education, it shall bring-in tremendous learning opportunity in coming days and shall prove a game changer in the Indian education sector.

Chairman
Swayam Board

CONTENT

List of Under Graduate Courses (Non Engineering) By : CEC



1.
Course Name: Making of Modern In-dia
Instructor: Prof. BhaskarChakraborty, Centenary Professor of History and IR
Institute: St. Xavier's College, (Autono-mous), Kol-kata.
Next Run Start Date: 7thAug 2017
End Date: 31st Oct 2017
Course Objectives: The course will ensure a thorough grounding to the emergence of modern Indian politics and society. Students com-pleting the course will be able to appreciate the nuances of the histori-cal process through which modern Indian politics and society has emerged.The course seeks to equip the students with the analytical skill to relate contemporary developments to their historical anteced-ents.The course will encourage the students to develop skills in histori-cal thinking and analysis, with particular reference to modern India. The skill to think like a historian will enable the students to use it with profit in their chosen professions and careers.

2.
Course Name: Penning for Frames
Instructor: Subha Das Mollick, Media Teacher and Filmmaker
Institute: St. Xavier's College, (Autonomous), Kolkata.
Next Run Start Date: 24thJuly 2017
Next Run End Date: 20th Nov 2017
Course Objectives: The Penning for Frames course will orient the students to the aesthetic and technical requirements of effective audio visual communication. After completing this course, students will have the ability to conceptualize fiction and non-fiction films, develop their structures, write the treatments and develop screenplays for fiction films and audio visual scripts for non-fiction films. They will also get a foundation on scripting for various genres of television programmes, including news and current affairs. The course will equip the students to meet the industry demands for script writers.

3.
Course Name: Organic Chemistry-1
Instructor: Dr. Ravi Bhushan(Professor),
Institute: IIT Roorkee
Next Run Start Date: 24th Oct 2017
Next Run End Date: 19th Oct 2017
Course Objectives: This course 'Organic Chemistry-I' will cater to 1st semester of CBCS based curricula of B.Sc. Chemistry and B.Sc. Physical Science (Physics, Chemistry and Mathematics) under 'Section-B' of the paper 'Chemistry-DSC 2A: Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons'. It will also cater to Section-B of Generic Elective paper namely 'Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons' of B.Sc. Honours with Chemistry CBCS syllabus.

4.
Course Name: Atomic structure and chemical bonding-an introductory course
Instructor: Dr. Sanjiv Kumar
Institute: IGNOU, New Delhi
Next Run Start Date: 5th Sept 2017
Next Run End Date: 14th oct 2017
Course Objectives: The course is designed to address the needs of the learners of first semester of B.Sc. Chemistry and B.Sc. Physical Science under CBCS of UGC. In this course, a conceptual development approach is followed as against the typical descriptive approach.

5.
Course Name: Indian Culture and Art
Instructor: Dr. SarojChaman, Prof (retd.)
Institute: Punjabi University, Patiala
Next Run Start Date: 3rd Oct 2017
Next Run End Date: 5th Dec 2017
Course Objectives: This course talks about the rich heritage of Indian culture and art. There are 20 lectures in this course which throw light on the different aspects of 'Indian Culture and Art' i.e. history, contribution of different rulers, religious and sufi movements and different art forms etc.

6.
Course Name: Data Structure And File Processing
Instructor: Dr. Gurpreet Singh Lehal,Professor
Institute: Punjabi University, Patiala
Next Run Start Date: 3rd Oct 2017
Next Run End Date: 5th Dec 2017
Course Objectives: This course will introduce the basic concepts in Data structures and file management to the students/viewers/participants of the course. After completing this course, the student will be in position to understand these data structures and

apply the concepts to refine his/her programming skills. After completing the course, the student will able to understand the intricacies of the basic and fundamental data structures used in the computer programming.

7.
Course Name: Environmental Studies -I
Instructor: Dr. Tushar Banerjee, Assistant Professor
Institute: DAVV, Indore
Next Run Start Date: 24th July 2017
Next Run End Date: 10th oct 2017
Course Objectives: To provide knowledge about multidisciplinary nature of environment, various sources of natural energy, ecosystem etc. Students will be evaluated upon achievement in terms of academic excellence. Students will also be able to understand about the various environmental issues and problem.

8.
Course Name: Genetics
Instructor: Dr. M. A. Shah, Associate Professor
Institute: University of Kashmir
Next Run Start Date: 15th July 2017
Next Run End Date: 8th oct 2017
Course Objectives: The objectives of this course are to give the target students/audience an understanding of:Fundamentals of the genetic basis of life and importance of DNA as the ideal genetic material· Genetic inheritance and gene interactions in Mendelian and post-Mendelian perspective·Organization and functioning of the extra-nuclear genome and extrachromosomal inheritance Linkage, crossing over and chromosome mapping Variations in chromosome number and structure Structure and expression of genes Gene mutations and repair mechanisms Population and evolutionary genetics

9.
Course Name: Physical Geography-ii (climatology & oceanography)
Instructor: Prof. Krishna Murthy
Institute: University of Mysore
Next Run Start Date: 10th July 2017
Next Run End Date: 25th sept 2017
Course Objectives: To have better understanding about an over view of Climatology and Oceanography. It is closely related to meteorology and geography due to the fact that all global atmospheric processes are spatially distributed.

10.
Course Name: Physical Geography-i (elements of geomorphology
Instructor: Prof. Krishna Murthy
Institute: University of Mysore
Next Run Start Date: 7th Aug 2017
Next Run End Date: 2nd oct 2017
Course Objectives: The main purpose of Physical Geography is to understand the spatial characteristics of the various natural phenomena associated with the Earth's hydrosphere, biosphere, atmosphere, and lithosphere.
The lecture will provide the students with knowledge and skills to describe and explain the different landforms found in different parts of the world. It is also help the students to understand various geomorphic agents and how they shape the earth surface.
To have better understanding about an over view of physical Geography and elements of Geomorphology.

11.
Course Name: Archeological Anthropology
Instructor: Dr P. Binodini Devi, Associate Professor
Institute: Manipur University Imphal
Next Run Start Date: 10th July 2017
Next Run End Date: 7th oct 2017
Course Objectives: After studying this course, the students/learners are able to:
· Outline the nature and scope of archaeological anthropology.
· Explain its relationship with other sub-disciplines of Anthropology and other allied disciplines.
· Enumerate the different methods of studying archaeological anthropology.
· Describe the different tool types, their manufacturing techniques and classification to understand the Stone Age Cultures.
· Realize the earliest evidence of culture in the world.

12.
Course Name: Glimpses Of Indian Social Legislation And Social Welfare-
Instructor: Dr. B. Geetha, Assistant Professor,
Institute: Madurai Kamaraj University
Next Run Start Date: 2nd August 2017
Next Run End Date: 6th oct 2017
Course Objectives: . To create awareness on the Constitution of India and its social legislation
· To have better understanding about the society in the backdrop of Indian Constitution and social legislation and thus help the individual to be a good citizen to the society.
· This course will provide the opportunity to

know New Approaches in social legislation in the context of environment, education, human rights etc are dealt which are current issues in the societal scenario.

· The course also throws open the social welfare schemes available for the vulnerable sector of the society.

13.
Course Name: Population Studies
Instructor: Dr. B. Geetha, Assistant Professor,
Institute: Madurai Kamaraj University
Next Run Start Date: 2nd August 2017
Next Run End Date: 6th oct 2017
Course Objectives: Basic idea on the population is provided to understand the society and the relationship between population growth and the development of the country.
Population studies, one of the specializations of sociology, being a multidisciplinary course attracts the interest of all the social sciences and sometimes biological sciences too and thus overview knowledge on it helps the student in furthering their specialization. To offer the basis of population studies and covers the issues like sources of population data, composition of population data, theories on population, determinants of population, population policy and need for population education.

14.
Course Name: Petrology
Instructor: Dr. Harel Thomas, Associate Professor
Institute: Dr. Harisingh Gaur Vishwavidyala , Sagar
Next Run Start Date: 24th july 2017
Next Run End Date: 25th nov 2017
Course Objectives: This course is a basic to advance introduction for the undergraduate students in petrology. This course deals with the naturally occurring rocks in field as well as laboratory analysis data that provide sufficient information how they occur in the nature. It gives idea of modern petrological theories which are widely accepted for their origin. The course emphasis the petrology which cover the Geology & its Perspective, Carrier in geology, Rock Cycle, Structure and classification of the silicate minerals, Internal structure & chemical composition of various layers of the Earth, interior of earth. Formation of crust and mantle, Formation of core,
The course definitly provides better understanding to students for the processes and principles involved during the origin and evolution of the rocks. The course contains video, text, assignment, quize, case studies, references etc and I hope it will be useful for the geology students within and outside India.

15.
Course Name: Modern British Literature
Instructor: Prof. Sumita Roy, Head
Institute: EFLU, Hydrabad
Next Run Start Date: 2nd august 2017
Next Run End Date: 6th oct 2017
Course Objectives: The course is useful for students in Undergraduate and Postgraduate Colleges of India. It covers the canonical writers whose works are frequently prescribed on the syllabuses of these classes. The lessons are designed to form an independent unit by themselves in a manner that is easy and accessible.
The lessons aim to introduce some major writers to the learners with the ultimate goal of stimulating interest so as to reach a critical mass that will lead them to an independent appreciation of literature. The lessons provide material to pass the examinations but are also designed to make the learners go further beyond the mere syllabus.

16.
Course Name: Retail management
Instructor: Dr. Ravi Ahuja, Assistant Professor
Institute: S P Pune University
Next Run Start Date: 20th Oct 2017
Next Run End Date: 19th dec 2017
Course Objectives:
1. To acquaint concept of Retail.
2. To acquaint various functions in Retail sector.
3. To introduce to new technologies in Retail sector.
4. To introduce scope of Retail sector.

17.
Course Name: Health Psychology
Instructor: Dr. P. Swathi, Assistant Professor
Institute: EFLU Hydrabad
Next Run Start Date: 10th august 2017
Next Run End Date: 10th Nov 2017
Course Objectives: This course is designed to give students a broad overview of the field of health psychology, including concepts, theory, and research. Develops an understanding and appreciation of the complex interplay between one's physical a variety of biological, psychological, and social factors.
Helps students to learn how psychological research methods, theories, and principles can be applied to enhance biomedical approaches for promoting health and treating illness.
Helps students learn the nature of the stress response and its impact in the etiology and course of many

health problems.
Develop skills for designing programs to improve one's own and others' personal health habits and lifestyles.
Determine how psychological and medical methods for relieving pain differ and are often combined to enhance treatment effectiveness.
Become aware of the impact that disabling or life-threatening illnesses have on patients and their families.

18.
Course Name: Foundation of Mathematical Statistics
Instructor: Dr.AneeshKumar.K, (Asso. Prof.)
Institute: University of Calicut
Next Run Start Date: 25th july 2017
Next Run End Date: 21st oct 2017
Course Objectives: The contents of this course are inevitable for any students who wish to study Statistical concepts. The students of Statistics, Mathematics, Economics, Commerce, Bioinformatics, etc., are equally benefited with this course as a stepping stone to the broad area of Statistical science. The course aims to provide foundations in descriptive statistics and probability.

19.
Course Name: Cell Biology
Instructor: Dr. R.J. Verma Prof. & Head,
Institute: Gujarat University, Ahmedabad
Next Run Start Date: 17th July 2017
Next Run End Date: 7th Oct 2017
Course Objectives: The students will gain overall knowledge of:
(A) Structure and function of Cell;
(B) Coordination between different cell- cell, cell matrix interactions;
(C) Understanding of Pathology of various disease conditions and
Understanding the effectiveness of the treatment modalities

20.
Course Name: Environmental Studies -2
Instructor: Dr. Tushar Banerjee, Assistant Professor
Institute: DAVV, Indore
Next Run Start Date: 3rd Oct 2017
Next Run End Date: 5th Dec 2017
Course Objectives: The objective of this course is to provide knowledge about the social issues and the environment. Students will also be able to understand about the various problems associated with the human population and the environment.

21.
Course Name: Developmental Biology
Instructor: Dr. N.K.Jain Professor Head, Dept. of Life Science
Institute: Gujarat University, Ahmedabad
Next Run Start Date: 17th July 2017
Next Run End Date: 2nd sept 2017
Course Objectives: The structure of the present core course on developmental biology has been designed with the perspective of achieving following major objectives :
• To provide a glimpse of scope and historical background of developmental biology to the students.
• To impart knowledge regarding basic concepts of differentiation and growth, differential gene expression as well as cytoplasmic determinants to the students.
• To develop detailed understanding of essential events of developmental biology through proper explanation of gametogenesis, fertilization, blastula formation, gastrulation as well as embryological induction as part of early embryonic development.
• To provide adequate explanation to the students regarding concepts of late embryonic developmental events including fate map, germ layers development, extra-embryonic membranes, embryo implantation and significance of placental formation.
• To give adequate information to the students regarding post embryonic development especially, metamorphosis, regeneration and ageing processes.
• To make the students aware about modern implications of developmental biology by impartment of knowledge regarding teratogenesis, in-vitro fertilization, stem cells and amniocentesis techniques.

22.
Course Name: Digital Electronics and Micro Processor
Instructor: Dr. V. JEYALAKSHMI, Professor,
Institute: Anna University, Chennai
Next Run Start Date: 3rd Oct 2017
Next Run End Date: 5th Dec 2017
Course Objectives: This course provides the basic fundamentals of number system, number conversion, History of Microprocessor and its operation with interfacing. It provides the study of 8085 architecture, functional diagram details, instruction types with simple programming, addressing modes, interfacing with memories and the timing diagram. Interfacing with peripheral devices like 8155 and 8255.

23.
Course Name: Operating System
Instructor: Dr.A.Kannan Professor at Anna University
Institute: Anna University, Chennai
Next Run Start Date: 3rd Oct 2017
Next Run End Date: 5th Dec 2017
Course Objectives: Operating system is basically an intermediary between the user of a computer and the computer hardware. It is software which is used to control the hardware. Here we concentrate on file management and memory management in hardware based on the operating systems.

24.
Course Name: Data Structure
Instructor: Dr.A.Kannan Professor at Anna University
Institute: Anna University, Chennai
Next Run Start Date: 3rd Oct 2017
Next Run End Date: 26th dec 2017
Course Objectives: This lecture series provide a brief view about basic data structures and usages in real world applications. And also, provide a view for how to choose a data structure for a specific application.

25.
Course Name: Software Engineering
Instructor: Dr.A.Kannan Professor at Anna University
Institute: Anna University, Chennai
Next Run Start Date:
3rd Oct 2017 Next Run End Date:
5th Dec 2017 Course Objectives: This lecture series deals about software development models and processes and their component parts, software development practices. It also concentrates on various process in software engineering like Requirements engineering, System analysis, High-level design/ architecture, Low-level design, Coding, Integration, Design and code reviews, Testing, Maintenance, Project management and Configuration management. Finally. lectures are deals with what are the challenges in software development and how we can overcome that by providing the risk management techniques and usage software quality standards.

26.
Course Name:
Database Management System
Instructor:
Institute: Anna University, Chennai
Next Run Start Date: 3rd Oct 2017
Next Run End Date: 26th dec 2017
Course Objectives: This lecture series provides a different database management systems and their usages in real world scenarios.

27.
Course Name: Hindi Bhasha Sanrachna
Instructor: Dr. ShobhaChaturvedi,Assistant Professor
Institute: DAVV, Indore
Next Run Start Date: 24th July 2017
Next Run End Date: 4th oct 2017
Course Objectives: ये पाठ्यक्रम विद्यार्थियोंमें भाशा के प्रति लगाव पैदा करेगा, जिस से वे इन पाठों के बहार जाकर भी श्रेश्ठसा. हित्य के पठान पाठन को प्ररित होंगे.
कोर्स उद्देष्यरू
मात्री भाशा के माध्यम से अध्ययन निर्वावाद से श्रेयस्कर एवमलाभ. ादायी है, इसेसभी षिक्षाविदो ने माना है. इससे विद्यार्थियों की सृजनषीलता को प्रोत्साहन तोमिलता ही है, साथ ही ज्ञान के गहन गंभीर विचारों को समझाने में आसानी होतीहै.

इस पाठ्य सामग्री से गुजरते हुए विद्यार्थी अन्नायास ही हिंदी भाशा और उसकेसम्प्रेशण को स्वायत कर सकेगा और अपने समाज, इतिहास , संस्कृति और प्रकृति आदिके प्रति भी स्वस्थ एवम् राग. ात्मक दृश्टि विकसित करने की दिषा में प्रवृत होसकेगा.

28.
Course Name: Prachin Hindi Kavya
Instructor: Dr. SurendraYadav, Retired Professor
Institute: DAVV, Indore
Next Run Start Date: 24th July 2017
Next Run End Date: 11th oct 2017
Course Objectives: इस पाठ्य विशय के माध्यम से विद्यार्थी प्राचीन हिंदी काव्य के प्रमुख कवियोंजैसे सूर दास, तुलसी, कबीर, जायसी, मीराबाई, बिहारी, घनानंद, विद्यापति, देव आदिकवियों के जीवन परिचय को जान सकेगा एवम उनकी प्रमुख रचनाओं की व्यख्यात्मक एवमआलोचनात्मक समीक्षा कर सकेगा.

29.
Course Name: Basics Of Photography
Instructor: Lalit Ingle, Lecturer EMRC, DAVV,
Institute: DAVV, Indore
Next Run Start Date: 24th July 2017
Next Run End Date: 10th oct 2017
Course Objectives: These modules cover each and every aspect of photography from history to various areas of photography. Technical aspects of photographic camera with camera controls, lenses and lighting equipment are also covered in this course. Course Objectives - The objective of this course is to pursue basic knowledge of photographic process, including the use and roles of professional services. The recognition of strong image composition, technical operation, content and the essential knowledge

for completion of a final image portfolio will also serve as primary objectives, along with the ability to convey critical knowledge of the photographic processes. Students will be evaluated upon achievement of technical and aesthetic excellence. Individual creativity, visual problem solving and precise craftsmanship will be emphasized. Students will also be able to demonstrate an awareness of contemporary aesthetic and ethical considerations in digital photography.

30.
Course Name: Trends and Development in Modern Educational Practices
Instructor: Dr. A. Hameed
Institute: University of Calicut
Next Run Start Date: 17th July 2017
Next Run End Date: 5th nov 2017
Course Objectives: The course is designed to orient teacher students about the recent trends and developments in modern educational practice. The course can help the students to master all the chapters included in the course. The course components detail various aspects of instruction starting from Curricular principles and its implementation to evaluation. It has also included the modules on environmental Education and education for sustainable development, value education and latest trends in knowledge management. Once the students complete the course, he or she can surely master in recent trends and developments in modern educational practices.

31.
Course Name: Mulberry and silkworm crop protection
Instructor: Dr. R.S. Umakanth, Assistant Professor
Institute: University of Mysore
Next Run Start Date: 1st Aug 2017
Next Run End Date: 23rd oct 2017
Course Objectives: · To create awareness on the protection of mulberry and silkworm crops.
· To have better understanding about the status, classification, season of occurrence and life cycle of pests infesting mulberry and silkworm.
· This course will provide an opportunity to the students to gain knowledge on the status, classification, season of occurrence and disease cycle of causal organism infecting both mulberry and silkworm.
· The course also throws light on the management of pests and diseases of mulberry and silkworm with special reference to integrated approaches.

32.
Course Name: Macroeconomic Theory
Instructor: Dr. P P Prajapati
Institute: University of Gujrat
Next Run Start Date: 24th july 2017
Next Run End Date: 23th October 2017
Course Objectives: The students will gain overall knowledge of:
• Aggregate demand and supply
• Economic growth
• Inflation and Unemployment.
• Exchange rates and trade balance

33.
Course Name: Principles of Ecology
Instructor: Miss. Flora Shah
Institute: University of Gujrat
Next Run Start Date: 25th july 2017
Next Run End Date: 23th October 2017
Course Objectives: The structure of the present core course on Principles of Ecology has been specially designed with the perspective of achieving following key objectives:
• To provide a brief outline of Historical background, Scope, Precipitation Patterns, Types of Soil, Vegetation as the essential aspects of Principles of Ecology to the students.
• To provide comprehensive understanding of key concepts of Population Ecology comprising of Population Characteristics, Growth and Regulation along with detailed explanation of Biotic Interactions.
• To impart knowledge regarding Community Ecology through proper explanation of Biotic Community Characteristics, Ecological Succession, Biomes and Climax Community Theories to the students.
• To develop understanding in the students regarding concepts of Ecosystem Organization, Ecological Pyramids, Productivity, Ecological Efficiencies, Food Chains, Food Web, Energy Flow in Ecosystem, Biogeochemical Cycles, Aquatic Ecosystems, Terrestrial Ecosystem and Human Modified Ecosystem as essential components of the Ecosystem Ecology.

34.
Course Name: Microeconomic Theory
Instructor: Dr. P P Prajapati
Institute: University of Gujrat
Next Run Start Date: 26th july 2017
Next Run End Date: 23th October 2017
Course Objectives: The students will gain overall knowledge of:
• How demand and supply analysis determine the prices and quantities of goods and services.
• How consumers make consumption decisions.
• How markets for factor inputs, such as labor and

raw materials operate.
• How markets generate efficient outcomes and why they fail and thus require government intervention.

35.
Course Name: Cyber Security/Information Security - Cyber Law
Instructor: Dr Vishal Goyal
Institute: Punjabi University, Patiala
Next Run Start Date: 7th August 2017
Next Run End Date: 3rd October 2017
Course Objectives: This course will help the viewer in understanding the basics of Data structure.
The topics dealt upon in this course would be stacks, queues, Sorting algorithms, Searching, Linked Lists and trees.

36.
Course Name: Cyber Security/Information Security - Information Security
Instructor: Dr Vishal Goyal
Institute: Punjabi University, Patiala
Next Run Start Date: 7th August 2017
Next Run End Date: 3rd October 2017
Course Objectives:
a) Acquaint the learner with the concept of Information and Cyber security.
b) Provide the learner with the understanding of current trends in Information Security.
c) Give in-depth knowledge to the learners about the vulnerabilities, threats and risks and their management.
d) Enable him to develop core competencies in the field of network and computer security.

37.
Course Name: Cyber Security/Information Security – Cryptography
Instructor: Dr Rakesh K. Bawa
Institute: Punjabi University, Patiala
Next Run Start Date: 7th August 2017
Next Run End Date: 31st October 2017
Course Objectives:
a) Provide the basic understanding of Cryptography and its historical development.
b) Give in-depth understanding of types of cryptography.
c) Familiarise the learner with the protection of sensitive information by using different encryption methods.
d) Enable the learner in understanding the application of cryptography in network and information security applications.

38.
Course Name: Art and science of teaching english language
Instructor: Dr. Mridula.K
Institute: University of Calicut
Next Run Start Date: 3rd October 2017
Next Run End Date: 5th Dec 2017
Course Objectives: The major objectives of the course are to prepare better English teachers by integrating content and technology so as to equipe them to face the challenges of present day classrooms.
The course will enable the student teacher to
1. Understand the nature of language as a dynamic entity
2. Understand why English language learning is important in school education
3. Develop an insight into the language learners and the learning process
4. Familiarize themselves with the relevant approaches and methods in English language teaching
5. Perceive learning as a generative process
6. Experiment with various learning strategies considering the demands of the context and the needs of each individual learner
7. Blend technology, pedagogy and content to realise the learning objectives
8. Develop awareness on modern assessment strategies and design assessment techniques relevent to language learning
9. Identify and practice micro skills in teaching language
10. Effectively introduce different genres of literature and to develop the sense of aesthetic appreciation in learners
11. Explore avenues available for own professional development

39.
Course Name: Curriculum & pedagogy of teaching physical science
Instructor: Dr. V. P. JOSHITH
Institute: University of Calicut
Next Run Start Date: 7th August 2017
Next Run End Date: 3rd October 2017
Course Objectives: The major objective of the course is to prepare better science teachers by integrating content and technology so as to equip them to face the challenges of present day classrooms.
Learning Outcomes
The course will enable the student teachers to
1. Acquaint with the meaning and nature of physical science
2. Comprehend why science is important in school

education
3. Familiarize the various methods and strategies of teaching science
4. Develop science process skills for lifelong professional competency
5. Perceive child as a creative learner and device learning goals individually for our children
6. Design specific instructional strategies for learners accounting their individuality
7. Explore different ways of creating learning situations considering needs of the learner and the context
8. Integrate the knowledge in science to devise appropriate assessment techniques
9. Understand the importance of learning as a generative process
10. Integrate technology, pedagogy and content for the realization of objectives
11. Examine the different pedagogical issues in the context of learner and society and to suggest ways for resolving it
12. Facilitate development of scientific attitudes among learners

40.
Course Name: Probability and statistics
Instructor: Dr.Aneesh Kumar.K
Institute: University of Calicut
Next Run Start Date: 30th July 2017
Next Run End Date: 7th October 2017
Course Objectives:
1. Familiarize with the various approaches to probability
2. Learn the concept of random variable
3. Understanding mathematical expectation, moments, mgf etc
4. Study to deal with two dimensional random variables
5. Understanding conditional distributions, conditional mean etc
6. Study various discrete probability distributions
7. Study various continuous probability distributions
8. Learn to solve problems using the probability distributions studied.

41.
Course Name: Art of c programming
Instructor: Dr. Lajish V L
Institute: University of Calicut
Next Run Start Date: 7th August 2017
Next Run End Date: 31st October 2017
Course Objectives:
• To develop a strong foundation for the fundamental principles of Problem Solving using computers
• To learn the concept of programming
• To study C Programming language
• To equip the students to write programs for solving simple computing problems using C language as a tool.

42.
Course Name: Avertising and Public Relations
Instructor: Dr.K. Kusuma
Institute: JMI, New Delhi
Next Run Start Date: 4th August 2017
Next Run End Date: 15th Dec 2017
Course Objectives:
- Students will be introduced to the concepts of Advertising and Public Relations
- Students will be taught creating an adverting campaign and other relevant creative tools
- Students will be given exposure to the various issues of advertising related to society
- Students will be introduced to the tools and strategies of Public Relations
- Students will be given exposure to the role of PR in various organisations

43.
Course Name: Mass Communication- Introduction to Audio- Visual Media
Instructor: Dr.K. Kusuma
Institute: JMI, New Delhi
Next Run Start Date: 4th August 2017
Next Run End Date: 15th Dec 2017
Course Objectives:
- The Introduction to Audio-Visual Media course will orient the students to the aesthetic requirements of effective audio visual communication.
- After completing this course, students will have the ability to understand visual media from critical point of view.
- Students will be introduced to the basic equipment as well as terminology of various stages of audio-visual production.
- The course will equip the students to meet know the audio-visual production techniques

44.
Course Name: Communication and Business Correspondence
Instructor: Dr.Ravi.S.Ahuja
Institute: Savitribai Phule Pune University
Next Run Start Date: 8th August 2017

Next Run End Date: 18th December 2017
Course Objectives: This course is designed to develop communication skills. Communication is vital for the success and growth of any individual and business organization, as it is the process of transferring meanings. Effective communication is essential to move ahead in modern business world which consists of tremendous use of IT, computer business structures, human relations management, public relations etc.

45.
Course Name: Information Technology
Instructor: Dr.Ravi.S.Ahuja
Institute: Savitribai Phule Pune University
Next Run Start Date: 8th August 2017
Next Run End Date: 18th December 2017
Course Objectives:
1) To understand the basics of Computer.
2) To make students know the Networking basics, its protocols and its benefits. Thus, helping them to understand Internet and its uses.
3) To understand the back-end Database and front-end applications like MS-Word, Ms-PowerPoint.
4) To make the students know the working of a 'System' and make them ready to deliver high quality systems.
5) To keep students updated about the new technology like Cloud Computing.

46.
Course Name: INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY
Instructor: Dr. Arup Kr. Mitra
Institute: University of Kolkata
Next Run Start Date: 17th July 2017
Next Run End Date: 16th October 2017
Course Objectives:
- This course will orient the students with the basics of microbiology and its associated subjects.
- On successful completion of the course, the student will be able to understand the diversity of microbes and their application.
- This course will enable them to apply the acquired knowledge in the fields of other biological science.
- It will enable them to write a review on allied field and that may be suitable for publication.

47.
Course Name: Origin, Biodiversity of life forms and Biomolecules
Instructor: Dr. Sudeshna Shyamchowdhury
Institute: University of Kolkata
Next Run Start Date: 17th July 2017
Next Run End Date:16th October 2017
Course Objectives:
- This course will orient the students with the basics of Biochemistry associated with their allied subjects.
- On successful completion of this course, the student will be able to understand basic biochemistry related to microbiology, specially the bioenergetics, kinetics, thermodynamics and structure, functions, metabolic reactions associated with biomolecules.
- This course will enable the students to apply the acquired knowledge of "Biochemistry" in the fields of other biological science and research purposes. When a research scholar starts their concerned project they must have the knowledge of simple biochemistry as pH, Buffer of the solutions in which they are supposed to perform their experiments.
- It will enable the concerned students to write a review on allied field associated with applied biochemistry on microbes and that may be suitable for publication.

48.
Course Name: Growth, Metabolism and Reproduction in Bacteria
Instructor: Dr. Madhumita Maitra
Institute: University of Kolkata
Next Run Start Date: 17th July 2017
Next Run End Date: 16th October 2017
Course Objectives:
- the structural organization of Bacterial cell and its components.
- the development of bacterial phylogeny and systematics.
- the various Bacteriological techniques
- Bacterial growth kinetics and nutrition along with the types of reproduction in bacteria.
- the microscopic techniques and principles along with the practical demonstration of various staining techniques
- the concept of viruses, their classification and morphology,
- the bacteriophage and the assay methods to detect the viruses.
- The different types of viral diseases and the application of virology.
- This course will enable them to apply the acquired knowledge in the fields of other biological science.
- It will enable them to write a review on allied

field and that may be suitable for publication.

49.
Course Name: Sanskrit Composition & Communication
Instructor: Dr. Harish Chandra Tiwari
Institute: Uttarakhand Sanskrit University, Haridwar
Next Run Start Date: 4th August 2017
Next Run End Date: 15th Dec 2017
Course Objectives: पाठ्यक्रमस्य सफलसमाप्तेरनन्तरं छात्राः लघुसिद्धान्तकौमुद्याद्यनुसारं वाक्यादिसंरचनां तत्सम्बद्धान्यविशयांष्च सम्यग् ज्ञातुं प्रयोक्तुं च समर्थाः भविश्यन्ति ।
अयं पाठ्यक्रमः स्नातकक्षायां पठतां छात्राणां कृते तु वर्तत एव, स्नातककक्षां समुत्तीर्णानाम् अन्यप्रतियोगिपरीक्षायाः सन्नद्धतां कुर्वाणानां जिज्ञासूनां छात्राणां च कृतेऽपि उपयोगी भविश्यति ।

50.
Course Name: Molecular Biology and Human Genetics
Instructor: Prof. Bashir A. Ganai
Institute: EMMRC, Srinagar University of Kashmir
Next Run Start Date: 24th July 2017
Next Run End Date: 16th October 2017
Course Objectives: The objectives of this course are to give the target students/audience an understanding of:

- Nucleic Acids convey Genetic Information
- The Structures of DNA and RNA / Genetic Material
- Genome Structure, Chromatin and the Nucleosome
- The Replication of DNA (Prokaryotes and Eukaryotes)
- The Mutability and Repair of DNA
- Mechanism of Transcription
- RNA Modifications
- Translation (Prokaryotes and Eukaryote)
- Transcription Regulation in Prokaryotes

51.
Course Name: Cytogenetics
Instructor: Dr. Md. Niamat Ali
Institute: EMMRC, Srinagar University of Kashmir
Next Run Start Date: 24th July 2017
Next Run End Date: 16th October 2017
Course Objectives: The objectives of this course are to give the target students/audience an understanding of:

- Introduction to cytogenetics: Chromosomes and heredity
- An overview of cells
- Cell wall, the extracellular matrix and cell interactions
- Genetic approach to biology: Mendelian genetics and its extension
- Genome structure, chromatin and the nucleosome
- Cell division, cell cycle and control of cell number
- Cellular Adaptations, cell injury, cell death and cell renewal
- Linkage, crossing over and chromosomal mapping
- Chromosomal Mutations
- Sex Determination

52.
Course Name: Criminal Law and Criminology
Instructor: Prof. S. M Afzal Qadri,
Institute: EMMRC, Srinagar University of Kashmir
Next Run Start Date: 24th July 2017
Next Run End Date: 16th October 2017
Course Objectives: The objectives of this course are to give the target students/audience an understanding of:

- Application of Indian Penal Code as a substantive Criminal law
- Extent, application and fundamental principle of law of crimes.
- To understand the offences against person, property, reputation, religion and state
- Crimes against women are on increase, therefore a special emphasis is given to explain these offences
- To understand subject of criminology including the Schools of criminology

53.
Course Name: Advertising
Instructor: Dr. Lalit Engle
Institute: DAVV, Indore
Next Run Start Date: 24th July 2017
Next Run End Date: 19th October 2017
Course Objectives: The objective of this course is to develop basic understanding about Advertising by the means of topics like Fundamentals of Advertising, Advertising Campaign Planning, Organizing for Advertising, Creative Strategy and Advertisement development for different media. The course intend to inculcate a basic practice of important advertising functions in the highly competitive cotemporary market amongst the learner.

54.
Course Name: Financial Accounting
Instructor: Dr. Manish Sitlani
Institute: DAVV, Indore
Next Run Start Date: 25th July 2017
Next Run End Date: 20th October 2017

Course Objectives: The basic objective behind this course is to provide a conceptual understanding of double-entry system accounting process to the target learners. This course will facilitate understanding of key concept associated with finance and accounting and will also help the learners to understand the double-entry accunting process. Simultaneously the course will also offer a hands on to the learners through structured numerical problems, there by meeting the basic objective of a clear understanding of financing and double-entry accounting.

55.
Course Name: Computer Fundamentals
Instructor: Dr. Sanjay Tanwani
Institute: DAVV, Indore
Next Run Start Date: 26th July 2017
Next Run End Date: 21st October 2017
Course Objectives: This course deals with fundamentals of computer. Which includes generations of computer, evolution and developmentof microprocessor, input and output devices, primary and secondary storage devices, programming languages etc. It also deals with the hardware and software aspects of the computer like operating system, application software and system software. It provides an overview of functions and working of central processing unit, motherboard and other peripherals.

56.
Course Name: Computer Networks
Instructor: Mr. Anand More
Institute: DAVV, Indore
Next Run Start Date: 27th July 2017
Next Run End Date: 22nd October 2017
Course Objectives: At the end of the course, the students will be able to build an understanding of the fundamental concepts of computer &computer networks, advanced networking concepts, network standards & protocols, mobile phone networks and network security etc.

57.
Course Name: Biochemistry and Cell Biology
Instructor: Dr. Anjana Jajoo
Institute: DAVV, Indore
Next Run Start Date: 28th July 2017
Next Run End Date: 23rd October 2017
Course Objectives: The objectives of this course are:
i. To improve the learner's understanding about carbohydrates, lipids & vitamins.
ii. To help learners in discerning the functioning of proteins nucleic acids & enzymes.
iii. To increase the comprehension of learners about cell structure.
iv. To enhance the knowledge of learners about cell organelles and cell division.
v. To enable learners to distinguish between the various instruments and technologies used in studying the cell.

58.
Course Name: Environmental Biology, Genetics and Evolution
Instructor: Ms. Shivani Bhagwat
Institute: DAVV, Indore
Next Run Start Date: 29th July 2017
Next Run End Date: 24th October 2017
Course Objectives: The objectives of this course are:
i. To improve the learner's understanding about the ecosystem
ii. To increase the comprehension of learners about air and water pollutants
iii. To help learners in discerning about genetics
iv. To enable learners to distinguish between various chromosomal aberrations and mutations
v. To enhance the knowledge of learners about evolution

59.
Course Name: Morphology, Developmental Biology and Physiology of Angiosperms
Instructor: Dr. K.N. Guruprasad
Institute: DAVV, Indore
Next Run Start Date: 30th July 2017
Next Run End Date:
25th October 2017
Course Objectives: The objectives of this course are:
i. To improve the learner's understanding about the vegetative morphology of angiosperms
ii. To help learners in discerning the varied floral morphology of angiosperms
iii. To increase the comprehension of learners about water metabolism and photosynthesis in angiosperms
iv. To enhance the knowledge of learners about respiration and nitrogen metabolism in angiosperms
v. To enable learners to distinguish between the effects of various growth hormones on the growth of angiosperms

60.
Course Name: Morphology, developmental biology and Physiology of Mammals
Instructor: Dr. Sultana Razia
Institute: DAVV, Indore

Next Run Start Date: 31st July 2017
Next Run End Date: 26th October 2017
Course Objectives: The objectives of this course are:
i. To improve the learner's understanding about the digestive and excretory systems of mammals
ii. To enhance the knowledge of learners about the respiratory and circulatory systems in mammals
iii. To help learners in discerning the functioning of the muscular and nervous systems of mammals
iv. To enable learners to distinguish between the functioning of various parts of the endocrine system of mammals
v. To increase the comprehension of learners about embryology in mammals

61.
Course Name: Microbiology, Immunology and Animal cell culture
Instructor: Dr. Sheetal Bhasin
Institute: DAVV, Indore
Next Run Start Date: 31st July 2017
Next Run End Date: 27th October 2017
Course Objectives: This paper includes titles related to Microbiology, Immunology and Animal Cell Culture. The student will be able to understand the:-
i. Basics of microbial cell structure, classes and cultivation
ii. Bacterial genetics
iii. Application of microorganisms for production of usefull products at industrial level
iv. Basics of Immunology
v. Vaccinology
vi. Clinical Immunology
vii. Basics of Animal Cell Culture
viii. Application of Animal Cell Culture for production of health care products

62.
Course Name: Molecular Biology, Genetic Engineering and Plant Tissue Culture
Instructor: Dr. Monica Jain
Institute: DAVV, Indore
Next Run Start Date: 31st July 2017
Next Run End Date: 28th October 2017
Course Objectives: The objectives of this course are:
i. To improve the learner's understanding about DNA & RNA
ii. To increase the comprehension of learners about genetic coding
iii. To enable learners to distinguish between DNA isolation in bacteria, plants and animals
iv. To enhance the knowledge of learners about various aspects of plant tissue culture
v. To help learners in discerning about cloning in plants.

List of Post Graduate Courses (Non Engineering) By : UGC

1.
Course Name: Ar-tificial Intelligence
Instructor: Prof Bhushan Trivedi
Institute: Gujarat University, Ah-medabad
Next Run Start Date: 1.08.2017
Next Run End Date: 30.12. 2017
Course Objectives: The objective of the course is to enable the students to build the basic idea about what AI is, how complex problems can be solved by AI techniques, what are AI methods for searching and solv-ing problems, what are the complexities in those methods and how one can augment conventional solution with AI to solve real world problems.

2.
Course Name:Digital Library
Instructor: Dr. Jagdish Arora
Institute: INFLIBNET Cen-tre, Ahmedabad Next Run Start Date : 1.08.2017
Next Run End Date: 30.11.2017
Course Objectives: The objective of the course is to impart in-depth knowledge on digital libraries, their characteristics, compo-nents, standards and proto-cols, IPR and legal issues, digital rights and access management, planning and evaluation. The ultimate aim of the course is to instil skills in learners that would enable them to evaluate commercially avail-able digital libraries before subscribing them for their institutions as well as to set-up their own institution-al digital library with all intermediate steps involved in it from plan-ning to offering digital library ser-vices.

3.
Course Name: Knowledge Society
Instructor: K.S Raghavan
Institute: INFLIBNET Cen-tre, Ahmedabad Next Run Start Date : 1.08.2017
Next Run End Date: 30.11.2017
Course Objectives: The objective of the course is to provide the students with an un-derstanding of the characteristics of knowledge societies, the major fac-tors affect-ing transition to a knowledge society and the issues in and implications of knowledge socie-ty with focus on libraries and information cen-tres.

4.
Course Name:
Management of Libraries and In-formation Centre and Knowledge Centres
Instructor: Dr. Dinesh Gupta
Institute: INFLIBNET Cen-tre, Ahmedabad
Next Run Start Date: 1.08.2017
Next Run End Date: 30.11.2017
Course Objectives: To make students aware about the concept of management, manage-ment theories and application of management in libraries and in-formation centres; and also
make them familiar about management tech-niques applied to libraries and information centres and knowledge centres; and to make you acquainted with the newer areas and techniques of library and infor-mation centres management.

5.
Course Name:Informatics and Scientomatrics
Instructor: Dr.I.K.Rao
Institute: INFLIBNET Cen-tre, Ahmedabad Next Run Start Date : 1.08.2017
Next Run End Date: 30.11.2017
Course Objectives: The objective of the course is to impart in-depth knowledge on sci-entometrics; it includes scope and definition, computational aspects certain parameters and indicators. Another objective of the course is to instil skills in learners that would enable them to collect and analyse scientometric da-ta; finally, this course will help you to read and understand the scientific literature in the field of scientometrics.

6.
Course Name: Information and Communication Technology for Li-braries
Instructor: Dr.Usha Munshi
Institute: INFLIBNET Cen-tre, Ahmedabad Next Run Start Date : 1.08.2017
Next Run End Date : 30.11.2017
Course Objectives: The objective of the course is to impart in-depth knowledge on use of information and communication technology in libraries and to prepare students either to work in a fully automated library that sub-scribes to resources in print as well as in elec-tronic format or to set-up a modern library on their own..

7.
Course Name: Information Stor-age and Retrieval
Instructor: Prof. P.M Devika
Institute: INFLIBNET Cen-tre, Ahmedabad
Next Run Start Date: 1.08.2017
Next Run End Date: 30.11.2017
Course Objectives: The objective of the course is to explain in detail Information Stor-age and Retrieval [ISAR]. Information stor-age is a very important topic and library and information professionals need to know and understand the processes and methods

that are efficient for storage and handling of in-for-mation resources.

8.
Course Name: In-formation Sources,Systems and Services
Instructor: Dr. Renu Arora
Institute: IN-FLIBNET Centre, Ahmedabad
Next Run Start Date: 1.08.2017
Next Run End Date: 30.11.2017
Course Objectives: To impart in-depth knowledge to the learners on the concept and need for information and to identify infor-mation sources best suited for specific infor-mation needs;
To acquaint the learners with various refer-ence, information and computerised services as these keep the information seekers up-to-date in their field of interest or specialization by providing timely infor-mation; and
To identify national and international level organi-sations and systems including li-brary/information organisations and to explain the programmes and activities being undertak-en by such organizations in promotion, coor-dination and development of library and in-formation activities.
The ultimate aim of the course is to instil skills in learners that would enable them to identify relevant information sources, enable providing of information services and gain in depth knowledge about various organisations operat-ing at national and internation-al levels. This will help the learners to ensure that the users in their library/information organisation are able to get desired information.

9.
Course Name: Performing Art-1
Instructor: Dr. Parul Shah
Institute: M.S.University of Baroda
Next Run Start Date: 16.08.2017
Next Run End Date: 15.12.2017
Course Objectives: The course is conceived with the view that the students get infor-mation and analytical approach to the study of Natyashastra which is one of the most im-portant and comprehensive text in the study of Performing Arts written so far.

10.
Course Name: Russian Literature of the XIX Century : Prose
Instructor: Prof. Debal Das-gupta
Institute: M.S.University of Baroda
Next Run Start Date: 1.08.2017
Next Run End Date: 30.12. 2017
Course Objectives: The objectives are to in-troduce the learners to the vast and extremely rich Russian Prosaic Literature of the XIX Century, more suitably known as the "GOLDEN PERIOD OF RUSSIAN LIT-ERATURE", talked about and discussed in a lucid manner! Objectives also include efforts to assist the learners to develop an analytical mind along with enjoying the wonderful edu-cative and aesthetic con-tent of the works.
The course has been designed to have parity with syllabi to be at par with those at national and interna-tional levels.

11.
Course Name: Theory of Litera-ture
Instructor: Prof. Debal Das-gupta
Institute: M.S.University of Baroda
Next Run Start Date: 1.08.2017
Next Run End Date: 30.12. 2017
Course Objectives: Understanding of major theoreti-cal. concepts Ability to examine and analyse works of liter-ature.
The objectives are to introduce the learners to the ba-sic theoretical concepts and understand-ing of works of literature, mainly of the XIX Century, described and discussed in a lucid manner! Objectives also include efforts to as-sist the learners to develop an analytical mind along with enjoying the wonderful educative and aesthetic content of the works.

12.
Course Name: Portrait Study
Instructor: Prof. Zargar Za-hoor
Institute: Dayalbagh Educa-tional Insti-tute,Agra
Next Run Start Date: 1.08.2017
Next Run End Date: 30.11. 2017
Course Objectives: The purpose of the course is to make the viewers derive pleasure as also enable them to grasp various art aspects and create their own art pieces in different media and technique.

13.
Course Name: Landscape
Instructor: Prof. Zargar Zahoor
Institute: Dayal-bagh Educational Institute,Agra
Next Run Start Date: 1.08.2017
Next Run End Date: 30.11. 2017
Course Objectives: The objective of the course is to focus on the significance of Visual Arts and the var-ious aspects related to them. Each mode of expres-sion has its own lan-guage, which may have different specifica-tions. Artists do also have a language of their own which they use through visual arts. Visu-al

communication, like various linguistic enti-ties, has undergone historical changes as influ-enced by various social forces from time to time. Visual Arts, besides being an effective mode of expression through painting (Creative Composition) Mural, Portrait, Life Study, and Print Making in different media and technique suggest a therapeutic value also. It also offers an opportunity to an individual to view, to reflect, to analyze and to appreciate critically, and finally, to enter the pleasant phase of vis-ual arts. This massive on-line programme of 16 Courses, each embodying 35 videos, texts and questionnaires, cover the theoretical (Art His-tory and Aesthetics) and practical (materials and techniques) aspects of Visual Arts aiming at providing an insight to the viewers world-wide. The purpose of the course is to make the viewers derive pleasure as also enable them to grasp various art aspects and create their own art pieces in different media and technique.

14.
Course Name: Vedic Language and Literature
Instructor: Dr. S.N. Jha
Institute: Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyape-eth,New Delhi
Next Run Start Date: 1.08.2017
Next Run End Date: 30.12. 2017
Course Objectives: वैदिकभाशा–वाङ्मयञ्चइति षीर्शका. न्विते पाठ्यक्रमेऽस्मिन् भवन्तःऋग्वेद–यजुर्वेद–सामवेद–अथर्ववे. द–ब्राह्मण–उपनिशद्–निरुक्त–प्रातिषाख्यादीन्विशयान् पठिश्यन्ति द्य विदन्त्येव भवन्तो यत् विष्वस्य समस्तेश्वपि वाङ्मयेशुवैदिकवाङ्मयं समुद्रवदगाधम् अपारं गम्भीरञ्चास्ति द्य अत्र समस्तमपिज्ञानविज्ञ. ानात्मकं सूत्रं क्वचित् सूक्ष्मेन क्वचिच्च स्थूलरूपेण वर्णितमस्ति, अत एवोक्तं भगवता मनुना श्सर्वज्ञानमयो हि सःश इति द्य अत्रश्रेयःषास्त्रं प्रेयःषास्त्रञ्चोभयं समभावेन समेधितमस्ति अतो वेदानामध्ययनेनऐ. हकानां पारलौकिकानाञ्च विशयाणां सम्यगवबोधो जायते द्य श्यत्र विष्वंभवत्येकनीडम्श इत्युद्घोशो वर्तते वेदस्य तस्मात् समस्तमपि विष्वमेकीकर्तुंवेदानामध्ययनमनिवार्यमस्ति द्य अत्रवैयक्तिक–पारिवारि. क–सामाजिक–नैतिक–चारित्रिक–आर्थिक–वैज्ञानिक–भौतिक–दै. विक–आध्यात्मिकोन्नतेष्वसर्वाण्यपि आवष्यकानि सूत्राणि, विविधानि च साधनानि सुवर्णितानिसन्ति द्य विष्वबन्धुत्वस्य भावना यथाऽत्र वर्णिता न तथाऽन्यत्र क्वापि लभ्यते द्य
अतः स्पश्टमेवास्ति यद्वेदानामध्ययनेन सर्वविधं कल्याणं सर्वविधञ्च ज्ञानंप्राप्तं भवति द्य यो वेदं जानाति स एव सम्यक्तया राजकार्यादिकम. पि सञ्चालयितुंसमर्थो भवति द्य तदुक्तं मनुना– सेनापत्यञ्च राज्यञ्च दण्डनेतृत्वमेव च द्य सर्वलोकाधिपत्यञ्च सर्वं वेदविदर्हति द्यद्य

15.
Course Name: Poetics and Aes-thetics
Instructor: Prof. Bhagirathi Nand
Institute: Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyape-eth,New Delhi
Next Run Start Date: 1.08.2017
Next Run End Date: 30.12. 2017
Course Objectives: अस्यपाठ्यपत्रस्य नाम श्साहित्यषास्त्रं सौन्दर्यषास्त्रञ्च श इति।अत्र चत्वारिंषत् पाठाः सन्ति। अस्मिन् पत्रेनाट्यषास्त्रम्, दषरूपकम्, काव्यालङ्कारः, काव्यालङ्का. रसूत्रवृत्तिः, काव्यादर्षः, ध्वन्यालोकः, काव्यप्रकाषः, साहित्यदर्पण ाम् इति एभ्यः ग्रन्थेभ्यःपाठाः संकलिताः सन्ति। तत्र नाट्यषास्त्रात् प्रथमाध्यायः, दषरूपकस्यप्रथमाध्यायः, काव्यालङ्कारस्य प्रथमपरिच्छेदः, काव्यालङ्कारसूत्रवृत्तेःप्रथमाधिकरणम्, काव्यादर्षस्य प्रथमाध्यायः, ध्वन्यालोकस्य प्रथममाननम्, काव्यप्रकाषस्य प्रथमोल्लासः, साहित्यदर्पण स्य प्रथमः परिच्छेदः च इतिपत्रेऽस्मिन् विशयाः संकलिताः सन्ति। तत्रापि नाट्यषास्त्रस्य चत्वारः, दषरूपकस्य चत्वारः, काव्यालङ्कारस्य चत्वारः, काव्यालङ्कारसूत्रवृत्तेः चत्वारः, काव्यादर्षस्य अश्टौ, ध्वन्यालो. कस्य अश्टौ, काव्यप्रकाषस्य चत्वारः, साहित्यदर्पणस्य च चत्वारः पाठाः पाठ्यक्रमेऽस्मिन् सन्निहिताः सन्ति।काव्यनाट्ययोः सम्यक् परिचयार्थं पाठोऽयम् उपकल्पितो वर्तते, येननाट्यषास्त्रकाव्यषास्त्रप्रवेषार्थं रुचिः छात्रणां प्रवर्धिश्यते ।

16.
Course Name: Indian Philoso-phy:An Introduc-tion
Instructor: Dr. Jawahar Lal
Institute: Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyape-eth,New Delhi
Next Run Start Date: 1.08.2017
Next Run End Date: 30.12. 2017
Course Objectives: इतिमूलविशयमधिकृत्य पञ्चदषसप्ताहेशु चत्वारिंषत्पाठानाम् अध्ययनव्यवस्था निर्मितावर्तते । तत्र दर्षनमिति षब्दः नाम दृषि ंप्रेक्षणे इति धातोः भावे ल्युट्प्रत्यये सति निश्पन्नः यस्यार्थः भवति आत्मसाक्षात्कारः ।आत्मसाक्षात्कारसाधनप्रतिपादनम् एतेशां दर्षनषास्त्राणां मुख्यमुद्देष्यंभवति।
तच्च दर्षनं भारतीयपरम्परायां मुख्यतः वैदिकावैदिकभेदेन द्विविधंभवि. त। वैदिकदर्षनं तावत्न्याय–वैषेशिक–सांख्य–योग–पूर्वमीमांसा–उत्त. रमीमांसाभेदेन शड्विधं भवति।अवैदिकदर्षनञ्च चार्वाक–जैन–बौद्ध दर्षनभेदेन त्रिविधं तत्रापि बौद्धानां चत्वारःसम्प्रदायाः सौत्रान्तिक–वैभा. शिक–माध्यमिक–योगाचारभेदेन सन्ति । तेनअवैदिकदर्षनमपि शड्विधं भवति। अस्मिन् पाठ्यक्रमे एतेशां द्वादषदर्षनानां विशयेभवन्तः पठिश्य. न्ति। अस्य दर्षनषास्त्रस्य उद्देष्यं किम् इति विशये अत्र एतदेववक्तुं षक्यते यत् प्रथमतः दर्षनषास्त्रं लोकषास्त्रं वर्तते । लोके अस्माभि. ाःयदपि आचरते तत् सर्वं दर्षनमेव। अहिंसा–सत्य–अस्तेयादीनामाचरण ां तावत् दर्षनमेव।अतः एतेशां दर्षनषास्त्राणां प्रतिपाद्यविशयाणां सम्यक् ज्ञानं सर्वेभ्यः एवभवेत् । एतदर्थम् अयं पाठ्यक्रमः भवतां समक्षं समुपस. थाप्यते।

17.
Course Name: Grammatica Es-panola-Nivel Inicial
Instructor: Nabiel Ansari
Institute: Jawaharlal Nehru University, Delhi Next Run Start Date: 1.08.2017
Next Run End Date: 30.11.2017
Course Objectives: This course will help you under-stand Spanish grammar from scratch. Even if you are an absolute beginner with no knowledge at all or you are a beginner that understands and uses some fa-miliar expres-sions, this course will introduce to you

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the Spanish language and its grammar from the very beginning. This course will allow you to understand commonly used phrases and ex-pressions related to areas especially relevant to you (basic information about you and your family, immediate environment, occupations, medical consultations, shopping, places of in-terest, etc.).
In sum, you will be able to communicate in a basic way when the other person speaks slow-ly and clearly, and is ready to repeat or refor-mulate to help communication and you will be able to understand isolated phrases of high personal relevance and describe in simple terms aspects of your immediate background and surroundings.
At the end of the course, the student is ex-pected to:
• Understand the basic level concepts of Spanish Grammar.
• Understand and participate in simple con-versations in the situations dealt with in the course;
• Read and comprehend simple texts/conversations in Spanish;
• Have some familiarity with the socio-cultural diversity of the Spanish-speaking world.

18.
Course Name: Espanol en uso-Nivel intermedio
Instructor: Nabiel Ansari
Institute: Jawaharlal Nehru University, Delhi
Next Run Start Date: 1.08.2017
Next Run End Date: 30.11.2017
Course Objectives: This course is intended for people who already have a basic knowledge of Spanish i.e who have complet-ed or have knowledge of A1-A2 level or have completed Spanish Course Number I of MOOC. It aims at presenting the learner with topics which are very useful for any Spanish learner.The course objectives are that the stu-dents learn Intermediate level Spanish in an interesting way while having knowledge of the differences in Spanish as is spoken all over the world. It has been based in different Spanish speaking countries like Spain Argen-tina, Chile and Mexico so that the student get a taste of the variation in Spanish spoken in those countries as well as their socio cultural reality. At the end of the course, the student is expected to::
• Understand the intermediate level concepts of Spanish Language
• Comprehend texts such as newspaper arti-cles, cultural activities websites, travel blogs, food blogs and recipes and audio visual mate-rials such as movie review, songs, weblogs etcetera.
• Learn to write articles, formal and informal letters and e-mails, use language apt for dif-ferent registers such as sms, chats, blogs, in-terviews etcetera and speak in varied language contexts.

19.
Course Name: Introduction to Public Administra-tion
Instructor:Prof.Ajmer Singh Malik
Institute: Kurukshetra Uni-versity
Next Run Start Date: 7.08.2017
Next Run End Date: 28.10.2017
Course Objectives: Public Administration is a gateway to understand government structures and processes of its working. Therefore, the course Introduction to Public Administration is prepared to acquaint the learners to know its evolution and its current status.
The course intends to provide an opportunity to the learners to know about continuous and multidimensional debate, discussions and in-teractions on the principles, objectives, ma-chinery, policy, programmes, means, methods and manners associated with the process and discipline of Public Administration.
It will help in developing understanding of approaches to study the Public Administration and to articulate contemporary changes in-cluding the impact of globalization

20.
Course Name: Educational Ad-ministra-tion,Mangaement and Leadership in School Education
Instructor: Dr.A.P . Behera
Institute: Central Institute of Educational Techonolgy,NCERT
Next Run Start Date: 1.08.2017
Next Run End Date: 30.12.2017
Course Objectives: This course is intended to apprise the students about- The mean-ing/concept and common features of Educa-tional Administration, Management and Gov-ernance, and leadership.
- The History of educational administration, educational management and leadership.
- The functions and approaches of Education-al Administration, educational management and leadership.
- The institutions related to Educational Ad-ministration Management and Governance.
- Academic support structures like NUEPA, NCERT, SCERT, SIEMAT, DIETs.
- Role of research and evaluation in Educa-tional Administration Management and Gov-ernance.
- Issues and trends in Educational Administra-tion Management and Governance.

- Challenges in Educational Administration Management and Governance.

21.
Course Name: Physical Chemistry-I (Quantum Chem-istry)
Instructor: Prof.(Dr.) A.K. Bakhshi
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course deals with the applications of Quantum Mechanics to the problems of Chemistry. This course begins with the fundamentals of quantum mechanics including the origin of quantum mechanics.

22.
Course Name: Environmental Chemistry
Instructor: Dr. Suresh K Garg
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date:19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding in Environmental Chemistry. This course will give an exposure on how to protect the environment and for doing so knowledge of the causes of environmental deterioration is essential.

23.
Course Name: Organic Chemistry-II (Reaction mech-anisms-1)
Instructor: Dr. Vimal Rarh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the basic concepts of organic chemistry reaction mechanisms. This course gives an overview of the different types of organic reactions and covers the reaction mechanisms of some very important organic reactions with a focus on different types of substitution reactions namely, aliphatic nucle-ophilic substitution, aliphatic electrophilic sub-stitution, aromatic electrophilic substitution and aromatic nucleophilic substitution.

24.
Course Name: Inorganic Chemis-try-II (Metal-Ligand Bonding , Electronic Spectra and Magnetic Properties of Tran-sition Metal Com-plexes)
Instructor: Prof. Rajeev Gupta
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This paper highlights the basic concepts of metal-ligand bonding by explaining crystal field theory followed by the ligand field theory including molecular orbital theory. The course will also illustrate the origin of color in coordination complexes by detailed discussion on electronic spectroscopy followed by the magnetic properties of transi-tion metal complexes.

25.
Course Name: Organic Chemistry-III (Reaction Mechanisms-2)
Instructor: Dr. Vimal Rarh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped to provide in-depth understanding of the basic concepts of organic chemistry reac-tion mechanisms with emphasis on addition reactions for C-C multiple bonds as well as carbon-hetero atom, reduction reactions, elim-ination reactions, reactions involving free rad-icals and pericyclic reactions.

26.
Course Name: Organic Spectros-copy
Instructor: Prof. Diwan S. Rawat
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been developed for the stu-dents seeking in-depth understanding in Or-ganic Spectroscopy. Spectroscopy is a branch of science that studies the interactions be-tween light and matter.

27.
Course Name: Ap-plications of Mo-lecular Symmetry and Group theory
Instructor: Prof. R.K. Sharma and Prof B S Garg
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding in Applications of Molecular Symmetry and Group theory. Symmetry is found everywhere in nature and is the preva-lent themes in art, architecture. This course aims to provide simple and lucid way of learn-ing and solving complex problems related to molecular

symmetry and group theory.

28.
Course Name: Bioorganic and Bi-ophysical Chemistry
Instructor: Dr K Nirmala
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: The course entitled Bio-organic and Biophysical Chemistry highlights the principles drawn from chemistry in under-standing the structure and biology of biomol-ecules found in all living organisms such as bacteria, plants and animals. The course will highlight the important structures and features of various biomolecules with a special empha-sis on the work horses of a cell- enzymes which allow simple molecules to act in concert to drive cell organization and life processes.

29.
Course Name: Fundamentals of Microeconomic Theory
Instructor: Dr. O. M. Agarwal
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding in Fundamentals of Microeco-nomic Theory. This course gives an overview of the theory of cardinal utility theory of de-mand, production, cost and the-ory of markets. It starts with a discussion on nature, scope and concept of microeconomics.

30.
Course Name: Basic Macroeco-nomics
Instructor: Dr. Jaswinder Singh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course is designed to acquaint the students with the concept of Macroeconomics, importance of studying it, identification of the central issues and evalua-tion of various schools of thoughts.

31.
Course Name: Economic Planning in India: Overview and Challenges
Instructor: Dr. Jatinder Bir Singh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course gives an over-view of the theory of systematic analysis of overall economic planning. It starts with a dis-cussion on the economic development, its de-terminants, planning phases; public finance.

32.
Course Name: Public Finance and Policy in India
Instructor: Dr. Jaswinder Singh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course is designed to acquaint the students with the concept of the public finance policy in India. It will include the meaning and scope of fiscal policy, fiscal federalism, fiscal grants, Indian tax system, Budget Analysis etc.

33.
Course Name: Sectoral Growth in India
Instructor: Dr. Ashis Taru Deb
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: The course is intended to provide an analytical discussion of various sectoral issues relating to Indian economy, well grounded in economic theory.

34.
Course Name: Money and Banking
Instructor:Ms. Manisha Vats
Institute: Delhi University]
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course is designed to acquaint the students about the concept of Money, and the theories of money supply and money demand determination in an economy.

35.
Course Name: International Eco-nomics
Instructor: Dr. Jaswinder Singh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course is designed to acquaint the students with the concepts of International economics. This begins with in-troducing the main concepts, methods and changes in the international economics.

36.
Course Name: En-vironmental Eco-nomics
Instructor: Prof K V Bhanu Murthy
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: Environmental Economics is a course in applied economics. To begin with this course dwells upon the typical framework of the central question in econom-ics, that is, Pareto Optimality and Competitive equilibrium.

37.
Course Name: Fingerprints and Other Impressions
Instructor: Dr. G.S. Sodhi
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the concepts related to finger-prints and other impressions. The main aim of this course is to provide an insight regarding what are fingerprints, how they are formed on the tip of the fingers, the reason they remain persistent over an individual's lifetime and are individualistic in nature, about the minutiae characteristics, ridge patterns and the well-known Henry's ten digit classification system.

38.
Course Name: Forensic Chemistry and Explosives
Instructor: Dr. Vimal Rarh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the concepts related to forensic chemistry & explosives. The course will pro-vide an overview about how chemistry is be-ing applied in the field of forensic investiga-tion, about theory of forensic analysis, various types of evidences found at the scene of crime such as drugs and soil, instrumental techniques required for chemical analysis namely chromatographic and spectroscopic methods.

39.
Course Name: Fo-rensic Ballistics
Instructor: Dr. G.S. Sodhi
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the concepts related to forensic ballistics. The course will first provide an overview to this arena starting with the history of firearms and ammunitions and slowly mov-ing on to the classification of firearm into ri-fled and smooth bored weapons.

40.
Course Name: Drugs of Abuse
Instructor: Dr. Vimal Rarh and Prof A.K Gupta
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the concepts related to drugs of abuse. The course will provide an overview of drug abuse comprising of introduction to drugs and their classification, drug abuse and terminologies related to abuse of drugs.

41.
Course Name: Forensic Toxicolo-gy
Instructor: Dr. Vimal Rarh and Prof A.K Gupta
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the concepts related to forensic toxicology. The initiation of the course will be done by giving an overview of the field of forensic toxicology and also a detailed study on classification of poisons.

42.
Course Name: Forensic Anthro-pology
Instructor: Dr. Adarsh Kumar
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the concepts related to forensic anthropology. So with this view, this course shall be giving an overview to the field of fo-rensic anthropology and forensic osteology wherein how much scope the field of forensic anthropology has will also be taken up in ad-dition to the introduction regarding forensic osteology and its principle.

43.
Course Name: Forensic Biology and Serology
Instructor: Dr. Adarsh Kumar
Institute: Delhi University

Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the concepts related to forensic biology & serology. This course will give an overview regarding the importance and appli-cation of field of biology and serology in fo-rensic investigation and will also emphasize general definitions and concepts in addition with the nature and role of forensic biologist in crime investigation.

44.
Course Name: Fo-rensic Medicine
Instructor: Dr. Adarsh Kumar
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the concepts related to forensic medicine. The course will provide an overview to the field of forensic medicine and subse-quently with this, forensic odontology will also be taken up in detail.

45.
Course Name: Cognitive Science
Instructor: Dr. Pooja Wadha-wan
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the student seeking in-depth un-derstanding of the concepts of cognitive psy-chology. This course gives an overview about foundation cognitive psychology.

46.
Course Name: Quantitative Meth-ods
Instructor: Prof. N.K. Chadha
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the basic concepts to create a critical understanding of quantitative tech-niques. This course gives an understanding of the nature of the data distribution and to learn the usefulness of different methods to analyse psychological data.

47.
Course Name: Applied Psycho-metrics
Instructor: Prof. N.K. Chadha
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the basic concepts of meas-urement issues and techniques in psychologi-cal inquiry. This course gives an overview about the core concept of Psychometrics, psy-chological testing, its application of assess-ment and measurement, additional concepts related to psychometrics and factor analysis.

48.
Course Name: Cross-Cultural Psy-chology
Instructor: Dr Mandeep Kaur
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the basic concepts of cross cul-tural psychology. This course gives an over-view of cultural behaviour, methodology of cross cultural psychology, culture and cogni-tion, culture and emotion, culture and organi-zation, culture and health, culture and social behaviours, culture change and adaptation and cross cultural communication.

49.
Course Name: Social Psychology
Instructor: Dr Poonam Phogat
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the students seeking in-depth un-derstanding of the basic concepts provide an understanding of how people's feel, think, and influence behavior and are in turn influenced by each other This course gives an overview of study and helps us to understand the nature and causes of human behavior in social settings.

50.
Course Name: Counselling Psy-chology
Instructor: Dr Harpreet Bhatia
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date:19.11.2017
Course Objectives: This course has been de-veloped for the student seeking in-depth un-derstanding of the concepts of counselling psychology. This course

familiarizes the stu-dents with the nature and process of counsel-ling, its major theories and techniques and will introduce the different fields of application of counselling.

51.
Course Name: Neuropsychology
Instructor: Dr. Meenakshi Saxena
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the student seeking in depth un-derstanding of the concepts of neuropsychol-ogy. The major objective of this course is to cater to knowledge in the area of brain and behavior. The emphasis of this course is on the study of neurological disorders, assessment, diagnosis, intervention and rehabilitation.

52.
Course Name: Clinical Psychology
Instructor: Dr Sangeeta Tanwar
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course has been de-veloped for the student seeking in-depth un-derstanding of the concepts of clinical psy-chology. This course will give an introduction about the nature, scope and ethics of clinical psychology and will also cover various child-hood and developmental disorders such as anxiety disorders, conduct disorders, eating disorders, elimination disorders, mental retar-dation, pervasive developmental disorders, learning disability and attention deficit /hyperactivity disorder in detail.

53.
Course Name: Management Con-cept and Organiza-tional Behavior
Instructor: Dr. Ajay Kumar Singh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: It is a generic course which provides insights about managing or-ganizations of different types. This can be studied by all those who have to take manage-rial decisions and to deal with people. It ena-bles the student to know about different theo-ries of management, evolution of management thought, managerial functions and roles, planning, organizing, directing, staffing, & con-trolling. Students would be able to under-stand, measure, and quantify abstract con-cepts like, personality, emotions, perception, attitude, learning, terminal values, instrumen-tal values, individual & group decision mak-ing, etc. Students would also equip them-selves to understand the concepts of transac-tional analysis, Johari Window, etc., manage change, conflict, stress, organizational culture & climate, and conduct appreciative inquiry, OD interventions, etc.

54.
Course Name: Managerial Eco-nomics
Instructor: Prof K V Bhanu Murthy
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This COURSE has an emphasis on managerial decision-making. Ob-viously while managers have to undertake many decisions like financial and marketing decisions, 'economic decision' are paramount.

55.
Course Name: Business Environ-ment
Instructor: Dr. Romilla Ag-garwal
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course helps to un-derstand the theoretical framework of Busi-ness Environment – its concept, significance and changing dimensions. Business Environ-ment needs to be studied by analyzing the macro environmental factors in depth such as economic, political & legal, socio-cultural, technological and international environment.

56.
Course Name: Accounting for Managerial Deci-sions
Instructor: CA Dr. Abha Ma-thur
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: course, contains a set of practices and techniques aimed at providing potential managers with knowledge, to help them in learning how to make decisions and maintain effective control over corporate re-sources. The course teaches various Manage-rial accounting procedures that are intended primarily to supply knowledge to future deci-sion maker of an organization. The students must understand that Managerial accountants are an important part of any profitable organi-zation.

57.
Course Name: Financial Manage-ment
Instructor: Dr. Vanita Tripathi
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: The course on 'Financial Manage-ment' aims at making students under-stand various issues involved in financial management of a firm and equip them with advanced analytical tools and techniques that are used for making sound finan-cial decisions and policies. Finance being the core of any business organisation needs special attention and hence this course teaches students all rel-evant aspects of finance in an organisation. The students pursuing this course must under-stand that finance function is not a stand-alone function, rather finance manager has to work in close association with all other func-tions in an organisation such as produc-tion, marketing, HR etc.

58.
Course Name: International Busi-ness
Instructor:Dr. Niti Bhasin
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course on 'Interna-tional Business' aims to equip the students with the es-sential knowledge related to trade and investment activities across national bor-ders. This course would enable students to understand the dynamics and complexity of operating business in an environment outside the home country. It would elaborate on the role and interplay of various economic, politi-cal, le-gal and cultural factors that are signifi-cant in deter-mining the success of internation-al business activity of an enterprise. The course would also allow them to know the different modes of entry into international business along with the relevance and im-portance of each mode. The course aims to integrate the knowl-edge of various theories of trade and investment with the realities of trade and investment patterns. In ad-dition, it also intends to bring out the role of import-ant international economic institutions in regulat-ing and facilitating the process of international business.

59.
Course Name: Strategic Manage-ment
Instructor: Prof K V Bhanu Murthy
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This Course on Strategic Man-agement gives an overview of Strategic Management. The Strategic Management Pro-cess, Level at which strategy operates & Stra-tegic Business Unit (SBU) are the introducto-ry topics.

60.
Course Name: Security Analysis and Portfolio Man-agement
Instructor: Dr. Anjala Kalsie
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course is intended to pro-vide a general overview of capital markets, financial instruments, and investment process. The course emphasizes on the role of modern financial theory in portfolio management. By the end of the course, the students are ex-pected to be acquainted with the working of financial markets, to analyze securities, and to make intelligent investment decisions based on available evidence and analysis. The course will also improve the ability of the reader to understand financial articles and news with a critical approach.

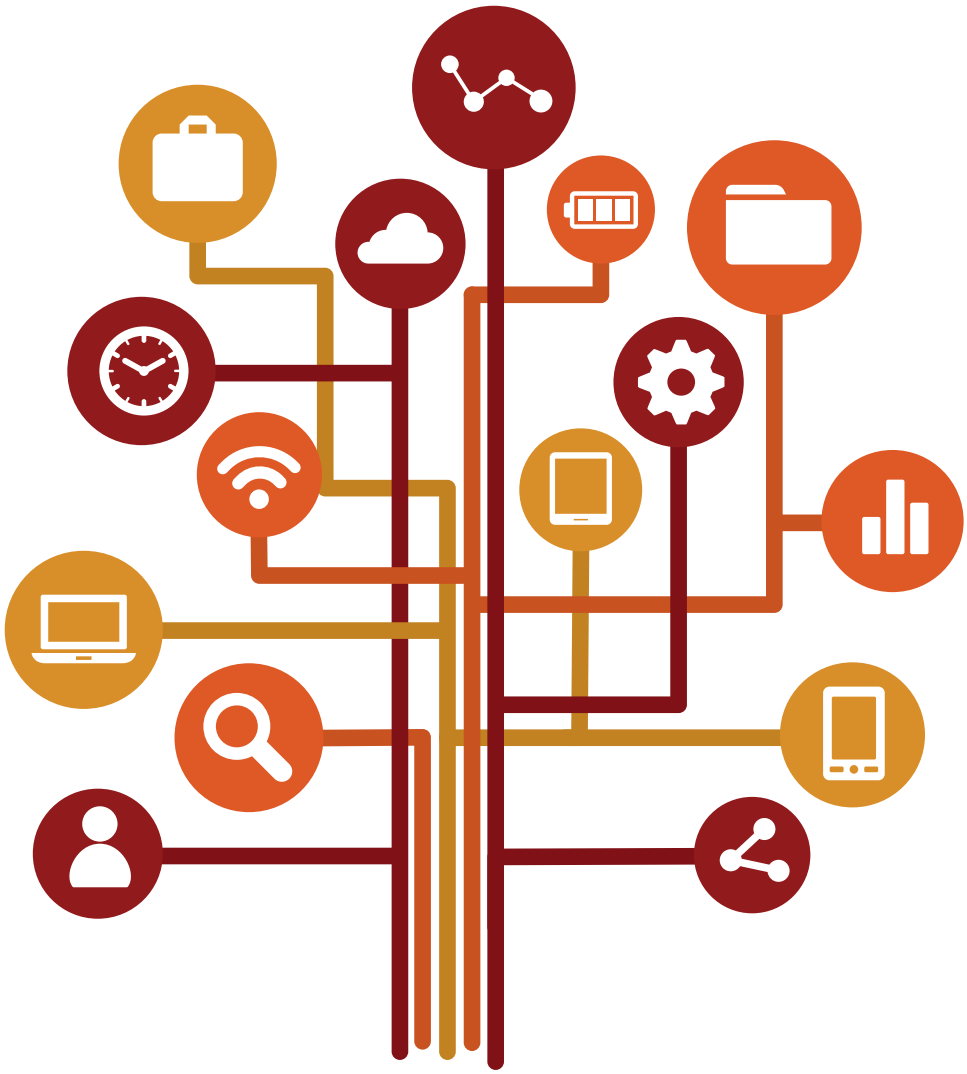
61.
Course Name: Macroeconomics Analysis and Policy
Instructor: Dr. Jaswinder Singh
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This paper is designed to acquaint the students with the concept of Macroeconom-ics, importance of studying it, identification of the central issues and evalua-tion of various schools of thoughts.

62.
Course Name: International Fi-nancial Manage-ment
Instructor: Prof K V Bhanu Murthy
Institute: Delhi University
Next Run Start Date: 07.08.2017
Next Run End Date: 19.11.2017
Course Objectives: This course is designed to ac-quaint the students with the concept of In-ternation-al Financial Management, importance of studying it, identification of the central is-sues of International finance.

63.
Course Name : Communication Technologies in Education
Instructor : Dr. D Harichandan

Institute : University of Mumbai
Next Run Start Date : 01.08.2017
Next Run End Date : 30.11.2017
Course Objectives : 1. To develop an understanding of the basics of communication.
2. To create an awareness of the requisites of effective communication
3. To critique the influence of technological advancements on educational communication.
4. To appreciate the contemporary enhancements in communication technology.
5. To analyze the role of National bodies in the development of Educational Technology.

List of Post & Under Graduate Courses (Engineering) By : NPTEL



01.
Discipline: Aerospace engineering
Course Name: Gas dynamics
Instructor: Prof. Sameen. A
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course introduces compressible flow and its constitutive equations. The physical concepts behind isentropic flows, area-Mach number relation etc will be discussed with practical problems in mind. Properties of shocks and expansions are important parts of this course. All the numerical examples will be in SI units.

02.
Discipline: Aerospace engineering
Course Name: Engineering Thermodynamics
Instructor: Prof. D. P. Mishra
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is designed for undergraduate engineering students, interested in learning the fundamental aspects of engineering thermodynamics. The main emphasis is placed on precise and logical presentation of the basic concepts and principles, which are essential for the better understanding of engineering thermodynamics. The methodical rather than rigid problems solving techniques are enumerated in details to encourage the students to develop a feel for importance of thermodynamics.

03.
Discipline: Aerospace engineering
Course Name: Combustion in air breathing aero engines
Instructor: Prof. Swetaprovo Chaudhuri
Institute: IISc
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course will provide detailed, state of the art understanding of chemical kinetics, flames, turbulence and turbulent combustion, followed by discussions on modern aero engine combustors and how they optimize the above processes. Therefore, after successful completion of the course, the student should be well versed with the understanding of the complex, physico-chemical processes in modern air-breathing aero engines. This should allow him/her to model, design and improve combustors towards more efficient engines.

04.
Discipline: Aerospace engineering
Course Name: Aircraft Design
Instructor:
Prof. A.K.Ghosh
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives:
This course will presents the entire process of aircraft conceptual design - from requirements definition to initial sizing, configuration layout, analysis, sizing, optimization, and trade studies.

05.
Discipline: Aerospace engineering
Course Name: Aircraft Stability and Control
Instructor: Prof. A.K.Ghosh
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is designed to understand aspects of advance dynamic stability of an airplane. This course will also help in creating a background to design an airplane from stability and control aspects.

06.
Discipline: Agriculture & Food Engineering
Course Name: Momentum transfer in process engineering
Instructor: Prof. Tridib Kumar Goswami
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives:
This course will cover basics of momentum transfer required in any processing industries. The basic knowledge of momentum transfer is intermingled with most of the unit operations at some or other stage of processing. Since, this basic aspect of transfer process is not taught in most of the engineering institutions elaborately, a comprehension of this aspect of transfer process will enrich the knowledge base of the students in general.

07.
Discipline: Biological sciences & Biotechnology
Course Name: Biostatistics and design of experiments
Instructor: Prof. Mukesh Doble
Institute: IITM
Next Run Start Date: JULY-SEP 2017
Course Objectives:
The course encompasses topics such as distribution of data, sample size, tests of significance, data reduction, regression analysis, comparison of performance of drugs in clinical trials, design of experiments, screening and second order designs.

08.
Discipline: Biological sciences & Biotechnology
Course Name: Biomedical nanotechnology
Instructor: Prof. P.Gopinath

Institute: IITR
Next Run Start Date: JULY-AUG 2017
Course Objectives: Biomedical nanotechnology is a rapidly developing field, which includes a diverse collection of disciplines. The applications of nanotechnology are gaining overwhelming response in almost all the fields. Especially in healthcare sector, tremendous developments have been achieved. Thus, the main objective of this course is to impart knowledge on biomedical applications of nanotechnology.

09.
Discipline: Biological sciences
Course Name: Introduction
Instructor: Prof. Shamik
Institute: IITB
Next Run Start Date: AUG-OCT 2017
Course Objectives:
Mechanobiology is an upcoming interdisciplinary field of science where concepts of mechanics, biology and engineering are combined to understand the basics of different cellular processes ranging from cell division to cell differentiation and death

10.
Discipline: Biological sciences & Biotechnology
Course Name: Animal Physiology
Instructor: Prof. Mainak Das
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course will be an informal journey to 'know your own body'. It will provoke you to think the following: How our body functions? What it is made up of and what are the organizational hierarchy of your body? How its regular function is disrupted and how the body tries to restore its normal functioning? How the body adjusts itself under extreme physiological situations and how it re-calibrates its functions?

11.
Discipline: Biological sciences & Biotechnology
Course Name: Cell Culture Technologies
Instructor: Prof. Mainak Das
Institute IITK:
Next Run Start Date: AUG-OCT 2017
Course Objectives: The course will be a short primer to understand how 'animal cell culture technologies' have strengthened the bio-medical research from basic research to the modern drug discovery. The lectures will help the researcher to appreciate the developments during last hundred years and will help them to independently set up cell culture laboratories. For non-biologist, it will be an informal way to demystify the intriguing routes of biomedical research where cell culture is a very 'potent tool'.

12.
Discipline:
Biological sciences & Biotechnology
Course Name: Forest Biometry
Instructor: Dr. Ankur Awadhiya & Prof. Mainak Das
Institute: IITK
Next Run Start Date: AUG-OCT 2017
Course Objectives: This course aims to provide an overview of the methods of measuring the tree resources present in the forest. The course will not only focus on the theories of measurement, but shall also provide an overview of the instrumentation basics of various equipments used for the purpose.

13.
Discipline: Biological sciences & Biotechnology
Course Name: Industrial Bio-technology
Instructor: Prof. Debabrata Das
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course aims to provide fundamental insights to exploit enzymes and microbes for the manufactur-ing of products which have a huge industrial signif-icance. It uniquely blends the science and engineer-ing with various biochemical processes to obtain products of diverse fields such as chemicals, food, bio energy etc. vaccines etc.

14.
Discipline: Chemical engineering
Course Name: Trace and ul-tra-trace anal-ysis of metals using atomic absorption spectrometry
Instructor: Prof. J. R. Mudakavi
Institute: IISc
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course is useful for the determination of metals as ions in µg, ng, pg levels in aqueous and nonaque-ous solutions. It has applicability to air pollution, water and solid waste matrices. A emphasis is laid on fundamentals of atomic structure, spectroscopy, instrumentation, method development and industri-al applications. The course will be useful for chem-ists, chemical engineers, metallurgists, biotechnolo-gists and NGOs.

15.
Discipline: Chemical engineering
Course Name: Introduction to evolutionary dynam-ics
Instructor: Prof. Supreet Saini
Institute: IITB
Next Run Start Date: JULY-SEP 2017
Course Objectives: In this course, we will introduce techniques to analyze dynamics of evolving microbial populations. The topics we will look to cover are as follows. Introduction to Evolution and population dynamics; Fitness Landscape and Sequence Spac-es; Evolutionary Game Theory (fitness dependent on frequency);Origin of Cooperation (genes to genomes; single-cell to multicellular organisms);-Deterministic and Stochastic Description of Finite Populations; Evolutionary Graph Theory; Modeling Infinite Populations; Examples: Analysis of evolution of Virulence, Cancer, and HIV.

16.
Discipline: Chemical engineer-ing
Course Name: Phase equilib-rium thermo-dynamics
Instructor: Prof. Gargi Das
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: This is an introductory course in Thermodynamics and is one of the basic subjects to understand inter-facial mass transfer and separation processes like distillation, solvent extraction, etc. There is a well-balanced coverage of physical con-cepts, mathemati-cal operations along with examples and exercise problems of practical importance. After completion of the course, the students will be able to apply the basic principles of thermodynamics, the laws, and the pertinent equations to engineering design of mass transfer equipment.

17
Discipline: Chemical engineer-ing
Course Name: Transport phenomena
Instructor: Prof. Sunan-do Dasgupta
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: This is a fundamental subject for all Chemical Engi-neering students and is also important in disciplines as diverse as Mechanical Engineering, Biotechnolo-gy and Nanotechnology. The students will be made aware of the core scientific connections and will be encouraged to solve prob-lems based on relevant analogies.

18
Discipline: Chemical engineer-ing
Course Name: Unit opera-tions of par-ticulate matter
Instructor: Prof. Shabina Khanam
Institute: IITR
Next Run Start Date: JULY-AUG 2017
Course Objectives: The primary objectives of this course is to
• identify the important physical mechanisms oc-cur-ring in processes involving particles
• formulate and solve mathematical descriptions of such processes
• apply this knowledge to the design of particulate systems such as Sedimentation tank, Filtration unit, Fluidization unit, Flotation cell, etc.

19
Discipline: Chemistry and bio-chemistry
Course Name: Basics of Flu-orescence Spectroscopy
Instructor: Prof. Pratik Sen
Institute: IITK
Next Run Start Date: JULY-SEP 2017
Course Objectives: Although fluorescence spec-troscopy is used in many disciplines, this particular course is intended for the individuals willing to receive an in-depth introduction to the principles of fluorescence spec-troscopy and its applications to chemistry and biol-ogy.

20
Discipline: Chemistry and bio-chemistry
Course Name: Laser Funda-mentals and Applica-tions
Instructor: Prof. Mana-bendra Chandra
Institute: IITK
Next Run Start Date: AUG-OCT 2017
Course Objectives: This course is intended for stu-dents who need to understand the basic principles of how lasers work and their main properties. This course provides the students a thorough under-standing of the funda-mentals of lasers: their unique properties, their oper-ations and their applications. It will equip the stu-dents with the knowledge of how a coherent light is generated and amplified, the tech-niques behind dif-ferent lasers' design, and applica-tions of lasers in spectroscopy, chemistry, medicine, biology, military and other areas.

21
Discipline: Chemistry and bio-chemistry
Course Name: Chemical and biological thermody-nam-ics: principles to applications
Instructor: Prof. Nand Kishore

Institute: IITB
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course is designed to benefit students of chem-istry, chemical engineering, bio-technology, and pharmaceutical sciences to learn from basic con-cepts of chemical thermodynamics to applications in chemical and pharmaceutical indus-tries including protein folding and stability.

22.
Discipline: Chemistry and bio-chemistry
Course Name: Analytical chemistry
Instructor: Prof. De-bashis Ray
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives:
It will give the opportunity to study and use spe-cial-ized instruments and specific methods to sepa-rate, identify, and quantify the unknown substance. The course has applications that include forensic science, analysis of biological samples, clinical anal-ysis, envi-ronmental analysis, and materials analysis.

23.
Discipline: Chemistry and bio-chemistry
Course Name:
Co-ordination chemistry (chemistry of transition ele-ments)
Instructor:
Prof. De-bashis Ray
Institute:
IITKGP
Next Run Start Date:
JULY-OCT 2017
Course Objectives: It will give an excellent oppor-tunity to study and use the century old Nobel prize winning knowledge of coordination chemistry. The study will also lead to understand the difference be-tween a coordinated ligand and charge balancing ion in a coordination compound.

24.
Discipline: Chemistry and bio-chemistry Course Name: Stereochemis-try
Instructor: Prof. Amit Basak
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: Stereochemistry of molecules dic-tates isomerism, chemical and biochemical reactivity. Reactivity. These days, chiral drugs have become an integral part of pharmaceutical industry. A basic concept on 3D structures and conformations of mol-ecules and asymmetric synthesis and other stereo-chemical prin-ciples and attributes are essential. This course will lay the foundation on to which further advanced topics can be built up.

25.
Discipline: ChemistryCourse Name:
Advanced Mathematical Methods for Chemistry
Instructor: Prof. Madhav Ranganathan
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course will introduce the students to fairly ad-vanced mathematical methods for chemists. The style of teaching will be through applications and students will be expected to learn a lot of material by reading the books suggested.

26.
Discipline: Civil engineering
Course Name: Project plan-ning and con-trol
Instructor: Prof. Koshy Varghese
Institute: IITM
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course will cover the basic concepts in Project Planning and Control with a focus on construction projects. The course is relevant to Civil Engineering senior level undergraduate as well as post-graduate students in the area of con-struction management. Practicing engineers who are part of the planning team on construction projects will also benefit from the concepts covered in the course.

27.
Discipline: Civil engineering
Course Name: Geotechnical engineering laboratory
Instructor: Prof. J. N. Mandal
Institute: IITB
Next Run Start Date: JULY-AUG 2017

Course Objectives: This course will show how to con-duct the various types of tests used for soil testing. Each experiment of soil testing is presented with brief introduction covering the important details of the experiment, the theory and the purpose for which it is to be per-formed, followed by the detailed explanation of apparatus required, procedure and specimen calcula-tions. These should enable stu-dents to perform the experiment and compute the results of experiments very easily.

28.
Discipline: Civil engineering

Course Name: Mechanics of Solids
Instructor: Prof. Pri-yanka Ghosh
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is to serve as an introduction to mechan-ics of deformable solid bodies. The primary course objective is to equip the students with the tools necessary to solve mechan-ics problems, which in-volves (a) static analysis of a component to find the internal actions (forces and moments), (b) determine stresses, strains and de-formation due to internal ac-tions, and (c) compare them with known acceptable values.

29.
Discipline: Civil engineering
Course Name: Principles of Construction Manage-ment
Instructor: Prof. Sudhir Misra
Institute: IITK
Next Run Start Date: AUG-OCT 2017
Course Objectives: Though the course primarily targets students of civil engineering in colleges, other engineering students may also find it interesting. The course seeks to pre-sent a rounded view of the divers issues involved in the management of construction projects, and in-cludes aspects like construction economics, quality and safety management, and con-tract management, apart from time management and scheduling, esti-mation.

30.
Discipline: Civil engineering
Course Name: Foundation Design
Instructor: Prof. N.R. Patra
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course prepares the student to be able to make effective learning of design of foundation, soil ex-ploration and in-situ tests.

31.
Discipline: Civil engineering
Course Name: Integrated Waste Man-agement for a Smart City
Instructor: Prof. Brajesh Kumar Dubey
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course has emphasises on In-tegrated Solid Waste Management aspects within the broad sub-ject area of Integrated Waste Management for a Smart City. The issues of Municipal Solid Waste (MSW) management, Construction and Demolition (C&D) Waste and Electronic Waste Management will be covered in this course.

32.
Discipline: Civil engineering
Course Name: Computation-al hydraulics
Instructor: Prof. Anirban Dhar
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is designed to intro-duce the computa-tional aspects of hydraulics in the context of Civil Engineering problems, e.g., ground-water flow, open channel flow, flow in closed con-duits. Going through the course one would develop first-hand knowledge on numerical simulation. This course will also help in creating a background to under-stand the difference between various discreti-zation methods. The course will enable one to make ap-propriate choice among available standard soft-ware.

33.
Discipline: Civil engineering
Course Name: Design of steel struc-tures
Instructor: Prof. Damo-dar Maiti
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course deals with design of steel structures us-ing “Limit State Design Method”. The subject co-vers all the necessary components such as material specifications, connections and elementary design of structural members for design-ing industrial steel structures. The course provides material specifica-tions and design considerations. It provides relevant material properties of different types of steel. It deals with two types of connections namely welded and bolted connections.

34.
Discipline: Civil engineering
Course Name: Strength of materials
Instructor: Prof. Sriman Kumar Bhattacharya
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017

Course Objectives:
The objective of the present course is to make the students acquainted with the concept of load re-sul-tant, consequences and how different kinds of load-ings can be withstood by different kinds of members with some specific materials.

35.
Discipline: Civil engineering Course Name: Design of re-inforced con-crete struc-tures
Instructor: Prof. Nirjhar Dhang
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: Design of reinforced concrete structures is an intro-ductory design course in civil engineering. In this course, basic elements governed by bending, shear, axial forces or combination of them are identified and are considered as building blocks of the whole structure.

36.
Discipline: Civil engineering
Course Name: Reinforced Concrete Road Bridges
Instructor: Prof. Nirjhar Dhang
Institute: IITKGP
Next Run Start Date: JULY-AUG 2017
Course Objectives: In this course, reinforced con-crete road bridges are taken up as these bridges are mainly used in road transportation system. This course will mainly focus on reinforced concrete slab bridges spanning in the range of 8-12m. The course will be introduced with general design consider-ations, design limit states.

37.
Discipline: Civil engineering
Course Name: Structural analysis
Instructor: Prof. Amit Shaw
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives:
This is an elementary course on Structural Analysis. Various methods and their underlying mechanics in determining response of structures when subjected to external agitation will be discussed in this course. This course is comprehensive at the basic level. Jour-ney through this course will help students to build the foundation for more advanced courses related to structural engineering.

38.
Discipline: Earth science
Course Name: Digital Image Processing of Remote Sens-ing Data
Instructor: Prof. Arun K. Saraf
Institute: IITR
Next Run Start Date: JULY-AUG 2017
Course Objectives:
The proposed course provides basic understanding about digital image processing of Remote Sens-ing datasets / images acquired by different earth re-sources satellites. The above course will improve understanding about overall remote sensing data processing.

39.
Discipline: Civil engineering
Course Name: Geo environ-mental Engi-neering (Envi-ronmental Geo technolo-gy): Landfills, Slurry Ponds & Contami-nated Sites
Instructor: Prof. Manoj Datta
Institute: IITD
Next Run Start Date: JULY-OCT 2017
Course Objectives: The courses discusses the follow-ing in detail:
• Concepts and principles of Geoenvironmental En-gineering.
• Geotechnical aspects of planning and design of MSW and Hazardous waste Landfills
• Geotechnical aspects of planning and design of slurry ponds - ash ponds and tailing ponds.
• Geotechnical aspects of detection & monitoring of subsurface contamination and control & reme-dia-tion of contaminated sites.
• Rehabilitation of waste dumps and geotechnical re-use of waste.

40.
Discipline: Computer science and engineering
Course Name: Computer ar-chitecture and organiza-tion
Instructor: Prof.Indranil Sengupta & Prof.Kamalika Datta
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course will discuss the basic concepts of com-puter architecture and organization that can help the participants to have a clear view as to how a com-puter system works.

41.
Discipline: Computer science and engineering
Course Name: An introduc-tion to algo-rithm and analysis
Instructor: Prof. Sourav Mukhopadh-yay
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course provides an introduc-tion to mathemati-cal modeling of computational problems. The course emphasizes the relationship be-tween algorithms and programming, and introduces basic performance measures and analysis techniques for these prob-lems.

42.
Discipline: Computer science and engineering
Course Name: Hardware modeling us-ing verilog
Instructor: Prof. Indranil Sengupta
Institute: IITKGP
Next Run Start Date: AUG-OCT 2017
Course Objectives: The course will introduce the participants to the Verilog hardware description language. It will help them to learn various digital circuit modeling issues using Verilog, writing test benches, and some case studies.

43.
Discipline: Computer science and engineering
Course Name: Introduction to internet of things
Instructor: Prof. Sudip Misra
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: These domains include agricul-ture, space, healthcare, manufacturing, construction, water, and mining, which are presently transitioning their lega-cy infrastructure to support IoT. IoT-based applica-tions such as innovative shopping system, infra-structure management in both urban and rural areas, remote health monitoring and emergency notifica-tion systems, and transportation systems, are gradu-ally relying on IoT based systems. Therefore, it is very important to learn the fundamentals of this emerging technology.

44.
Discipline: Computer science and engineering
Course Name: Cloud compu-ting
Instructor: Prof. Soumya Kanti Ghosh
Institute: IITKGP
Next Run Start Date: AUG-OCT 2017
Course Objectives: This course will introduce various aspects of cloud computing, including fundamentals, management issues, security challenges and future research trends. This will help students (both UG and PG levels) and researchers to use and explore the cloud computing platforms.

45.
Discipline: Computer science and engineering
Course Name: Programming in C++
Instructor: Prof. Partha Pratim Das
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: The present course builds up on the knowledge of C programming and basic data structure (array, list, stack, queue etc.) to create a strong familiarity with C++98 and C++03. Besides the constructs, syntax and semantics of C++ (over C), we also focus on various idioms of C++ and attempt to go to depth with every C++ feature jus-tifying and illustrating them with several examples and assignment prob-lems. On the way, we illustrate various OOP con-cepts.
While this course can be understood independently (after a course in C programming), it would help in developing understanding in OOP. Hence this course is advised in conjunction with OOP.

46.
Discipline: Computer science and engineering
Course Name: Object orient-ed analysis and design
Instructor: Prof. Partha Pratim Das
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: The present course introduces OOAD grounds up starting with breaking down the root cause of in-herent software complexity. After an in-depth ex-posure to Object Models, Classes and their interac-tions, the course takes a thorough tour of the dia-grams of UML 2.0. Several systems examples help students understand the concept and tutorials offer quick practice. The course ends with a brief dis-course on OOP in C++.

47.
Discipline: Computer science and engineering
Course Name: Introduction to Machine Learning
Instructor: Prof. Su-deshna Sarkar
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course provides a concise in-troduction to the fundamental concepts in machine learning and pop-ular machine learning algorithms. The course will be accompanied by hands-on prob-lem solving with programming in Python and some tutorial sessions.

48.
Discipline: Computer science and engineering
Course Name: Design and analysis of algorithms
Instructor: Prof. Madhavan Mukund
Institute: CMI
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course will cover basic concepts in the design and analysis of algorithms. Asymptotic complexity, O() notation Sorting and search Algorithms on graphs: exploration, connectiv-ity, shortest paths, directed acyclic graphs, spanning trees Design techniques: divide and conquer, greedy, dynamic programming Data structures: heaps, union

of disjoint sets, search trees
Intractability

49.
Discipline: Computer science and engineering
Course Name: Programming, data structures and algo-rithms using python
Instructor: Prof. Madhavan Mukund
Institute: CMI
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course is an introduction to programming and problem solving in Python. As far as data struc-tures are concerned, the course covers Python dic-tionaries as well as classes and objects for defining user defined data types such as linked lists and bi-nary search trees.

50.
Discipline: Computer science and engineering
Course Name: Introduction to operating systems
Instructor: Prof. Chester Robeiro
Institute: IITM
Next Run Start Date: JULY-SEP 2017
Course Objectives: This is an introductory course, for students with prior knowledge of computer orga-nization. The course is based on an OS called xv6, which in many ways is similar to the Linux operating systems.

51.
Discipline: Computer science and engineering
Course Name: Ai: search methods for problem solving
Instructor:Prof. Deepak Khemani
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: In this first course on AI we study a wide variety of search methods that agents can employ for problem solving. In a follow up course – AI: Knowledge Representation and Reasoning– we will go into the details of how an agent can represent its world and reason with what it knows. These two courses should lay a strong foundation for artificial intelli-gence, which the student can build upon.
A third short course – AI: Constraint Satisfaction Problems – presents a slightly different formalism for problem solving, one in which the search and reason-ing pro-cesses mentioned above can operate together.

52.
Discipline: Computer science and engineering
Course Name: Privacy and Security in Online Social Media
Instructor: Prof. Ponnu-rangam.K
Institute: IIITD
Next Run Start Date: JULY-OCT 2017
Course Objectives: Student completing the course will be able to ap-preciate various privacy and secu-rity concerns (spam, phishing, fraud nodes, identity theft) on Online Social Media and Student will be able to clearly articulate one or two concerns com-prehen-sively on one Online Social Media, this will be achieved by homework.

53.
Discipline: Computer science and engineering
Course Name: Software test-ing
Instructor: Prof. Meenakshi D'souza
Institute: IIITB
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course will cover various techniques for test case design, as used for testing of software artifacts including requirements, design and code. The course will end with symbolic testing tech-niques. These broadly will cover test cases for both white-box and black-box.

54.
Discipline: Computer science and engineering
Course Name: Fundamentals of Database Systems
Instructor: Prof. Arnab Bhattacharya
Institute: IITK
Next Run Start Date: JULY -SEP 2017
Course Objectives: The course will introduce the ba-sics of database systems. In addition to the tradition-al relational da-tabase systems, it will also introduce briefly the new paradigm of No SQL databases used in big data systems. The topics will cover all import-ant aspects including normalization, query process-ing and transactions.

55.
Discipline: Computer science and engineering
Course Name: Modern Com-pilers - Theory and Practice
Instructor: Prof. V. Krishna Nandivada
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: Introduction: Compiler construc-tion, architecture and compilation; Lexical, syntactic and semantic analysis; modern computer architec-tures.
Control Flow and Dataflow Analysis: Basic blocks and loops, dominators, control dependence; Bit vec-tors, interval analysis, reach ability, liveness, constant propagation. Intermediate Representations: Issues in

design; High, medium and low level in-termediate languages; Static Single Assignment, construction and destruction, Chi functions, appli-cations in optimization. Optimization: Early optimi-zation, scalar optimization, procedure optimization, register allocation, code scheduling, inter procedural analysis and optimization, memory hierarchy opti-mization, bit width aware register allocation, ana-lyzing parallel programs. Advanced Topics: Just-in-time compilation, garbage collection, pointer analy-sis, parallelization, code generation; profile guided optimization; compilation for modern architectures; modern compiler frameworks; compilation for non-imperative programming paradigms. Including or changing optimizations in gcc and llvm.

56.
Discipline: Computer science and engineering
Course Name: Theory of Computation
Instructor: Prof. Raghunath Tewari
Institute: IITK
Next Run Start Date: JULY -SEP 2017
Course Objectives: This is an introductory course on Theory of Compu-tation intended for undergraduate students in com-puter science. In this course we will introduce vari-ous models of computation and study their power and limitations. We will also explore the properties of the corresponding language classes defined by these models and the relations between them. We will assume the student is comfortable in analytical reasoning and has preferably done a course on Data Structures and Algorithms.

57.
Discipline: Computer science and engineering
Course Name: Computer Or-ganization
Instructor: Prof. Kama-koti
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course not only addresses the how and what but also the whys of Computer Architecture and Organization. In this course, Computer Architecture will be dealt in theory and Computer Organization using lab classes.

58.
Discipline: Computer science and engineering
Course Name: Introduction to Cryptology
Instructor: Prof. S. Gan-gopadhay
Institute: IITR
Next Run Start Date: JULY-AUG 2017
Course Objectives: This four-week course "Introduction to Cryptolo-gy" is designed for both computer science and mathematics students, touching upon the most im-portant ideas and techniques of the present day cryptology. It is hoped that this course will prepare interested students for a more extensive course on Information Security.

59.
Discipline: Electrical /Electronics/Communications Engg
Course Name: Introduction to Wireless and Cellular Communica-tion
Instructor: Prof. David Kovil Pillai
Institute: IITM
Next Run Start Date:JULY-OCT 2017
Course Objectives: An in-depth understanding of the wireless channel and the related impairments (multipath, fading), small-scale and large-scale propagation effects ,Understanding of the design of cellular sys-tems,Detailed discussion of Multiple Access (TDMA/CDMA/OFDM), Antenna diversity, MIMO, Wireless Channel Capacity, Computer sim-ulations of wireless systems,Exposure to current and emerging wireless and cellular systems (LTE, 802.11)

60.
Discipline: Computer science and engineering
Course Name: Model Check-ing
Instructor: Prof. B.Srivathsan
Institute: CMI
Next Run Start Date: JULY-OCT 2017
Course Objectives: The main idea is to look at the system as a mathe-matical model - commonly used models are exten-sions of finite-state machines. The goal of this course is to understand some of the techniques and tools used in the process of model-checking.

61.
Discipline: Computer science and engineering
Course Name: Introduction to Parallel Programming in Open MP
Instructor: Prof. Yogish Sabharwal
Institute: IITD
Next Run Start Date: AUG-SEP 2017
Course Objectives: This course focuses on the shared memory pro-gramming paradigm. It covers concepts & pro-gramming principles involved in developing scalable parallel applications. Assignments focus on writing scalable programs for multi-core architectures using Open MP and C. This is an introductory course in shared memory parallel programming suitable for computer science as well as non-computer science students working on parallel/HPC applica-

tions and interested in parallel programming.

62.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Optimal con-trol
Instructor: Prof. Barjeev Tyagi
Institute: IITR
Next Run Start Date: JULY-SEP 2017
Course Objectives: The main objective of optimal control is to deter-mine control signals that will cause a process (plant) to satisfy some physical con-straints and at the same time extremize (maximize or minimize) a chosen performance criterion (perfor-mance index or cost function).

63.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Control engi-neering
Instructor: Prof. Ramkrish-na.P
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course shall introduce the fundamentals of modeling and control of linear time invariant sys-tems; primarily from the classical view-point of La-place transforms and a brief emphasis on the state space formulation as well. The course will be useful for students from major streams of engineer-ing to build foundations of time/frequency analysis of sys-tems as well as the feedback control of such sys-tems.

64.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Basic electri-cal circuits
Instructor: Prof. Nagen-dra Krishna-pura
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: Electrical circuits are every-where, from tiny ones in integrated circuits in mobile phones and music play-ers, to giant ones that carry power to our homes. This course deals with analysis techniques that can be applied to all such circuits. Af-ter taking this course, one should be able to analyze any linear cir-cuit.

65.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Analog cir-cuits
Instructor: Prof. Nagen-dra Krishna-pura
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is designed as the introductory course on Analog Circuits for under-graduate students. It covers the basic components and methodologies used for Analog Design. Most of the portion deals with OPAMP based circuits. Later in the course some BJT and MOSFET based circuits are dis-cussed.

66.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Networks and systems
Instructor: Prof. An-drew Thangaraj and Prof.C.S.Ramalingam
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: Any electrical engineering prod-uct handles signals using electrical networks and circuits, which are called systems. Having a good understanding of signals and their time/frequency domain characteri-zation is an absolute must for any electrical engi-neer. This course is a basic introduc-tion to discrete and continuous-time signals, Fourier series, Fourier transforms and Laplace transforms.

67.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Microwave integrated cir-cuits
Instructor: Prof. Jayanta Mukherjee
Institute: IITB
Next Run Start Date: JULY-SEP 2017
Course Objectives: Microwave Engineering Cir-cuits is a course de-signed for introducing the field of Microwave En-gineering to students, engineers and academics. Since at microwave frequencies, the distributed cir-cuit effects become very prominent, new circuit theories based on Max wells laws have to be intro-duces.

68.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Principles of Communica-tion Sys-tems: Part - II Instructor:
Prof. Aditya K. Jagan-natham
Institute: IITK
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course is a sequel to Prin-ciples of Communica-tion-Part I and covers funda-mental concepts of communication systems, espe-

cially focusing on var-ious aspects of modern digital communication sys-tems.
This course is suitable for all UG/PG students and practicing engineers/ managers who are looking to enhance their knowledge of the fundamental prin-ciples underlying various communication systems as well as students preparing for their college/ universi-ty/ competitive exams.

69.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Applied Elec-tromagnetic for Engi-neers
Instructor: Prof. Pradeep Kumar
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: Applied electro magnetics for engineers is designed to be an application oriented course while covering all the theoretical concepts of modern electro mag-netics. The course includes a balance between theo-ry, programming, and applica-tions. Several case studies will be discussed.

70.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Estimation for Wireless Communi-ca-tion – MIMO/OFDM Cellular and Sensor Net-works
Instructor: Prof. Aditya K. Jagan-natham
Institute: IITK
Next Run Start Date: JULY -SEP 2017
Course Objectives: A clear grasp of the basic princi-ples of estimation can significantly enhance under-standing by provid-ing deeper insights into various techniques in signal processing and communication. Beginning with a brief overview of the basic concepts of maximum likelihood (ML) and Least Squares Es-timation (LS), this course will comprehensively cover several ap-plications of maximum likelihood (ML) estimation theory in wireless communications such as channel estimation, equalization, MIMO, OFDM channel estimation, Frequency Domain Equalization (FDE) and also Wireless Sensor Networks (WSNs). A se-quel course intended to be taught in the future will cover Bayesian i.e. Minimum Mean Squared Error (MMSE) estimation and will explore similar applica-tions.

71.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Design for internet of things
Instructor: Prof. T V Prabhakar
Institute: IISc
Next Run Start Date: JULY-SEP 2017
Course Objectives: Design for longevity/energy effi-ciency will be high-lighted. Step by step system de-sign will be intro-duced. Small video chips that will allow students to prototype will be displayed. At the end of the course, the student is expected to make the right choice of hardware, software and protocols for the proposed application.

72.
Discipline: High Voltage Engg.(Electrical Engg.)
Course Name: Advances in UHV Trans-mission and Distribution
Instructor: Prof Subba Reddy B
Institute: IISc
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course introduces the recent advances in EHV/UHV transmission and distribu-tion systems. The course emphasizes learning and understanding the newer design criteria required for the UHV transmission systems viz: insulation design, protec-tions, safety concerns etc.

73.
Discipline: Electrical / Electron-ics/ Communica-tions Engg.
Course Name: Computation-al Electro-magnetics & Applications
Instructor: Prof. Dr. Krish Sanka-ran
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is for people who are interested in deepening their knowledge about mod-elling elec-tromagnetic systems and who wanted to build a strong foundation in the underlying physics. In this course, in addition to important modelling tech-niques widely used for electromagnetic appli-ca-tions, we will also introduce algebraic topology based modelling method which is not widely known to engineering community.

74.
Discipline: Electrical /Electronics/Communications Engg.
Course Name: Enclosure de-sign of elec-tronics equip-ment
Instructor: Prof. N. V Chalapathi Rao
Institute: IISc
Next Run Start Date: JULY-OCT 2017
Course Objectives: The purpose of this course is to

sensitise a registrant to various aspects of an electronics product. Specif-ically onnon electrical aspects like mechanical de-sign and detailing. Starting from a need translated into specifications, leading to design and prototyp-ing and ending up in a manufacturable physical pro-totype.

75.
Discipline: Electrical /Electronics/Communications Engg.
Course Name: Design of photovoltaic system
Instructor: Prof. L Umanand
Institute: IISc
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is a design oriented course aimed at photovoltaic system design. The course begins by discussing about the PV cell electrical characteris-tics and interconnections. Estimation of insolation and PV sizing is addressed is some detail. Maxi-mum power point tracking and circuits related to it are discussed. Later, applications related to peltier refrigeration, water pumping, grid connection and micro grids are discussed in detail. Lastly a brief discussion on life cycle costing is also discussed in order to bring in a measure of completeness to the course.

76.
Discipline: Electrical /Electronics/Communications Engg. Course Name: Photonic inte-grated circuits
Instructor: Prof. T. Srinivas
Institute: IISc
Next Run Start Date: JULY-AUG 2017
Course Objectives: The course on photonic integrated circuits deals with principles, devices and applications where light propagating in optical waveguides takes the central role. Various aspects that will be dealt are optical waveguide theory; passive, dynamic and functional devices; materials and fabrication technology; sys-tems and applications – optical comunication devic-es, optical sensors; micro-opto-electro-mechanical systems; and recent developments.

77.
Discipline: Electrical /Electronics/Communications Engg.
Course Name: Power system analysis
Instructor: Prof. Debapriya Das
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is mainly for undergraduate third-year Electrical Engineering students, which will intro-duce and explain the fundamental concepts in the field of electrical power system engineering. The basic concepts of per unit system will be introduced along with their applications in circuit applications. By the end of the course, the students should be able to gather high-quality knowledge of electrical power system components, its operation strategies, and stability analysis.

78.
Discipline: Electrical /Electronics/Communications Engg.
Course Name: Industrial in-strumentation
Instructor: Prof. Alok Barua
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The main goal of an Industrial Instrumentation course for engineering students are shaped by a va-riety of applications including control, quality as-surance, performance testing, design and research. In this course I have adopted two main objectives: 1) to provide a fundamental background in the the-ory of Industrial Instrumentation and measurement system performance and 2) to establish the physical principles and practical techniques used to measure those quantities most important for Instrumentation applications. This video course is structured such that the lessons are short and each deals with spe-cific topic either measuring variables or device it-self.

79.
Discipline: Electrical /Electronics/Communications Engg. Course Name: Electrical ma-chines - i
Instructor: Prof. D Kastha/Prof. Suman Maiti
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: All of the topics are presented in a lucid and inter-active manner, such that at the end of this course, students will get a good understating on the afore-said areas. In some cases, laboratory demonstration is included to give a feel of hands-on-experience. The dynamic simulation of electrical machine using MATLAB/SIMULINK is also included to study the performance during steady state and transients.

80.
Discipline: Electrical /Electronics/Communications Engg.
Course Name: Analog com-munication
Instructor: Prof. Goutam Das
Institute: IITKGP

Next Run Start Date: JULY-OCT 2017
Course Objectives: The course will introduce the participants to the signal representation in both time and frequency domain, basic analog communication techniques like modulation theory, system design for analog modulator and demodulator, random process and noise analysis.

81.
Discipline: Electrical /Electronics/Communications Engg.
Course Name: Modern digi-tal communi-cation tech-niques
Instructor: Prof. Suvra Sekhar Das
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course will delve into the design principles of transmitter and receiver so as to establish a reliable communication link. This course aims at enabling the participants to establish unam-biguous mathe-matical statements describing every step of trans-mitting and receiving a signal through a communi-cation link. It aims at exposing the details of noise, its modeling and its effect on communica-tion sys-tems design. It will encompass fundamental aspects of estimation and detection theory, which are cru-cial in designing a complete receiver (syn-chroniza-tion, channel equalization, etc.). At the end of the course, the participant will be equipped with meth-ods of systematic representation, analysis and de-sign of a digital communication system which are essential in designing communication systems with complex and futuristic requirements.

82.
Discipline: Electrical /Electronics/Communications Engg
Course Name: Digital speech processing
Instructor: Prof. Shyamal Kumar Das Mandal
Institute:IITKGP
Next Run Start Date: AUG-OCT 2017
Course Objectives: The pace of such R&D has farther got boosted with the general abundance of cheap computing power in the form of PC, PDA or Mobile Handset. While man to machine in speech mode is yet to reach the minimum threshold level for wide-spread deploy-ment, spoken messages directly by machine. This need research in speech science and development of speech technology. The course pro-vides the founda-tion knowledge on speech produc-tion and percep-tion along with processing of speech signal in digi-tal domain.

83.
Discipline: Electrical /Electronics/Communications Engg
Course Name: Satellite communica-tion
Instructor: Prof. Kalyan Kumar Ban-dyopadhyay
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: In this course the participants will get the basic technical knowledge of orbital dynam-ics, subsystems used in space segment and ground segment, power and bandwidth require-ment, effect of the transmission medium, other im-pairments and techniques to mitigate them, regula-tory aspect and standards, and some value added examples.

84.
Discipline: Electrical /Electronics/Communications Engg
Course Name: Analog Cir-cuits and Sys-tem through SPICE Simu-lation
Instructor: Prof. Mrigank Sharad
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course is supposed to pro-vide a comprehensive design example, utilizing (and building upon) the basic concepts covered in a UG Analog Circuits course. This course is expected to be a very com-prehensive supplement to course on An-alog Circuits and can be instrumental in stimulating interest and developing aptitude among the partici-pants. Open source simulation platforms like PSPICE or LT-SPICE will be used, so that all participants can car-ry out the simulations described in the course. In line with the present industry scenario, we will most-ly rely on MOSFET circuits. In the simulation exam-ples, a clear distinction between bred-board circuit design (commonly practiced in a UG course) and integrated circuit design will be made at all stages.

85.
Discipline: Electrical /Electronics/Communications Engg
Course Name: An Introduc-tion to Infor-mation Theory
Instructor: Prof. Adrish Banerjee
Institute: IITK
Next Run Start Date: JULY-SEP 2017
Course Objectives: In this course we will explore answers to these two questions. We will study some practice source com-pression algorithms. We will also study how to compute channel capacity of sim-ple channels.

86.
Discipline: Humanities and So-cial Sciences
Course Name: Soft skills
Instructor: Prof. Binod Mishra
Institute: IITR
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course aims at creating awareness among the stock holders of the corporate world in which the role of individuals as team play-ers and also as re-sponsible leaders materializes to a great extent. The course, with its interactive and need based modules, will address various challenges of communication as well as behavioral skills faced by individuals at workplace and organizations in bridging the gaps through effective skills of inter-views, group discus-sions, meeting management, presentations and nu-ances of drafting various busi-ness documents for sustainability in today's global world.

87.
Discipline: Humanities and So-cial Sciences
Course Name: Technical English for engineers
Instructor: Prof. Aysha Iqbal
Institute: IITM
Next Run Start Date: JULY-SEP 2017
Course Objectives: The course covers all the areas of grammar neces-sary for the undergraduate students of engineering sciences. The course is designed for self-study, where participants will be required to solve regular quizzes and assignments, and can also be used as an add-on to classroom teaching.

88.
Discipline: Humanities and So-cial Sciences
Course Name: Literature for competitive exams
Instructor: Prof. Aysha Iqbal
Institute: IITM
Next Run Start Date: JULY-SEP 2017
Course Objectives: The course is designed and de-veloped to suit the needs of those students who aim to appear for competitive exams with English Liter-ature as their core subject. It will be useful for those who aspire towards acing competitive exams with literature in English as the main subject and/or want to pursue a higher academic degree, particularly as researchers, in India or abroad. The participants will also gain an understanding about the key literary figures of all time and their contribution to their respective liter-ary scene.

89.
Discipline: Humanities and So-cial Sciences
Course Name: Applied lin-guistics
Instructor: Prof. Rajesh Kumar
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course deals with the ap-plications of theoreti-cal tools in understanding languages and outcome of the analyses of theoretical tools. We aim to have delivered the applications of the fundamental ideas of language to the fields such as language teaching and learning, cognitive science, education, and lan-guage disorder and disabilities.

90.
Discipline: Humanities and So-cial Sciences
Course Name: Cognition, Transfor-mation and Lives
Instructor: Dr. Alok Bajpai
Institute: IITK
Next Run Start Date: JULY-AUG 2017
Course Objectives: This course addresses anyone who is interested in change, not the temporary change, but transfor-mation at a deeper, sustained level; whether indi-vidual or collective. The course is structured to pro-vide a basic knowledge of Psychol-ogy and Neuro-science before using a narrative biog-raphy of Ma-hatma Gandhi to elucidate the process of transfor-mation.

91.
Discipline: Humanities and So-cial Sciences
Course Name: Visual Percep-tion and Art: A Survey Across the Cultures
Instructor: Prof. Soumik Nandy Ma-jumdar
Institute: IITK
Next Run Start Date: JULY-AUG 2017
Course Objectives: This course offers a survey across the global culture to study this variety of relation-ships and how visual perception operates as a cre-ative process affecting deeply the concepts and styles of art. This survey will also provide us with vital clues to understand why visual artists across the globe perceive visual phenomenon so differently from each other.

92.
Discipline: Humanities and So-cial Sciences
Course Name: Introduction to Basic Cog-nitive Pro-cesses
Instructor: Prof. ARK Verma
Institute: IITK
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course serves as a general introduction to the field of cognitive psychology. The course is aimed at touching the fundamental as-

sumptions & issues that motivate the state – of the – art research in con-temporary cognitive psychology.

93.
Discipline: Humanities and So-cial Sciences
Course Name: Calculus of One Real Var-iable
Instructor: Prof. Joydeep Dut-ta
Institute: IITK
Next Run Start Date: AUG-OCT 2017
Course Objectives: This course intends to develop a thorough under-standing of the fundamental aspects of calculus of single variable which is fundamental tool in Scienc-es, Engineering and Economics.

94.
Discipline: Humanities and So-cial Sciences Course Name: Science, Technology and Society
Instructor: Prof. Sambit Mallick
Institute: IITG
Next Run Start Date: JULY-OCT 2017
Course Objectives: The objective of the course is to enable students to understand science as a socio-cultural product in specific socio-historical contexts. The course expos-es students to philosophical, historical and sociolog-ical perspectives to look at science as a practice deeply embedded in culture and society. It empha-sizes the dynamic nature of the re-lations between wider cultural practices on one hand and scientific practices on the other. The attempt is to equip stu-dents with an understanding indispensable for an in-depth study of science-technology-society dy-namics.

95.
Discipline: Humanities and So-cial Sciences
Course Name: Gender and Literature
Instructor: Prof. Av-ishek Parui
Institute: IITG
Next Run Start Date: JULY-SEP 2017
Course Objectives: Gender and Literature is an ex-amination of selected literary texts and cultural con-ditions from the standpoint of gender theory. It will draw on estab-lished scholarship on gender studies and take the student through the various configura-tions and re-configuration that determine gendered classifica-tions such as masculinity and femininity.

96.
Discipline: Humanities and So-cial Sciences
Course Name: Ecology and Society
Instructor: Prof. Ngam-jahao Kipgen
Institute: IITG
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course focuses on the ecology of human socie-ties –human-environment relation-ships, with refer-ence to cultural ecology and issues surrounding sus-tainable development. It uses basic concepts of an-thropology, including the concept of culture as a dynamic system of learned behaviours and beliefs, to better understand how human beings adapt to and change their physical and social sur-roundings.

97.
Discipline: Humanities and So-cial Sciences
Course Name: History of English Lan-guage and Literature
Instructor: Prof. Merin Simi Raj
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course will showcase major literary moments, movements and events in the con-text of the social, political. religious and economic changes that shaped England and its history from the 5th century BC on wards. The objective of the course is to ena-ble a critical understanding of the intellec-tual histo-ry of England and to equip the learners to analyze literary products within particular socio-his-torical contexts.

98.
Discipline: Humanities and So-cial Sciences
Course Name: Introduction to Psychology
Instructor: Prof. Braj Bhushan
Institute: IITK
Next Run Start Date: JULY -SEP 2017
Course Objectives: This course is designed for better understanding of the self and others. It will help you understand the how and why of thinking, feeling, and action. This introductory psychology course will cover the major psychological constructs and princi-ples, primarily focusing on the perceptual processes, learning, memory, emotions, genetic and environ-mental de-terminants of behavior and personality.

99.
Discipline: Humanities and So-cial Sciences
Course Name: Developing Soft Skills and Person-ali-ty
Instructor: Prof. T. Rav-ichandran
Institute: IITK
Next Run Start Date: JULY-SEP 2017
Course Objectives: The course aims to cause a ba-sic awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of person-

ality. Hard or tech-nical skills help securing a basic position in one's life and career. But only soft skills can ensure a person retain it, climb further, reach a pinnacle, achieve ex-cellence, and derive fulfillment and supreme joy.

100.
Discipline: Humanities and So-cial Sciences Course Name: Human re-source devel-opment
Instructor: Prof. KBL Srivastava
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course aims to equip students to develop them-selves into a critically reflective and capable HRD practitioner, or a manager who can fa-cilitate the learning of others. The major objective of the course is to explain and demonstrate the contri-bution of HRD in an organization and enable student to de-velop an ability to decide learning and training needs; and have competence in the design and de-liv-ery of learning programmes. The course will fo-cus on the role of HRD in designing and imple-menting appropriate strategies in line with the busi-ness goals of their organization.

101.
Discipline: Humanities and So-cial Sciences
Course Name: Educational leadership
Instructor: Prof. Atasi Mohanty
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course is designed to help the teach-ing/Academic professionals to understand how ed-ucational leadership can transform and enhance the effectiveness of educational institutions. This course intends to focus on academic communi-ty and to encourage individual members to develop various skills, competencies, abilities to enhance their leadership skills. It will also help them to de-velop awareness into their self-motivation, reflec-tive prac-tices, critical thinking and positive plans of actions for enhancing their leadership impact and institu-tional effectiveness. This course is aimed to mobilize human resources of education sector, edu-cational administration and prospective teachers.

102.
Discipline: Manage-ment
Course Name: Operation and supply chain manage-ment
Instructor: Prof. G.srinivasan
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course introduces the view-er to the basics of Operations and Supply Chain Management. The main emphasis of the course is on the basic concepts and on quantitative modeling of the various decision problems. The main emphasis of the course is on the basic concepts and on quanti-ta-tive modeling of the various decision problems.

103.
Discipline: Manage-ment
Course Name: Patent Law for Engineers and Scien-tists
Instructor: Prof. Feroze Ali
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course shall give an in-depth understanding of patent law to engineers and sci-entists. This course will help person with a sci-ence background to understand the fundamentals of patent law, know the requirements of patentabil-ity, learn how to read and interpret patent specifi-ca-tions, analyze patent office procedures and court cases and develop the basic understanding for draft-ing a patent specification.

104.
Discipline: Manage-ment
Course Name: Marketing re-search and analysis
Instructor: Prof. J.K.Nayak
Institute: IITR
Next Run Start Date: JULY-SEP 2017
Course Objectives: It helps in identifying the re-cent trends in habits and behaviours of consumers through a research process. Some of the key ap-pli-cations of this study is to create a better product, decide the right price, distribution system and the promotional mechanism to attract customers and make a difference within the competition.

105.
Discipline: Manage-ment
Course Name: Project man-agement for managers
Instructor: Prof. Mukesh Kumar Barua
Institute: IITR
Next Run Start Date: JULY-OCT 2017
Course Objectives: Project management is an es-sen-tial skill-set for many careers and in many contexts in our lives. Project Management is an ideal starting point if you need to manage projects at work or at home, while not necessarily being a formally trained project manager. It is also suitable if you are con-sidering undertaking a project in the near future and are seeking to learn and apply essential project

man-agement knowledge and skills.
For certification, visit and enroll here.

106.
Discipline: Manage-ment
Course Name: Total Quality Management - I
Instructor: Prof. Raghu Nandan Sengupta
Institute: IITK Next Run Start Date: AUG-OCT 2017
Course Objectives: This is the first part of the two part course (TQM-I, TQM-II) and will cover topics ranging from TQM, Kaizen, Elementary concepts re-lated to quality assurance, Basic Statistical Con-cepts and Control of Accuracy and Precision, Pro-cess Capability, SPC, Acceptance Sampling and Quality Management Systems, ISO 9000, etc.

107.
Discipline: Manage-ment
Course Name: Gender justice and workplace security
Instructor: Prof. Dipa Dube
Institute: IITKGP
Next Run Start Date: JULY-AUG 2017
Course Objectives: The course is aimed at ac-quaint-ing the participants with the concept of gender jus-tice. From the arena of Constitutional guarantees to criminal law to laws ensuring safety at the work-place, specifically sexual harassment, the course will focus on an understanding the laws, its procedural intricacies and judicial decisions aimed at strength-ening the position of women in society.

108.
Discipline: Manage-ment
Course Name: Corporate so-cial responsi-bility
Instructor: Prof. Ara-dhna Malik
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: The course introduces parti-ci-pants to the field of Corporate Social Responsi-bil-ity. The course begins with a discussion on the his-tory of CSR activities, and moves through plan-ning, implementation, evaluation and development of the CSR cycle in profit making organizations. The course concludes with a discussion on how the field of CSR is likely to develop in future.

109.
Discipline: Manage-ment
Course Name: Decision modeling
Instructor: Prof. Biswajit Mo-hanty
Institute: IITKGP
Next Run Start Date: JULY-SEP 2017
Course Objectives: Out of the vast coverage of de-cis-ion models, this course focuses on decision anal-ysis, waiting line or queuing models, simulation models, and network models. This course will be of immense value not only for the people working in manufac-turing or service industry but also to un-dergraduate and postgraduate students of all fields of engineering and management.

110.
Discipline: Manage-ment
Course Name: e-Business
Instructor: Prof. Mamata Jenamani
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The primary objective of this course is to introduce concepts, tools and ap-proach-es to electronic business to the post- graduate and undergraduate students. Further, the subject will help the students to develop skills to manage busi-nesses in the digital world. The course provides a balance approach including concepts from tech-nol-ogy and management.

111.
Discipline: Manage-ment
Course Name: Six sigma
Instructor: Prof. Jitesh J Thakkar
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course on Six Sigma will focus on detailed strategic and operational issues of process improvement and variation reduction called Six Sigma, a measure of quality that strives for near perfection. It is a disciplined, data-driven approach for eliminating defects (driving towards six stand-ard deviations between the mean and the nearest spec-ification limit) in any process-from manufactur-ing to transactional and from product to service. The course will provide an exposure to well-established methods of quality assurance and man-agement and advanced statistical methods includ-ing design of ex-periments. This course will provide a detailed under-standing on both the methodologies to the students. The course is designed with a prac-tical orientation and includes cases and industry applications of the concepts.

112.
Discipline: Manage-ment
Course Name: Introduction to Data Ana-lytics
Instructor: Prof. Nandan Sudarsanam Prof. Bala-ra-man Ravindran
Institute: IITM

Next Run Start Date: JULY-SEP 2017
Course Objectives: Data Analytics is the science of analyzing data to convert information to use-ful knowledge. This knowledge could help us un-der-stand our world better, and in many contexts enable us to make better decisions. This course seeks to present you with a wide range of data analytic techniques and is structured around the broad con-tours of the different types of data analytics, name-ly, descriptive, inferential, predictive, and prescrip-tive analytics.

113.
Discipline: Mathe-matics
Course Name: Differential equations
Instructor: Prof. Sriniva-sa Manam
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course is to introduce the essential differential equations and their solution methods. The course is very much essential to all en-gineering students for its use in any kind of scien-tif-ic or engineering work. The course offers them to good exposure of both ordinary and partial differ-en-tial equations that arise in physical and engineer-ing sciences.

114.
Discipline: Mathe-matics
Course Name: Integral equa-tions, calculus of varia-tions and its appli-cations
Instructor: Prof. P. N Agarwal Prof.D. N Pandey
Institute: IITR
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is a basic course of-fered to PG students of Engineering/Science back-ground. It contains Fredholm and Volterra integral equations and their solutions using various methods such as Neumann series, resolvent kernels, Green's function approach and transform methods. It plays an important role for solving various engineering sciences problems. Therefore, it has tremendous applications in diverse fields in engineering scienc-es.

115.
Discipline: Mathe-matics
Course Name: Nonlinear programming
Instructor: Prof. S. K Gupta
Institute: IITR
Next Run Start Date: JULY-AUG 2017
Course Objectives: This course is offered to UG and PG students of Engineering/Science back-ground. It contains methods to solve nonlinear op-timization problems which includes convex pro-gramming, KKT optimality conditions, quadratic program-ming problems, separable methods, geomet-ric and dynamic programming. It also covers some search techniques which are used to solve nonlinear pro-gramming problems. It plays a vital role in solv-ing various engineering and science problems.

116.
Discipline: Mathe-matics
Course Name: Numerical methods
Instructor: Prof. Ameeya Kumar Nayak,Prof. San-jeev Ku-mar
Institute: IITR
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course is a basic course of-fered to UG student of Engineering/Science back-ground. It contains solution of system of linear equa-tions, roots of non-linear equations, interpola-tion, numerical differentiation and integration. It plays an important role for solving various engineer-ing sciences problems. Therefore, it has tremendous applications in diverse fields in engineering scienc-es.

117.
Discipline: Mathe-matics
Course Name: Measure theo-ry
Instructor: Prof. Inder Kumar Rana
Institute: IITB
Next Run Start Date: JULY-OCT 2017
Course Objectives: This is a course on the concepts of Measure and Integration. Normally, this is a core course for M,.Sc. Mathematics and Statistics stu-dents. The concepts find applications in advance Analysis Courses, Signal Processing, Financial Math-ematics courses.

118.
Discipline: Mathe-matics
Course Name: Numerical Analysis
Instructor: Prof. R. Usha
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course introduces the theo-ry and application of numerical methods or tech-niques to approximate mathematical procedures(such as reconstruction of a function, evaluation of an integral) or solutions of problems that arise in science and engineering. The course also provides a firm foundation for further study on Numerical Analysis.

119.
Discipline: Mathe-matics
Course Name: Introduction to R Software
Instructor: Prof. Shalabh
Institute: IITK
Next Run Start Date: JULY-SEP 2017
Course Objectives: Any scientific task without the knowledge of software is difficult to imagine and complete in the current scenario. R is a free soft-ware that is capable of handling mathematical and statistical manipulations. It has its own program-ming language as well as built in functions to per-form any specialized task. We intend to learn the basics of R software in this course.

120.
Discipline: Mathe-matics
Course Name: Constrained and uncon-strained opti-mization
Instructor: Prof. A Goswami & Prof.Debjani Chakraborty
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course has been designed for postgraduate students. Operations research is not only important in its own right but also forms an integral part of applied sciences like economics, management science, engineering design problems etc.This course has been designed for postgraduate students. The course provides a systematic and thorough discussion on subject matter with numer-ous examples.

121.
Discipline: Mathe-matics
Course Name: Graph Theory
Instructor: Prof. Soumen Maity
Institute: IISER PUNE
Next Run Start Date: AUG-OCT 2017
Course Objectives: Graph theory is the core content of Discrete Mathematics, and Discrete Mathematics is the theoretical basis of computer science and network information science. This course introduces in an elementary way some basic knowledge and the primary methods in Graph Theory.

122.
Discipline: Mathe-matics
Course Name: Regression analysis
Instructor: Prof. Soumen Maity
Institute: IISER PUNE
Next Run Start Date: JULY-OCT 2017
Course Objectives: In this online course, you will learn how to derive simple and multiple linear re-gression models, learn what assumptions underline the models, learn how to test whether your data sat-isfy those assumptions and what can be done when those assumptions are not met, and develop strate-gies for building best models. We will also learn how to create dummy variables and interpret their effects in multiple regression analysis; to build pol-ynomial regression models and generalized linear models.

123.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Heat Treat-ment and Sur-face Harden-ing - II
Instructor: Prof. Kallol Mondal & Sandeep Sangal
Institute: IITK
Next Run Start Date: AUG-OCT 2017
Course Objectives: Heat treatment is a fundamental principle required for processing of metals and al-loys. By controlling time-temperature sequence with/without application of stress, it can modify the structure of the materials, which would influence the properties in a desired way. This principle lies strongly on the basics of thermodynamics and ki-netics of phase transformations in metals and alloys, which is the guiding factor for deciding process schedule in Industry.

124.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Phase Trans-formation in Materials
Instructor: Prof. Krishanu Biswas
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: The present course will deal with the basics of phase transformation in materials. Using thermodynamics, kinetics of phase transfor-mation, different liquid to solid and solid to solid transformations will be covered in this course.

125.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Fundamentals of manufac-turing pro-cesses
Instructor: Prof. D K Dwivedi
Institute: IITR
Next Run Start Date: JULY-OCT 2017
Course Objectives: It is proposed to include fun-damental of aspects of manufacturing technology.

126.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Fluid dynam-ics and tur-bomachines
Instructor: Prof. Dhiman Chatterjee and Prof.Shamit Bakshi
Institute: IITM
Next Run Start Date: JULY-SEP 2017
Course Objectives: The course is intended for advanced B. Tech/B. E. students as well as a refresher course for practicing engineers working in the field of pump and turbine industries.

127.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Engineering fracture me-chanics
Instructor: Prof. K.Ramesh
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: The course covers the basic as-pects of Engineering Fracture Mechanics. Spectacu-lar failures that triggered the birth of fracture me-chanics, Modes of loading, Classification as LEFM and EPFM, Crack growth and fracture mechanisms, Energy release rate, Resistance, Griffith Theory of fracture, Extension of Griffith Theory by Irwin and Orowan, R-Curve, Pop-in phenomena, Crack branching. Necessary and sufficient conditions for fracture, Stress and Displacement fields in the very near and near-tip fields, Westergaard, Williams and Generalised Westergaard solutions, Influence of the T-stress and higher order terms, Role of photo elas-ticity on the development of stress field equations in fracture mechanics, Equivalence between SIF and G, Various methods for evaluating Stress In-tensity Factors, Modeling plastic zone at the crack-tip, Irwin and Dugdale models, Fracture toughness testing, Fedderson TMs residual strength diagram, Paris law, J-integral, HRR field, Mixed-mode frac-ture, Crack arrest methodologies.

128.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Foundation of computational fluid dynam-ics
Instructor: Prof. S. Vengadesan
Institute: IITM
Next Run Start Date: JULY-SEP 2017
Course Objectives: This is an introductory course in CFD. In this course, students will be exposed to basics of CFD. Students will gain knowledge on FD/FV strategy, formulation of the problem and solution techniques. Students at the end of the course will get to experience a simple and sample working CFD code and thus develop confidence.

129.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Micro and nano scale en-ergy transport
Instructor: Prof. Arvind Pattamatta
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course will address the fundamentals of Micro and Nano scale transport in various fields of current interest such as thermal dissipation from electronic devices, thermoelectric energy conversion devices and Micro electro me-chanical systems and sensors (MEMS). Students from diverse backgrounds such as Mechanical, Aer-ospace, and Electrical engineering as well as from physical sciences may find this course useful.

130.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Manufactur-ing of Com-posites
Instructor: Prof. J. Ramkumar
Institute: IITK
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course covers the important aspects of composites manufacturing: process selec-tion guidelines, thermoset ad thermoplastic Compo-sites manufacturing processes, process parameters and characterizations. Applications and use of each manufacturing process is focused and this is repre-sented separately.

131.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Applied Er-gonomics
Instructor: Prof. Shanta-nu Bhattacharya & A. Gupta
Institute: IITK
Next Run Start Date: JULY-SEP 2017
Course Objectives: The course syllabus is designed so as to cover work physiology, Engineering aspect of product, improvement in the cognitive capabili-ties and other relevant topics. Students will be able to correlate the understanding of this subject with their day to day activities and will be aware of con-cepts related to increase in the human and system efficiency.

132.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Nature and Properties of Materials
Instructor: Prof. Bishakh Bhattacharya
Institute: IITK
Next Run Start Date: JULY -SEP 2017
Course Objectives: This course introduces to the basics of metals and metallic alloys, polymers, composites and smart materials which have extensively broadened the scope of engineering design in the fields of Civil, Mechanical, Aerospace and other structural applications. After learning this course, students will be well-versed with the underlying principle governing the material properties and should be able to select proper material for their ap-plication.

133.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Mathematical Methods in Engineering and Science
Instructor: Prof. Bhaskar Dasgupta
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: The purpose of this course is to summarise, crystallise, enhance and give a forward orientation to the mathematical methods taught in undergraduate curriculum, with projections to future requirements.

134.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Electron dif-fraction and imaging
Instructor: Prof. Sundarara-man M
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: Crystal structure, Symmetry, Reciprocal space Different type of projections (po-lar and stereographic) Electron Microscope (Proper-ties of waves, Wave nature of electron, de Broglie equation, electron optics, lens and lens defects, Components-source to detector) Fundamentals of diffraction, Computation of intensity of diffraction patterns, different types of diffraction (Selected area, Kikuchi, Convergent Beam and nano-diffraction) Contrast theory (Kinematical and dynamical theory), Imaging of different types of defects (zero, one, two and three dimensional defects) Phase contrast microsco-py, Basicsof Electron crystallography (combining diffraction and High resolution transmission elec-tron microscopy)Brief Introduction to recent tech-niques in electron microscopy (Holog-raphy,Scanning TEM, Z- contrast microscopy, Ori-entation Microscopy, etc)

135.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Acoustic and Noise Control
Instructor: Prof. Abijith Sarkar
Institute: IITM
Next Run Start Date: JULY-OCT 2017
Course Objectives: In this course, the students will be introduced to the foundations and concepts of acoustic wave propagation. Also, human factors influencing the perception of sound will be empha-sized.

136.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering Course Name: Manufactur-ing Systems and Sustaina-bility: An Ap-plied Ap-proach
Instructor: Prof. Deepu Philip
Institute: IITK
Next Run Start Date: AUG-OCT 2017
Course Objectives: This course provides an overview of the Sustainability in Manufacturing Sys-tems; various methodologies and its application to improving the eco-efficiency are focused. An addi-tional objective is provide insights on Sustainable aspects management methodologies such as Lean manufacturing, Green Supply Chain, and Process Integration. Simulation of the systems is also dis-cussed to make the students learn to cater the mod-ern tools in virtual environment.

137.
Discipline: Mechani-cal/ Chemical Engi-neering
Course Name: Convective Heat Transfer
Instructor: Prof. Saptarshi Basu
Institute: IISc
Next Run Start Date: JULY-OCT 2017
Course Objectives: Convective heat transfer takes a major role in phase change heat transfer as well as mass transfer analogies in chemical processes. Pre-sent course targets fundamental understanding of all these facets with derivations and mathematical examples.

138.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Processing of Polymers and Polymer Composites

Instructor: Prof. Inder-deep Singh
Institute: IITR
Next Run Start Date: JULY-SEP 2017
Course Objectives: The main objective of the current MOOC on Processing of Polymers and Poly-mer Composites course is to impart an understand-ing of the manufacturing science and engineering of polymers and polymer composites which is usually not covered at the UG level. The course deals with the study of the basic nature of different polymers and polymer composites and the manufacturing processes associated thereof.

139.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Fundamentals of Material Processing - I
Instructor: Prof. Shashank Shekhar
Institute: IITK
Next Run Start Date: JULY -SEP 2017
Course Objectives: The aim of the course is to acquaint students with the fundamentals involved in the processing of materials. At the end of this course, students should be able to answer the fol-lowing questions: (a) What are the various funda-mental material processing techniques and the sci-ence behind it; (b) What processing method to use for a given material and a given application.

140.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Steel Quality : Role of Sec-ondary Refin-ing & Contin-uous Casting
Instructor: Prof. Santanu Kr. Ray
Institute: IITM
Next Run Start Date: AUG-OCT 2017
Course Objectives: Aim of this course is to give a brief introduction to the importance of secondary refining and continuous casting in achieving the de-sirable cleanliness and surface quality of cast and hot rolled steels.

141.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: X-ray Crystal-lography & Diffraction
Instructor: Prof. Ranjit Kumar Ray
Institute: IIEST
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course provides a glimpse of how X-ray diffraction can be used to solve vari-ous crystallographic problems of both single and poly crystalline materials, starting from an elemen-tary level.

142.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Noise Man-agement & Control
Instructor: Prof. Na-chiketa Ti-wari
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course is intended for all those who want to understand noise, its control, and its management. Thus, the course is open to students of engineering and science, and also to all those who from the industry and research organiza-tions – who are working in area of sound, NVH and acoustics. Each lecture will be followed by a quiz, which will help student the concepts better, and gain deeper insights to measurement process. The course is fairly generic so that there is no need for a particular background. Rather, what is needed is openness, and ability to learn and check out new ideas with comfort.

143.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Manufactur-ing System Technology Part 1 & 2
Instructor: Prof. Shanta-nu Bhattacharya
Institute: IITK
Next Run Start Date: JULY-OCT 2017
Course Objectives: This is an introductory level course in Manufacturing Process Technology Part II is mostly meant for Undergraduate engineers. This course is an introductory course for engineering professionals who would like to take up careers in manufacturing particularly at the process level and also for professionals who are already in manufac-turing careers and would like to see the technologi-cal changes that the manufacturing processes have witnessed in the last about 5 decades.

144.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Refrigeration And Air-conditioner
Instructor: Prof. Ravi Kumar
Institute: IITR
Next Run Start Date: JULY-SEP 2017
Course Objectives: This Course provides a simple understanding of Refrigeration and Air-conditioning fundamentals. Ideally suited to those with a little or

no knowledge of the subject.

145.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Spur and heli-cal gear cut-ting
Instructor: Prof. Asima-va Roy-choudhury
Institute: IITKGP
Next Run Start Date: JULY-AUG 2017
Course Objectives: These lectures would introduce the basic principles of spur and helical gear machining to the reader. First – the concept of spur and helical gears would be introduced, followed by their uses, applications, nomenclature etc. A discus-sion on some commonly used machine elements would follow, which are required in subsequent lec-tures. Next, the concept of gear milling (including simple and differential indexing), gear shaping and gear hobbing for machining both straight spur and helical gears would be discussed. At every stage – there would be discussions on a number of numeri-cal problems and multiple choice questions.

146.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Laws of ther-modynamics
Instructor: Prof. S.K Som & Prof. Suman Chakraborty
Institute: IITKGP
Next Run Start Date: JULY-AUG 2017
Course Objectives: This will not only clear the physical concepts of the students but will enable the students to get rid of usual misleading concepts in understanding the laws and their applications.

147.
Discipline: Mechani-cal / Industrial/ Ma-terials science and engineering
Course Name: Energy con-servation and waste heat recovery
Instructor: Prof. PK Das & Prof. A Bhattacharya
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The proposed course introduces us to various methods of Waste Heat Recovery that has been employed by the industry to harness the energy stored in waste heat and use it for genera-tion of additional electric power.

148.
Discipline: Multidis-ciplinary
Course Name: Biology for engineers and other non-bi-ologists
Instructor: Prof. G.K.Suraish kumar/ Prof. Madhulika Dixit
Institute: IITM
Next Run Start Date: JULY-AUG 2017
Course Objectives: This course is designed to convey the essentials of cell and molecular biology to provide a frame-work for more specific understand-ing, and contribution by any interested person.

149.
Discipline: Multidis-ciplinary
Course Name: Introduction to research
Instructor: Prof. Prathap Haridoss
Institute: IITM
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course aims to introduce students to the important aspects of research. The intent of the course is to make students aware of the details associated with formal research and to help students overcome common misconceptions that may be present in their minds. By going through this course, students are likely to be able to take up research activities in a more systematic and formal manner right from the beginning.

150.
Discipline: Multidis-ciplinary
Course Name: Health re-search funda-mentals
Instructor: Multi Faculty
Institute: NIE
Next Run Start Date: JULY-SEP 2017
Course Objectives: This course will provide an overview of steps and principles for designing bio-medical and health research studies among human participants.

151.
Discipline: Multidis-ciplinary
Course Name: Outcome based peda-gogic principles for effec-tive teaching
Instructor: Prof. Shyamal Kumar Das Mandal
Institute: IITKGP
Next Run Start Date: JULY-AUG 2017
Course Objectives: Globalisation, changing de-mographics and technological advancements are some of the key driving forces of the future. Our students will have to be prepared to face these chal-lenges and seize the opportunities brought about by these forces. In Twenty-first Century Learning, students use educational technologies to apply knowledge to new situations, analyze information, collaborate, solve problems, and make decisions. the curriculum

is not a syllabus or textbook-driven or fragmented, it should be set of Specific, Measura-ble, Appropriate, Challenging but Achievable edu-cational objective or Skills (outcome) which stu-dents will be acquire at the end.

152.
Discipline: Physics
Course Name: Quantum In-formation and Comput-ing
Instructor: Prof. Dipan Ghosh
Institute: IITB
Next Run Start Date: JULY-SEP 2017
Course Objectives: The course is Primarily for Stu-dents of Physics and Engineering having exposure to basic quantum mechanics and knowledge of Lin-ear Algebra.

153.
Discipline: Physics
Course Name: Mathematics methods in Physics-I
Instructor: Prof. Sam-udra Roy
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017

154.
Discipline: Physics
Course Name: Classical me-chanics: from newtonian to lagrangian formulation
Instructor: Prof. Debamalya Banerjee
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: This course deals with fun-da-mentals of classical mechanics. We aim to give a basic understanding of various fields of classical mechanics to our students

155.
Discipline: Physics
Course Name: Solid state physics
Instructor: Prof. Amal Kumar Das
Institute: IITKGP
Next Run Start Date: JULY-OCT 2017
Course Objectives: The structure of materials is the key deciding factor for different kind of properties, such as thermal, electrical, optical, magnetic, di-elec-tric etc. In this course we will learn the structure of solid materials and their different physical prop-er-ties along with underlying physics.

List of Post & Under Graduate Courses (Management) By : IIM Bangalore

1
Course Name: Introduction to Investments
Instructor: SG Badrinath
Institute: IIM Bangalore
Next Run Start Date: 5th July 2017
Next Run End Date: 31st December 2017
Course Objectives: To advance the understanding of fundamental concepts of financial markets and market participants.
To explain the structure of global markets in which equities trade.
To evaluate the economic and industry environment in which companies operate.
To develop and employ tools of financial analysis for examining company fundamentals.
To understand techniques for valuing equity securities.
To link theories of valuation to practical aspects of investing

2
Course Name: Management Accounting for Decision-making
Instructor: MS Narasimhan
Institute: IIM Bangalore
Next Run Start Date: 5th August 2017
Next Run End Date: 31st December 2017
Course Objectives: To understand how accounting information is relevant to managers
To understand how it can be processed and analyzed for effective managerial decision-making
To equip non-finance managers with basic accounting and finance skills
To discuss activity based costing

3
Course Name: Introduction to Marketing Essentials
Instructor: Ashis Mishra
Institute: IIM Bangalore
Next Run Start Date: 5th September 2017
Next Run End Date : 31st December 2017
Course Objectives: To understand the basic concepts of marketing
To understand Segmentation, targeting, differentiation and positioning
To know the various aspects of Marketing strategy
To understand 4Ps of marketing: product, price, place and promotion

4
Course Name: Customer Relationship Management
Instructor: Shainesh
Institute: IIM Bangalore
Next Run Start Date: 5th October 2017
Next Run End Date: 31st December 2017
Course Objectives: To Learn the meaning and application of CRM
To Learn benefits of CRM to companies and consumers
To Learn how to implement CRM best practices
To Learn the importance of bonding and building loyalty with customers
To Learn how to build long term customer realtionships

5
Course Name: Introduction to Corporate Finance
Instructor: Ashok Thampy
Institute: IIM Bangalore
Next Run Start Date: 5th November 2017
Next Run End Date : 31st March 2018
Course Objectives: To learn the role of corporate finance in an organization
To learn the role of financial markets in financing firms and individual's need for funds
To learn the Capital budgeting tools such as payback period, internal rate of return and net present value used in evaluating investments

6
Course Name: Predictive Analytics
Instructor: Dinesh Kumar
Institute: IIM Bangalore
Next Run Start Date: 25th November 2017
Next Run End Date :
31st March 2018
Course Objectives: Understand how to use predictive analytics tools to analyze real-life business problems.
Demonstrate case-based practical problems using predictive analytics techniques to interpret model outputs.
Learn regression, logistic regression, and forecasting using software tools such as MS Excel, SPSS, and SAS.

7
Course Name: Introduction to Strategic Management
Instructor: PD Jose
Institute: IIM Bangalore
Next Run Start Date: 5th December 2017
Next Run End Date: 31st March 2018
Course Objectives: To Learn Industry and competitive analysis
To Learn Resource and competency analysis
To Learn Analysing strategy across corporate and business levels

8
Course Name: Strategy and Sustainability
Instructor: PD Jose
Institute: IIM Bangalore
Next Run Start Date: 5th January 2018
Next Run End Date: 31st March 2018
Course Objectives: To Learn the nature of the sustainability problems faced by businesses
The business case for sustainability: Links between sustainability strategy and corporate performance
To Learn how can firms integrate sustainability concerns into their business strategy? Which tools and techniques may be employed for this?
Applied understanding of stakeholder management, non-market environment and issues/crisis management

9
Course Name: Organization Design for Competitive Advantage
Instructor: Sourav M
Institute: IIM Bangalore
Next Run Start Date: 5th February 2018
Next Run End Date: 31st July 2018
Course Objectives: To Learn Interrelationship between an organization's strategy and structure
To Learn Effective use of control systems
To Learn How to achieve Competitive advantage through different designs
To Learn Structural alternatives such as functional, divisional and matrix
To Learn Structural tradeoffs such as centralization, formalization and complexity
To Learn How to manage structural change

10
Course Name: Managerial Economics
Instructor: Subhashish Gupta
Institute: IIM Bangalore
Next Run Start Date: 5th March 2018
Next Run End Date: 31st July 2018
Course Objectives: Learn How markets work; supply, demand and market equilibrium
Learn Elasticity of supply and demand, taxes and subsidies
Learn Production of goods and services, measures of productivity
Learn Making decisions for hiring and spending on infrastructure
Learn Opportunity costs, different cost concepts, planning for the future
Learn Pricing and selling decisions with different types of competitive pressures
Learn Problems with markets and what we can do about it.

List of Certificate and Diploma Courses By : IGNOU

1
Course Name: Food laws and standards
Instructor: Prof. M. K. Salooja
Institute: SOA, IGNOU
Next Run Star Date End Date: 17 July 2017 to 16 Nov 2017
Course Objectives : The Course "Food Laws and Standards" acquaints with the national and international food laws and standards to develop an enabling environment to have safe and quality food for everyone.
The objective of Course "Food Laws and Standards" is to explain participating fellows with the basic aspects of national and international food laws and standards. The course has four major components – (a) Indian Food Regulatory Regime; (b) Global Scenario; (c) Export and Import Laws and (d) Regulations and Other Laws and Standards.
The course is meant for all the stakeholders of the food chain i, e. producer, procurer, transporter, processor, distributor, retailer, exporter/importer and regulator, and we welcome you. We shall cross the bridges as we move ahead, and also humbly request for your inputs to improve the quality of course, and active participation in its smooth running.

2
Course Name: Technology of Fermented, Cheese, Icecream and By-products
Instructor: Prof. M. K. Salooja
Institute: SOA, IGNOU
Next Run Start Date End Date: 17 Sep 2017 to 16 Jan 2018
Course Objectives : 1.To acquaint the participants with the manufacturing of Fermented, Cheese, Ice Cream and Dairy By-Products, and 2. To familirize the learners/processors/food entreprenurs/ technical officers/consumers/regulators/exporters/distributors/ retailors about basic composition, standard specification, method of manufacturing, packaging and defects during manufacturing and storage of these products.

3
Course Name: Indian Agricultural Development
Instructor: Dr. Praveen Kumar Jain
Institute: SOA, IGNOU
Next Run Start Date End Date: 8 Sep 2017 to 7 Jan 2018
Course Objectives : 1. To acquaint with salient features of the Indian agriculture and allied sectors, and 2. To sensitise the new learners, academicians, researchers, policy planners, farmers and civil service organizations about agriculture production management, its resources, institutional development, and emerging trends in agriculture and allied sectors.

4
Course Name: Sustainable Management of Biodiversity
Instructor: Dr. Shachi Shah
Institute: SOA, IGNOU
Next Run Star Date End Date: 4 Sep 2017 to 3 Jan 2018
This course provides an understanding of the concept and principle of biodiversity science. The course provides detailed information on the values of biodiversity, causes as well as current crisis, and consequences of biodiversity loss. The course provides a conceptual understanding of various means of conservation, restoration and sustainable utilization of biodiversity which can provide viable solutions to a range of societal challenges and provides an effective tool to bridge the knowledge gap for sustainable management of biodiversity. The course also explores the linkages between biodiversity conservation, ecosystem services and climate change. The course will also provide insights into current challenges as well as opportunities in the context of various international cooperation and national level programmes and legislative framework for biodiversity conservation. The course provides the opportunities for biodiversity mainstreaming by stressing the role of biodiversity in achieving the SDGs.

5
Course Name: Introduction to Poultry Farming
Instructor: Dr. P. Vijaykumar Institute: SOA, IGNOU
Next Run Star Date End Date: 17 Sep 2017 to 16 Nov 2017
Course Objectives : 1. To introduce about Poultry, its scope, potential and role in socio-economic development and livelihood security of farming community, and 2. To sensitize about the various types of poultry farms and farming systems practised in India

6
Course Name: Design and Facilitation of E-learning Courses
Instructor: Dr. G. Mythili
Institute: STRIDE, IGNOU
Next Run Star Date End Date: July 2017
Course Objectives : This course describes the foundations, processes, models and theories and instructional design in practice that have evolved from

the basic systemic approaches for e-learning environment. Keeping in view the need of the learners, teachers and practitioners of e-learning, this course is planned, designed and developed to acquaint them with the design aspects of Instructional Design.
After successful completion of the course, the learners are expected to:
Describe the benefits of instructional design in E-Learning.
Appreciate the learning theories applicable in Instructional Design.
Describe the types of Instructional Design strategies and models applicable in E-learning.
Select the appropriate Instructional Strategy for a given need or course.

7
Course Name: Basics of Russian Language- I
Instructor: Dr. ShivajiBhaskar
Institute: SOFL, IGNOU
Next Run Star Date End Date: July 2017
Course Objectives : The main objective of the course is to give an opportunity to all those who want to learn Russian. The basic objectives are as follows:
- To develop the ability to use Russian effectively for the purpose of practical communication in spoken and written discourse.
- To respond, in written or oral form, quickly, adequately and accurately in different communicative situations (such as- to give & receive personal information, to give basic instructions, to involve in dialogues related to day-to-day life, to relate events, facts and to narrate situations, to express opinions, to describe persons or things, to justify opinions, etc.)
- To demonstrate knowledge of sufficient vocabulary to use with grammar patterns
- To enable students to gain access through language to the contemporary scene and the background of Russian speaking countries, their people and their cultures.
- To establish the skills, language and attitude required to promote and facilitate further study of Russian.

8
Course Name: Library Automation and Digitisation
Instructor: Prof. Uma Kanjilal
Institute: SOSS, IGNOU
Next Run Star Date End Date: 17 Jul 2017 to 16 Oct 2017
Course Objectives : The objective of the course is to provide an understanding of the following aspects:
Automation of housekeeping opeations with special reference to open source library automation software Koha;
rendering of computerised services;
different types of media resources and their preservation and maintenance;
need and purpose of digitisation;
processes, methods and equipments used for digitising; and
developing digital library using open source DSpace software.

9
Course Name: Document Processing and Organisation
Instructor: Prof. Jaideep Sharma
Institute: SOSS, IGNOU
Next Run Star Date End Date: 17 Jul 2017 to 16 Oct 2017
Course Objectives : After going through the Course, the learners will be able to:
• Appreciate the need and purpose of cataloguing and classification in a library;
• Understand the process of cataloguing and classification;
• Know the different types and schemes of classification;
• Assign class numbers to documents using DDC;
• Know the different types of catalogues;
• Prepare catalogue entries using AACR2R;
• File entries in a catalogue knowing the different rules for filing; and
• Shelve books and carry out shelf rectification in a library

10
Course Name: Information Sources and Library Services
Instructor: Dr. ArchnaShukla
Institute: SOSS, IGNOU
Next Run Star Date End Date: 17 Jul 2017 to 16 Oct 2017
Course Objectives :The main purpose of this course is to make learners able to:
—Explain various types of information sources;
—Categorise them based on different criteria;
—Identify the different types of reference and information sources;
—Understand the basis characteristics and uses of these sources; and
—Know about both print and electronic information sources.

11

Course Name: Database and Content Organisation

Instructor: Dr. V. V. Subrahmanyam

Institute: SOCIS, IGNOU

Next Run Star Date End Date: 17 Jul 2017 to 16 Oct 2017

Course Objectives : This course provides instruction on the database concepts, elements of DBMS, Database models, fundamentals of database design, database implementation with a focus on library and information science practice, use of WINISIS, MySQL and some emerging trends. By the end of the course, students will be able to:

Understand the Database concepts, elements of DBMS and Database Models

Review and articulate database functions and data modeling in LIS environment

Describe various File Organisation Techniques and Search Strategies

Understand the Relational Model and able to create conceptual design diagrams using Entity Relationship Modeling

Identify the concerns of Indexing

Use Structured Query Language to retrieve and manage information

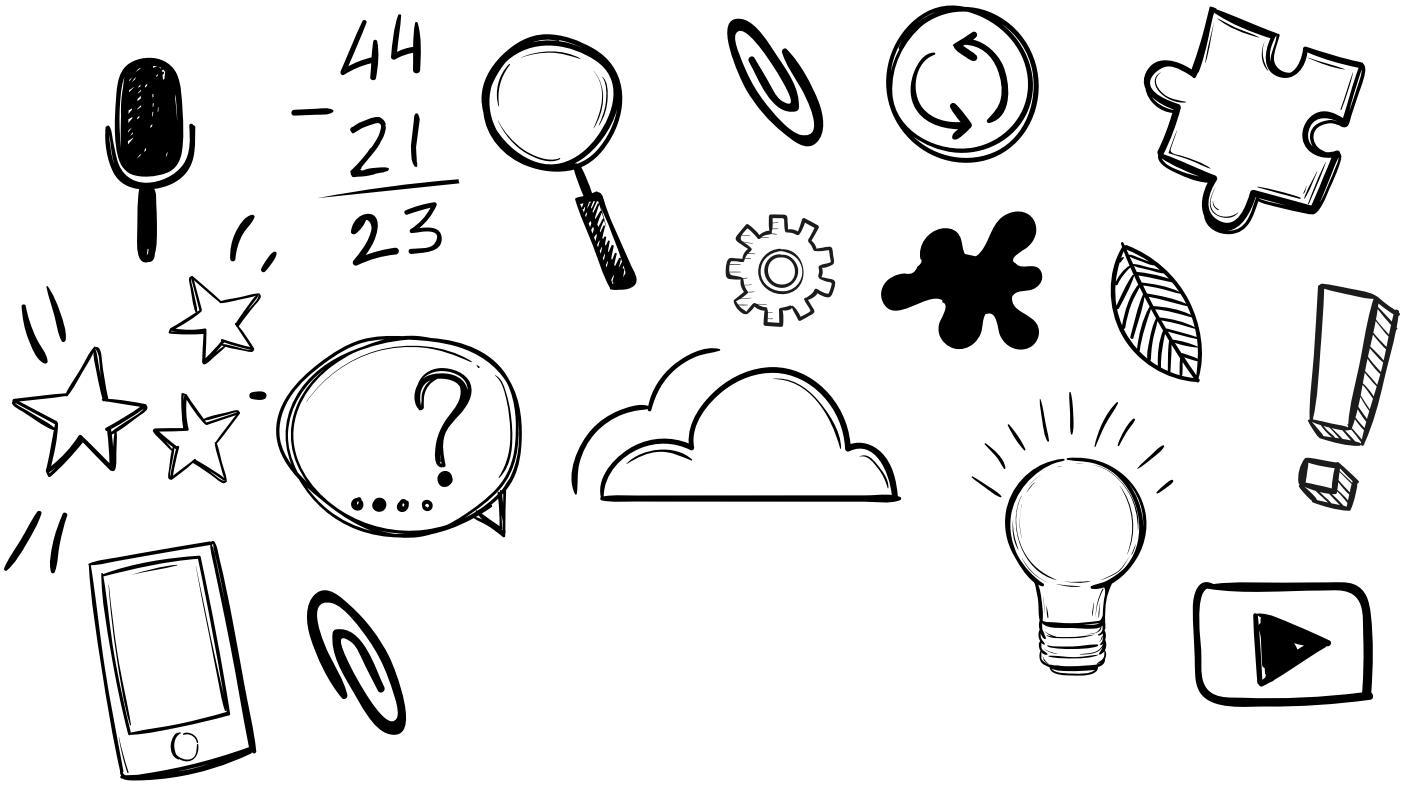
Work with MySQL – RDBMS, executing all of its SQL commands

Identify basic concerns regarding Database Recovery, Transaction Management, Concurrency control and Deadlocks.

Access and use WINISIS

Understand the emerging trends namely Open Access Database Services, Text Retrieval Engines, Multilingual Text Retrieval, Data Mashup and Linked Open Data for Libraries.

List of Courses for School (9th - 12th) By : NCERT



1.
Course Name: NCERT Accountancy 01 (Class 11)
Instructor: Dr. Shipra Vaidya
Institute: NCERT
Course Objectives:
This course is intended to develop understanding:
1. Systematically recording the accounting transactions, accountants ably determine the logavity, profitability of a business, perform financial forcasts and assess the overall performance of a business enterprise.
2. How can the creditibility and usefulness of accounting and fiancial information be ensured? Or Why accounting and finance are the key elements for a business entity?
3. To understand how accounting operates through Genrally Accepted Accounting Principles, acounting standards and structured rules and procedures,
This course will help the aspiring accountants, like you, to strengthen the conceptual base in accounting through variety of e-resources like video lectures, enrichment materials for supplementing textbooks, self assessment inventory and checklist, external weblinks and many more activities for smooth progression and joyful learning.

2.
Course Name: NCERT Biology 03 (Class 12)
Instructor:
1. Dr. C.V. Shimray
2. Dr. Yash Paul Sharma
3. Dr. K. Sridevi
Institute: DESM, NCERT, New Delhi
CIET, NCERT, New Delhi
Next Run Start Date: July 1st , 2017
Next Run End Date: December 31st, 2017
Course Objectives: Biology in essence is the story of life on earth. While individual organisms die without fail, species continue to live through millions of years unless threatened by natural or anthropogenic extinction. Reproduction becomes a vital process without which species cannot survive for long. Each individual leaves its progeny by asexual or sexual means. Sexual mode of reproduction enables creation of new variants, so that survival advantage is enhanced.
This course is intended to develop understanding about:
1. The process of Reproduction in Organisms including Humans.
2. Problem associated with reproductive health.
3. Principles of Inheritance and Variation.
4. Molecular Basis of Inheritance.
5. Evolution.
The course will help the learner to conceptualise the areas of molecular genetics, structural biology and bio informatics to enrich their understanding of the molecular basis of evolution.

3
Course Name: NCERT Chemistry 01 (Class 11)
Instructor: Dr. Anjni Koul
Institute: DESM, NCERT, New Delhi
Next Run Start Date: July 1st , 2017
Next Run End Date: December 31st, 2017
Course Objectives: This course is intended to cover the following topics for the students of Class XI, Semester 1 specifically, and others interested in general:
1. Some Basic Concepts of Chemistry
2. Structure of Atom
3. Classification of Elements and Periodicity in properties
4. Chemical Bonding and Molecular Structure
5. States of Matter
6. Thermodynamics
7. Equilibrium

4
Course Name: NCERT Chemistry 03 (Class 12)
Instructor: Dr. Alka Mehrotra
Institute: DESM, NCERT, New Delhi
Next Run Start Date: July 1st , 2017
Next Run End Date: December 31st, 2017
Course Objectives: This course is intended to cover the following topics for the students of Class XII, Semester 1 specifically, and others interested in general:
1. The Solid State
2. Solutions
3. Electrochemistry
4. Chemical Kinetics
5. Surface Chemistry
6. General Principles and Processes of Isolation of Elements
7. The I-Block Elements
8. The d- and f- Block Elements
9. Coordination Compounds

5
Course Name: NCERT Geography 01 (Class 11)
Instructor: 1. Dr. Aparna Pandey
2. Dr. Archana
Institute: DESS, NCERT, New Delhi
CIET, NCERT, New Delhi
Next Run Start Date: July 1st , 2017
Next Run End Date: December 31st, 2017
Course Objectives: This course is intended to ac-

quaint the students with the knowledge about:
• Geography as a Discipline and basic principles of geography
• Origin and Evolution of the Earth
• Landforms and their evolution
• Climate
• Submarine relief, Movement of ocean water
• Biosphere

5
Course Name: NCERT Geography 03 (Class 12)
Instructor: Dr. Tannu Malik
Institute: DESS, NCERT, New Delhi
Next Run Start Date: July 1st , 2017
Next Run End Date: December 31st, 2017
Course Objectives:
This course is intended to develop understanding in the following areas:
• Nature and Scope of Human Geography
• People of the World
• Human Activities
• Transport, Communication and Trade
• Human Settlements

6
Course Name: NCERT Physics 01 (Class 11)
Instructor: Ms. Anuradha Mathur
Institute: (Retd.) Modern School, Vasant Vihar, New Delhi
Next Run Start Date: July 1st , 2017
Next Run End Date: December 31st, 2017
Course Objectives:
This is a beginner's course to develop an appreciation and conceptual understanding of basic physics. After going through this course the learner will be able to:
1. Appreciate the need to learn and recognize the physical world.
2. Assign units and methods to measure varied physical quantities around us
3. Learn dimensional analysis and apply it
4. Understand Kinematics of moving objects in a straight line and in a plane
5. Distinguish between kinematics of rigid objects moving in a straight line or a plane and rotation
6. Reason out the dynamics of moving objects in a straight line or a plane and rotation
7. Apply the above knowledge to understand mechanical work, rate of doing work and energy of moving systems for useful purposes.
8. Use ideas of kinematics and dynamics to understand gravitation.

7
Course Name: NCERT Physics 03 (Class 12)
Instructor: Ms. Anuradha Mathur
Institute: (Retd.) Modern School, Vasant Vihar, New Delhi
Next Run Start Date: July 1st , 2017
Next Run End Date: December 31st, 2017
Course Objectives:
This is a beginner's course to develop an appreciation and conceptual understanding of basic Physics dealing with Electricity and Magnetism.
After going through this course the learner will be able to:
1. Appreciate the need to learn and recognize stationary and moving charges.
2. Visualize drift velocity and resistance offered by a conductor
3. Learn about capacitors and their ability to store charge
4. Develop an understanding of electrical and magnetic field around stationary and moving charges.
5. Learn Coulomb's law, Biot Savart's law and recognise the application of Gauss's law and Ampere's circuital law to find electrostatic and magnetic field strengths at a location.
6. Understand the purpose of a cyclotron, its construction and its principle of working
7. Know the phenomenon of Electromagnetic Induction, Faraday's law and Lenz's law
8. Reason out the working of an AC generator and depict the same mathematically and graphically
9. Apply the above knowledge to understand alternating curr

8
Course Name: NCERT Physics 03 (Class 12)
Instructor: Ms. Anuradha Mathur
Institute: (Retd.) Modern School, Vasant Vihar, New Delhi
Next Run Start Date: July 1st , 2017
Next Run End Date: December 31st, 2017
Course Objectives:
This is a beginner's course to develop an appreciation and conceptual understanding of basic Physics dealing with Electricity and Magnetism.
After going through this course the learner will be able to:
1. Appreciate the need to learn and recognize stationary and moving charges.
2. Visualize drift velocity and resistance offered by a conductor
3. Learn about capacitors and their ability to store charge

4. Develop an understanding of electrical and magnetic field around stationary and moving charges.
5. Learn Coulomb's law, Biot Savart's law and recognise the application of Gauss's law and Ampere's circuital law to find electrostatic and magnetic field strengths at a location.
6. Understand the purpose of a cyclotron, its construction and its principle of working
7. Know the phenomenon of Electromagnetic Induction, Faraday's law and Lenz's law
8. Reason out the working of an AC generator and depict the same mathematically and graphically
9. Apply the above knowledge to understand alternating current circuits with capacitors, inductors and resistances
10. Use ideasof electromagnetism to understand electromagnetic waves.

List Courses for School (9th - 12th)

By : Open School - NIOS

1
Course Name: Hindi
Instructor: Dr. Monika Kadayan, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives: भारतीय सभ्यता और संस्कृति के प्रति सम्मान औरगौरव की भावना का विकास करसकेंगे
विभिन्न विशयों,संदर्भों और प्रसंगों पर स्वतंत्रा रूप से चिंतन–मनन कर सकेंगे तथा मौलिक रूप सेअपनी बात प्रस्तुत कर सकेंगे।
हिंदी में स्वतंत्रा रूप से अपने भावों तथा विचारों को मौखिक तथा लिखित रूपमें अभिव्यक्त कर सकेंगे।

2
Course Name: English
Instructor: Dr. Soumya Rajan, NIOS
Institute: NIOS
Next Run Start Date:1 July 2017 to 31 Dec. 2017
Course Objectives: Broad Objectives:-
At the end of the secondary course in English the learner will be able to:
• Listen to and understand short texts prescribed in the course book and react to the theme, structure and content.
• Listen and react to authentic material drawn from real life 'listening' situations.
SPEAKING SKILLS:-
Broad objectives :-
The learner will be able to:
• repeat after a model.
• use English in familiar life situations.

3
Course Name: Sanskrit
Instructor: Dr. R. N. Meena, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives:
अस्मिन् स्तरे संस्कृतभाशायारू षिक्षणस्य निम्नलिखितानि उद्देष्यानि सन्ति रूदृ
सामान्य–उद्देष्यानि
माध्यमिकस्तरे संस्कृतपठनस्य पाठनस्य च अधोलिखितानि सामान्य–उद्देष्यानि सन्ति रू–
संस्कृतभाशायारू सामान्यज्ञानवर्धनं भविश्यति येन संस्कृतस्य सरलान अंषान् पठित्वा छात्रारू तेशाम् अंषानाम् अर्थान् ज्ञास्यन्ति। ते स्वतः मौखिकीं लिखितां च अभिव्यक्तिं कर्तुं षक्ष्यंतिय–
संस्कृतसाहित्यत्यम् प्रति छात्रेशु अभिरुचेरू वर्धनम्य–
संस्कृतसाहित्यस्य प्रमुखविधानां (गद्यपद्यनाटकादिनाम्) प्रति.
निधि–रचनानां ज्ञानम्य–
छात्रोशु राश्ट्रियसांस्कृतिकसामाजिकनैति–कदृमूल्यानाम् विक.
ासरू य ऐवम च
विज्ञानप्रौद्योगिकीक्षेत्रे प्राचीनभारतीयमनीशिनां मौलिकांवेशण
ाचिंतनविषिश्टयोगदानै-:रू छात्रा छात्राणां परिचयरू।

4
Course Name: Mathematics
Instructor:Dr. Rajendra Kumar Nayak, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives:
After completing this course, learner will be able to:
• describe basic concepts, facts, principles, terms, symbols and processes of Mathematics
• convert the word problems in to the mathematical forms and solve them;
• explain different ways of processing the given data and help them in arriving at conclusions;
• express the skills of quantification of experiences around them and make linkage with their life;
• solve wide variety of mathematical problems in daily life and reflect in different context of learning;
• relate mathematical knowledge and skills to solve variety problems and develop positive attitude towards Mathematics and its application;
• interpret tabular/graphical representation of the quantitative data ; and
• articulate logically and use the quantitative data to find many results;

5
Course Name: Social Science
Instructor: Dr. Azmat Nuri, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives: After completing this course, the learner will be able to:
• recall struggles and experiences of our previous generations;
• explain the need to judiciously use the country's resources and conserve them;
• establish that India as a functioning democracy is inspired by the values enshrined in our constitution; and
• interpret various socio-political problems in contemporary India.

6
Course Name: Economics
Instructor: Miss Siba Saraswathy, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives: After completing this course, the learner will be able to:
• explain how societies, businesses, governments, households and individuals can allocate their scarce resources;
• explain production and distribution of goods and

services;
• explain the meaning and functions of money, banks and insurance;
• discuss the challenges and sectoral aspects of Indian economy;
• describe in detail India's position in the world and with its neighbours;
• list various consumer rights and responsibilities.

7
Course Name: Bussiness Studies
Instructor: Miss Siba Saraswathy, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives: After completing this course, the learner will be able to:
• understand the nature and scope of business activities and social responsibilities of business;
• classify the business activities into industry and commerce and decide the form of business organization for the same;
• list the need and importance of various aids to trade like warehousing, transport, communication, postal, banking, insurance etc.
• describe the new developments in the business world like e-banking, B.P.O., K.P.O. services etc.
• explain the channels of distribution and various types of retail trade.
• discuss the need and importance of advertising, sales promotion and personal selling;
• recall the need and importance of consumer protection and redressal of consumer grievances.
• discuss the importance of self employment and competencies required to pursue a career; and
• develop the skill of doing the project work using the case study approach.

8
Course Name: Accountancy
Instructor:Miss Siba Saraswathy, NIOS
Institute: NIOS
Next Run Start Date:1 July 2017 to 31 Dec. 2017
Course Objectives : After completing this course, the learner will be able to :
• understand the meaning, objectives, advantages, basic concepts and conventions of Accountancy;
• develop the skill of preparing the accounting equation;
• classify the accounts into different categories, understand the rules of debit and credit and develop the skill of preparing accounting vouchers;
• prepare the various books of accounts like journal, cash book, other subsidiary books and ledger;
• develop bank reconciliation statement;
• post the transactions from journal and other subsidiary books to ledger and prepare the trial balance;
• identify the accounting errors and to learn their rectification;

9
Course Name: Home Science
Instructor: Dr. Anjana Agarwal, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives:
After completing this course, the learners will be able to:
• recognize their own strengths and weaknesses and work on them to achieve their maximum potential;
• put into practice decision making and problem solving skills to make informed choices;
• Learn the milestones of growth and development and develop sensitivity for each member of the family in different life stages;
• develop lifelong ability to absorb knowledge and apply it effectively to meet the challenges to ever changing life while focusing on adolescent issues;
• become aware of the national issues and challenges and identify one's own role in overcoming them.

10
Course Name: Psychology
Instructor: Mr. Vivek Singh, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives: Objectives:-
After completing this course, the learner will be able to:
• explain the basic concepts of psychology and their application;
• relate oneself positively to family, neighbourhood and society;
• behave responsibly and in a value based manner;
• learn to live a purposeful life of health and happiness.

11
Course Name: Indian Culture and Heritage
Instructor: Dr. Azmat Nuri, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives:After completing this course, the learner will be able to:
• explain various aspects of the culture and heritage of India;
• identify contributions of our ancestors in the areas

of religion, philosophy, science, arts, education, languages and literature;
• demonstrate underlying unity amidst diversity in all aspects of India's culture;
• trace the impact of Indian culture in different countries of the world;
• relate to the composite nature of Indian culture and
• develop a feeling of love and a sense of belonging towards the nation

12
Course Name: Painting
Instructor: Miss Sanchita Bhatacharya, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives: After completing this course, the learner will be able to:
• explain the visual ideas;
• differentiate between the space division and expressive value of the line;
• distinguish the various styles of art and their salient features;.
• work with harmony and contrast of color;
• draw and illustrate with various materials such as pencils, pastels, water and oil colors, ink etc;
• explain the visual aspects of composition, rhythm, texture and tonal gradation.

13
Course Name: Data Entry operation
Instructor: Miss Radhika B, NIOS.
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives: After completing this course, the learner will be able to:
• define basic components of computer system;
• explain the features of Operating System;
• develop the skills of creating, printing and formatting the documents;
• handle different features of Spreadsheet;
• format spreadsheet and insert charts;
• create PowerPoint presentations.

14
Course Name: Science and Technology
Instructor: Dr.Sangmitra Suryapani, NIOS
Institute: NIOS
Next Run Start Date: 1 July 2017 to 31 Dec. 2017
Course Objectives:
After completing this course, the learner will be able to:
• explain the science behind natural phenomena;
• enumerate the various facets of science and the role it plays in human welfare;
• develop scientific attitude so that reasoning wins over blind faith and opinions;
• formulate simple hypothesis, verify them and apply in their daily life activities;
• cultivate an interest in science and technology and be encouraged to pursue it as a career.

Guidelines for developing Online Courses for SWAYAM

1st June 2017

Government of India
Ministry of Human Resource Development
Department of Higher Education

Contents

BACKGROUND AND PERSPECTIVE

Whereas, with a view to providing access to the best quality learning resources across the country, the project □Study Webs of Active Learning for Young Aspiring Minds□ (SWAYAM) has been started.

Whereas, SWAYAM provides an integrated platform and portal for online courses, using information and communication technology (ICT) covering High School till all higher education subjects and skill sector courses to ensure that every student benefits from learning material through ICT;

Whereas, SWAYAM is a:

1. One-stop web and mobile based interactive e-content for all courses from High School to University level.
2. High quality learning experience using multimedia on anytime, anywhere basis.
3. State of the art system that allows easy access, monitoring and certification.
4. Peer group interaction and discussion forum to clarify doubts
5. Hybrid model of delivery that adds to the quality of classroom teaching.

Whereas, SWAYAM involves development of Massive Open Online Courses (MOOCs) compliant e-content (video and text) and building a robust IT platform;

Whereas, in order to disseminate educational content to masses, the MHRD has launched 32 Direct-To-Home (DTH) educational TV channels called □SWAYAM Prabha□ broadcasting education content 24x7 basis, and the content developed under SWAYAM would be used for transmission in SWAYAM Prabha (SP) DTH channels.

Whereas, there is a need for synergizing the quality of contents on these platform, and for standardizing the content delivery;

Now, with a view for systematic development of the online courses for the SWAYAM, the following guidelines which propose to lay down technical and production standards for the e-content have been issued:

1. DEFINITIONS:

1.1. In these guidelines, unless the context otherwise requires, the following words shall have the following definitions:

a) □**Academic Advisory Council (AAC)**□, shall mean a group of academicians of repute identified and appointed by the National Coordinator with the mandate of identifying the CCs, examining the course proposals and approving them.

b) □**Course Coordinator (CC)**□: The CC shall be a Subject Matter Expert (SME) belonging to a reputed educational institution/Industry or a specialist in the field identified and entrusted with the task of developing online course in a given area by the NC.

c) "**Course**" shall be of two types: credit courses and non-credit courses.
   i. *Credit Course* shall mean a course which is taught for at least one semester as a part of as subject/programme.
   ii. *Non-Credit Course* shall include courses like awareness programme, continuing education programme or training of specific skill set as independent course, which are not part of any set curriculum. It can be of shorter duration.

d) "**Four quadrant approach**": The four Quadrant approach means a learning system that has the following components:
   i. Quadrant-I is e-Tutorial; which shall contain: Video and Audio Content in an organized form, Animation, Simulations, video demonstrations, Virtual Labs, etc, along with the transcription of the video.
   ii. Quadrant-II is e-Content; which shall contain; self instructional material, e-Books, illustrations, case studies, presentations etc, and also contain Web Resources such as further references, Related Links, Open source Content on Internet, Video, Case Studies, books including e-books, research papers & journals, Anecdotal information, Historical development of the subject, Articles, etc.
   iii. Quadrant-III is the Discussion forum for raising of doubts and clarifying them on a near real time basis by the Course Coordinator or his team.
   iv. Quadrant-IV is Assessment, which shall contain; 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.

e) **Host Institute**, Educational Institute offering the MOOC and conducting end examination, awarding credits and certification.

f) "**MOOCs**": Massive Open Online Courses (MOOCs) are such online courses which are developed as per the pedagogy stated herein and following the four quadrant approach.

g) "**National Coordinators (NCs)**": National Coordinators are the Institutions that have been so designated by the Ministry and assigned a specific sector for preparation of online courses for SWAYAM.

h) **Parent Institute,** Institute to which student registered for MOOC is enrolled.

i) "**Sector**" shall mean a particular level or discipline of learning allotted to a NC by the MHRD.

j) "**Subject Matter Expert Groups (SMEGs)**" shall mean a group of reputed academicians in a particular subject identified by the National Coordinator in each subject.

k) "**Subject**" shall mean a specific area under a discipline (Example: Physics) taught in an educational institution consisting of specific programme/ courses, resulting in the award of a certificate/ diploma/ degree.

l) "**SWAYAM Academic Board**" shall be a apex academic body that would lay down standards of quality for the courses to be offered through SWAYAM.

m) "**SWAYAM Board**" shall be the Authority that would be overall in-charge of the formulation of the Platform, prescribe quality of content and facilitate conduct of examinations.

2. SWAYAM Board

SWAYAM Board (SB) shall be the Body for managing the SWAYAM and SWAYAM Prabha by coordinating the work of technical and academic bodies so as to deliver high quality online education.

a) Composition: The Board shall have the following membership:
   i. Secretary (Higher Education) ☐Chairperson
   ii. Chairperson UGC
   iii. Chairperson AICTE
   iv. (5) Bureau heads from the Ministry of HRD (ex-officio) looking after: Technical Education, Management Education, Higher Education, School Education, Open/Distance Education
   v. All National Coordinators of SWAYAM and SWAYAM PRABHA
   vi. JS&FA of MHRD
   vii. Mission Director NMEICT (Member Secretary)

b) Functions: The SB shall discharge the following functions:
   i. Take decisions for smooth running of SWAYAM and SWAYAM PRABHA platforms.
   ii. Lay down Policy regarding implementation issues including: cost payable for development and delivery of the courses, examination fees, accepting the content from foreign/private institutions/universities, within parameters laid down by the competent authority.
   iii. Review the progress of each NC pertaining to sanction, progress, development and delivery of various online courses.
   iv. Any other matter that has arisen during the operation and delivery of SWAYAM and SWAYAM Prabha.

c) Secretariat: The SB shall have a secretariat located in AICTE/ MHRD for servicing the Board, composition of which would be decided by the Board.

3. SWAYAM Academic Board (SAB):

(1) There shall be a SWAYAM Academic Board responsible for guiding the National Coordinators and for laying down quality standards. The SAB shall be constituted as follows:
   i. Chairman UGC ☐Co Chairperson
   ii. Chairman AICTE ☐Co Chairperson
   iii. Two technical experts nominated by the Ministry
   iv. Two reputed academicians nominated by the Ministry
   v. Two representatives from the Industry, one each nominated by MSME and Ministry of Skill Development
   vi. Director AICTE ☐Member Secretary

(2) The SAB shall discharge the following functions:
   i. Monitor the quality of the courses on the SWAYAM and lay down quality standards.
   ii. Offering of courses on SWAYAM
   iii. Integration of SWAYAM and SWAYAM Prabha
   iv. Monitor the progress of conduct of the end-term examinations

for the SWAYAM courses and resolve issues if any.

v. Monitor the progress of transfer of credits and resolve issues if any.

4. NATIONALCOORDINATORS

4.1. The following shall be National Coordinators for each of the Sectors for the purpose of development of the e-content, delivery of online courses and overseeing the assessment procedures of courses offered on SWAYAM. However, the Ministry can add National Coordinators from time to time depending on the need for expanding the Courses to be offered:

S. No.	National MOOCs Co-ordinator	Sectors
1	University Grants Commission(UGC)	Non-Technology Post Graduate Degree Programmes.
2	NPTEL	Technical / Engineering UG & PG degree programmes.
3	Consortium for Educational Communication	Non Technology Under Graduate Degree programmes.
4	IGNOU	Diplomas and Certificates programmes
5	NCERT	School Educational Programmes from Class 9th to 12th.
6	NIOS	Out of school children Educational Programmes from Class 9th to 12th.
7	IIM Bangalore	Management programmes.
8	NITTR, Chennai	Teacher Training programme.

5. SCOPE OF SWAYAM

5.1. The SWAYAM shall cover the following:

a) Curriculum based course contents covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities, engineering, technology, law, medicine, agriculture etc. in higher education domain (all courses to be certification-ready).

b) School education (9-12 levels) modules; for teacher training as well as teaching and learning aids to learners to help them understand the subjects better and also to help them in better preparedness for competitive examinations for admissions to professional degree programmes.

c) Skill based courses, which cover both post-higher secondary school skills that are presently the domain of polytechnics as well as industrial skills certified by the sector skill councils of various Ministries.

d) Advanced curriculum and professional certification under a unified scheme in higher education domain that can be tailored to meet the demands of Choice Based Credit System (CBCS) currently being implemented in India at under graduate level.

e) Curricula and courses that can meet the needs of life-long learners.

f) Independent courses which may not be part of any set curriculum and may be taught as awareness courses, continuing education programme and for training of specific skill sets.

6. Creation of online courses for SWAYAM:

6.1. Identification:

The National Coordinators (NC) shall ensure that work of converting a course into a MOOC shall be done in a comprehensive manner, such that there is complete coverage of all the courses in a subject/programme.

a) The NC shall identify courses where online education is possible and preferred. The identified courses shall be advertised in newspaper and other media calling for Expression of Interest (EoI).

b) In all identified courses, **Expression of Interest** (EoI) can be invited for credit courses from CC through recognised Universities/ Institute of National Importance and other educational Institutions authorized to award degrees/credits and from subject specialists both in Public and Private Sectors for non-credit courses.

c) The CC while submitting the expression of interest (EoI) shall also submit an undertaking from a Host University/Institution conveying its willingness to offer the course for credit, conduct examination, assessment, evaluation, issue certificates and transfer the credits to the students of the Parent University/Institution as per the UGC/ AICTE/any other regulatory body Regulations issued for the purpose.

d) After evaluating the EoI received, the NC shall identify a Course Coordinator (CC) for each Course, based on (i) the quality of the sample content, (ii) reputation of the expert/ institute and (iii) teaching-learning methods proposed, and invite him/her to prepare the MOOC within 6 months from that date.

e) The NC shall ensure that no further courses are allotted to a CC unless he/she has successfully completed a course allotted earlier.

f) In case two or more CC from the same Institution drop / discontinue courses at a given time, the host Institute shall be denied further participation for a stipulated time.

g) In case, the selected CC is a private person or a private institution, not entitled to award credits/ certificate, it shall identify a public Institution authorized to offer credits/ certificate for the course and issue certificate, as Co-applicant. A MoU between the two defining their roles will be formulated and later approved by the NC / SB.

h) The NC shall constitute the following Committees immediately:

i. **Academic Advisory Council** (AAC) consisting of academicians for assisting the NC to consider and take decisions on every MOOC proposal.

ii. **Subject Matter Expert Groups** (SMEGs) for each subject consisting of academicians for evaluating the Proposals for Online Courses and make recommendations for its acceptance, improvement or rejection.

i) The courses, which carry credits/ certification, shall be cleared by the □host□ University/Institute, who shall also agree to conduct End Examination, assessment and grant credits/ certification.

6.2. Pre-production activities (12 weeks/Online Course)

a) Each CC shall constitute an academic team of educationists with proven abilities for preparation of the Teaching Learning Material (along with the pedagogy and the activity-based interventions for improving the delivery of the content).

b) The CC shall, within 2 weeks from the date of appointment, prepare a

c) **Proposal for MOOC** consisting of the following and submit the same to the NC for approval:

i. Introductory module: Defining the Course design, qualifications for taking the course, introductory video, assessment system, credits to be awarded, starting date/ending date, and expected outcomes.

ii. Scheduling of course: lectures / reading material / assignments / quizzes/ test into weeks and short modules.

iii. Instructional videos to be prepared along with the transcript, multi-media techniques to be used, and the name of the teacher-on-the-camera.

iv. Details of reading material such as lecture notes / additional readings to be provided.

v. Self-assessment modules: The total number of quizzes and assignments to be provided for the course.

vi. Assessment system: Weekly /biweekly assessments and assignments that would be required to be taken by the students.

vii. Reading material: Notes/extra readings.

viii. Self-assessment modules: Quizzes and tests.

ix. Assessment system: Weekly assessments and assignments.

x. Discussion forum: List of Teaching Assistants for handling the discussion forum and answering queries raised by registered Students.

xi. The CC shall ensure that the Online Course, (where **Credits/Certificate** on the Course are to be offered) under SWAYAM, (i) is Cleared by a University/ Institute and (ii) the University/ Institute agrees to issue certificate(s) and **Transfer the Credits** to Registered Students under SWAYAM that are existing as regular & enrolled students from a recognized University/Institute across the country and shall follow, the UGC & AICTE (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016, a Gazette Notification issued on 19th July 2016 & 17th August 2016, respectively.
Non-submission of the proposal in the above manner within the given period shall automatically result in cancellation of the order entrusting the work.

d) On receipt of the Proposal for MOOC, the NC shall place the same before the **Subject Matter Expert Groups (SMEGs)** for its consideration. The SMEGs shall convey its approval, amendment or rejection within Three weeks. In case the Subject Matter Expert Groups (SMEGs) makes suggestions for improvement/changes, the CC shall make the changes and present the same within 2 weeks further. The Subject Matter Expert Groups (SMEGs), may thereupon, make the final recommendation to the Academic Advisory Council (AAC).

e) Based on the feedback given by the Subject Matter Expert Groups (SMEGs), the Academic Advisory Council (AAC) shall examine each

proposal and either approve, suggest changes or reject same within a further period of 2 weeks from the date of receipt of Subject Matter Expert Groups (SMEGs) report. The AAB shall also recommend to the NC the required budget for preparing the MOOC.

f) The NC shall thereupon, and without any further delay, communicate the decision to the CC and also release the funds required for starting the production.

6.3. Production activities (8 weeks/ Online Course)

On receipt of the approval from the NC, the CC shall proceed for production of the videos in the following manner:

a) **Identification of the studio**: In order to have uniformity in Technical quality of contents developed under SWAYAM & have compatibility between contents developed by NMCs, it is recommended to have uniform set of equipment being used by CCs. The studio hired by CC shall have all equipment as listed in **Annexure I**. In case a studio of these specifications is available in the institution, the same shall be used. Otherwise, a studio with these facilities can be hired for the purpose of making these Programmes as per the rates given in MOOCs Guidelines, 2016**.**

b) **Production team**: There shall be a Production team experienced in preparing Programmes for educational purposes, consisting of a Director/Producer, Instructional Designer, Production Assistant, Camera persons, multi-media technicians and Editors, who can be paid by the Course Coordinator as per the rates given in MOOCs Guidelines, 2016**.**

c) **Duration of content**: A four-credit course may have overall duration of about 20 hours of video lectures and reading Module (a course may have upto 40 Modules). Content is required to be submitted in a hard disk, the (i) Video Edit files @ 10 Mbps for transmission on SWAYAM PRABHA and (ii) further compressed files @ 2.5 Mbps along with other TLM (in SWAYAM Template) for delivery through SWAYAM.

d) **Presentation techniques:**

- The production of programme may be done in a manner that a substantial part that at least 75% of the total duration of each production should use innovative learning techniques viz. case-studies, scenarios, animation, analogies, individual or group activities, concept-mapping, in-text learning quizzes, interactive exercises within learning modules, discussion forum, multi-media techniques, innovative graphics, live experiments, demonstrations, role-plays, field documentaries etc.
- It shall be the responsibility of the CC to ensure that none of the graphics, animations, images, sound clips, video clips used are plagiarized or cited without formal permissions from owners who must be informed of the distribution policies of SWAYAM.
- It shall be the responsibility of the CC to ensure that none of the graphics, animations, images, sound clips, video clips used are plagiarized.
- Whereas direct lecture focused on the teacher can be used, it may be kept for less than 15% of the total duration of video. Even in this case, the teacher should speak extempore and should not read from written material or even a Teleprompter. It should be ensured that the teacher before the camera is presentable as per television practices.

e) **Transcription of Video** shall be prepared along with the programme, which may be needed for translation of the transcript and for sub-titling in other languages.

6.4. Post production activities (4 weeks/Online Course)

There shall be a post-production team consisting of the Video Editor, Sound Editor and Music team, equipped with video editing software working in Non-Linear Editing System (NLE) along with suitable equipment listed in **Annexure□I.** They shall be responsible for:

- Video editing the programme using HD parameters.
- Writing, (re)recording, and editing the soundtrack if needed.
- Adding visual special effects, multimedia effects and computer-generated imagery (CGI)
- Sound re-recording or mixing with professional audio equipment.

6.5. Review of the Course content and approvals (4 weeks/Online Course)

a) On completion of the programmes, the CC shall intimate the NC about the readiness for review of the Course.

b) Immediately thereupon, the NC shall get the course Previewed/reviewed from academic and technical experts and thereafter convene the SMEGs meeting for viewing the course in detail along with the video and reading resources.

c) The SMEGs, after viewing the course shall verifying the following and based on these recommendations, the NC will place the course before the AAB, which will approve the Course for uploading on the SWAYAM portal:

- Final typos and grammar checks.
- Brand language/message (i.e. in keeping with Online Course guidelines)
- Pedagogy and learning experience.
- Formatting of text and images.
- Ensuring the presence of basic Online Course elements like video/e-Content, discussion forums, Interactive elements, assignments, assessment methodology etc.
- Video quality checks.

d) The NC in consultation with the CC, will also recommend the □Start date□ and the □End date□ for the course.

e) Based on these recommendations, the NC will place the course before the AAB, which will approve the Course for uploading on the SWAYAM portal.

7. Notification of Course to all Universities

As soon as AAB approves a course, the same will be reported to the SWAYAM Board by the NC. The SWAYAM Secretariat shall request the concerned regulator to communicate to all Universities/Institutes under their jurisdiction to notify the courses to their departments and affiliating institutions for availing and transfer of credits by students enrolled with them.

8. ASSESSMENT AND CERTIFICATION

a) The CC shall decide the suitable assessment system for the course based on the stated learning outcomes, in consultation with the host University/

institution offering the course.

b) Normally, the assessment shall have both formative assessment to promote deeper learning, critical thinking and reflection, in combination with summative assessments designed to gauge student achievement and/or performance. Summative assessments may include graded quizzes, reports or projects, peer assessments or proctored examination.

Whereas an online examination would be the preferred mode, the CC may decide on the mode of conducting the final examination. Efforts must be made to include industry or industry bodies as partners in the certification process for further value addition to the students. Wherever possible, education and R & D team members from the industry need to be included in the design of course contents and problem sets. However, problems may be of a generic nature and specific practices of participating industries should not be used as contents.

c) In case, a pen and paper final examination is to be conducted, the same shall be offered through any college/school volunteering to conduct the same. The decision in this respect will be taken by the host institution.

d) After conduct of the examination and completion of the evaluation, the host institution shall award marks/grade as per the evaluation scheme announced, within 4 weeks from the date of completion of the final examination.

e) On successful completion of each course, the host institution offering the Online Course would issue the certificate, along with the number of credits and grades, through which the student can get credits transferred into his/her marks certificate issued by his/ her parent institution.

9. INTELLECTUAL PROPERTY RIGHTS /COPY RIGHT HANDLING

a) The CC shall follow copyright laws for any readings, images, and video clips used as core and supplementary reading in case of licensed material if used and submit an undertaking to that effect to the NC.

b) All contents (text, audio, video, animation, quiz etc.) developed with the funding of NMEICT will be the property of SWAYAM.

c) All courses and contents posted in SWAYAM will be copyrighted to SWAYAM. Ministry will, from time-to-time, announce policies for access and charges, if any (for certification) and will also publish appropriate Open Educational Resources policy in consultation with other national and international bodies.

d) The CC shall be given explicit permission for creating books and other distribution materials ever for commercial purposes with the explicit undertaking that contents published in SWAYAM shall remain there.

e) The terms of service should be clearly laid out so as to address the following key points by the CC:
   - Any disclaimers should be clearly spelt out.
   - User /student/ institutions should be informed about the usage rights of the course content available on SWAYAM.

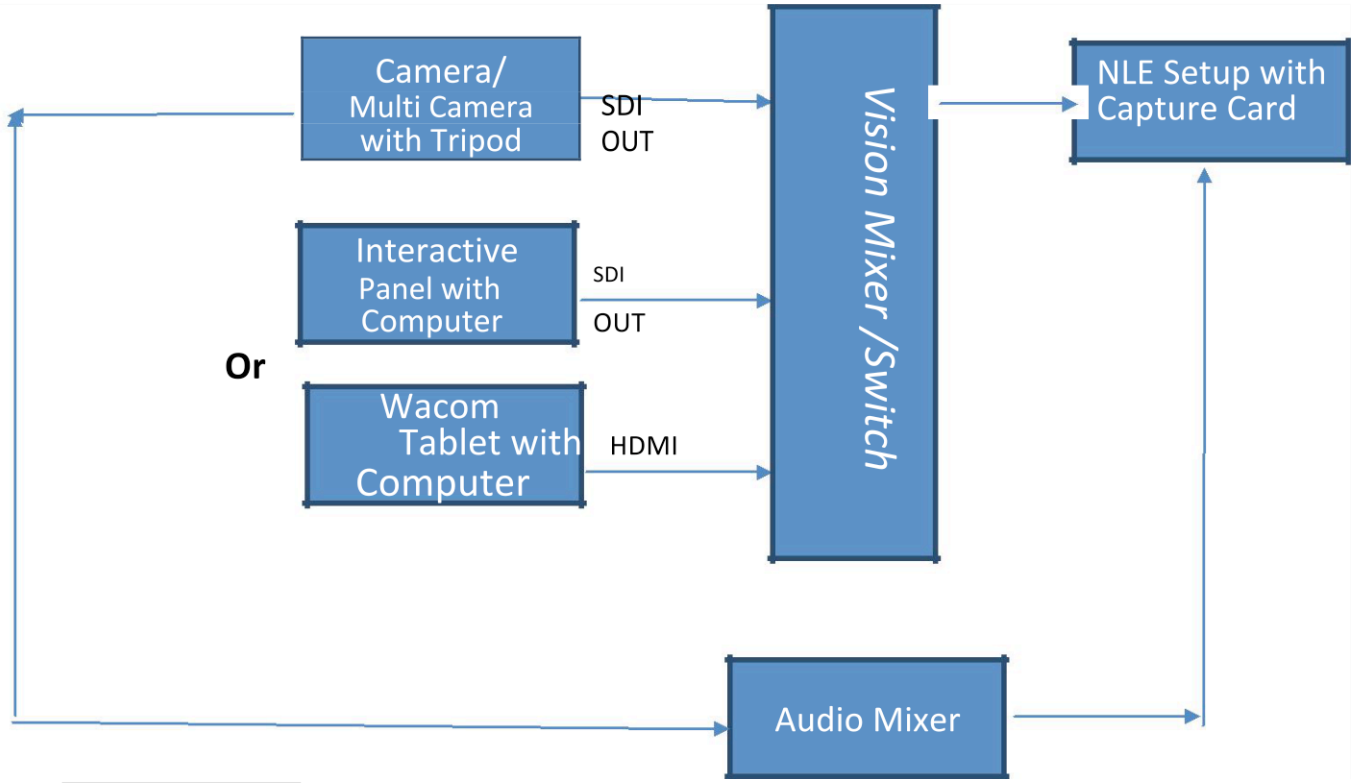
*****

Annexure-I

A. Equipment Setup & Specifications, for use in development of Online Course

Note: Make/Models/trade names appearing in Annexure-I are indicative only, equipment with similar or better features & Specification are acceptable.

Block Diagram



1. Camera(s):

Three 1/3" type; Full HD CMOS sensors; PAL color; 1920x1080/50i; Gross Pixels ≥ 2.2 Million; camera to have a resolution of ≥ 850 TVL; Sensitivity: ≥ F10; S/N 54 db; Motorized Zoom Lens>20X (28 mm to 560mm) with optical image stabilization; Proxy Video; Aspect Ratio 16:9; Audio: AAC 2ch, 16bit, 48kHz; Multi-Camera Synchronizing with Genlock IN and TC IN/OUT; HD Recording ≥ 50 Mbps, should also support Intra / LONG GOP recording. Two or more Memory Card/Media Slots, Hot Swap for Continuous Recoding, with content security features. To support AVC H.264/MPEG4, MOV Files / Quick Time; Video out: SDI & HDMI.

Camera to have a suitable **Tripod,** with minimum payload (> the weight of Camera setup). Tripod should have floor spreader.

2. Non-linear editing:

Specifications: Non-Linear Editing Unit.

a). Editing Software: Adobe Creative Cloud for Teams

c). Hardware:

- ☐ Windows 10 Professional 64bit OS
- ☐ 1TB 7200 RPM SATA 1st Hard Drive
- ☐ 500GB 7200 RPM SATA 2nd Hard Drive
- ☐ USB Keyboard
- ☐ USB Optical Mouse
- ☐ SuperMulti DVDRW SATA 1st
- ☐ NVIDIA Quadro GPU (K4000 or better)
- ☐ Dual Xenon Processor Air Cooling Kit (E5-2620 v2 2.10Ghz 15MB 1600 6C 1st CPU)
- ☐ 32GB DDR3-1866 (8x4GB) 2CPU Unbuffered RAM
- ☐ 21☐ Monitor (1920 X 1080).

d). Video Capture Card compatible to the NLE software similar to Black Magic Design/ HD Extreme / AJA / MATROX / DVS.

Native editing for DV, DVCAM, DVCPRO, DVCPRO 50, DVCPRO HD, AVC-INTRA, Long GOP, XAVC, FireWire device control, Still images: PSD, BMP, JPEG, PICT, PNG, SGI, TARGA, TIFF. Support for AIFF, WAV, MP3, CAF, BWF, SDII, NeXT, QuickTime.

e). Effects: FxPlug support, Real-time software-based audio normalization, RT Extreme for scalable software-based, multi stream real-time effects in DV, SD, and HD formats, Real-time effects playback on main display and on NTSC/PAL or HD monitora with perfect synchronization, Dynamic RT for automatically adjusting playback quality and/or frame rate based on hardware capabilities Key frame graphs and editing in Viewer or Timeline, More than 200 transitions, effects, and filters, Import multilayered Photoshop files with layers and alpha support

f). Character Generator Software with latest Patches to support English/ Hindi ☐Devnagri, technical & scientific fonts, symbols etc.

3. Card Reader: compatible to the Memory Card of Camera☐s:

4. (a) Interactive 27☐ Multi Touch Display &Pen:

Resolution >5000 lpi; Having >2000 pressure levels, widescreen 16:9 display; resolution of 2560 x 1440; Using Adobe RGB; 1.07 billion colors; Works with Photoshop☐ and Adobe☐ Illustrator CC; USB-3 & HDMI connectivity to PC & Mac; with features to Brush, Draw, Paint, Image editing, 3D Animation, scroll, zoom and rotate.

OR

4. (b) Interactive touch screen panel with required computer, pen and software.

Interactive touch screen panel with required computer, pen and software & appropriate adjustable Mount with total upto 6☐ Height.	
LCD Panel:	≥ 50 inch widescreen.

Max resolution:	1920 x 1080
Brightness:	300 cd/m^2 or more
Contrast ratio:	3,000:1 or better
Response time:	6 ms or better
Driver:	OS: Windows / Linux/ MAC
Touch pen or Finger Interactivity:	Yes
Video input:	Compatible with the computer
Video outputs:	Compatible with the computer & Vision Switcher

Note:

a. The interactive panel system should be provided with: a computer having at least one HDMI output port, two USB ports and a trolley stand.

b. PC should have a single processor Intel Core i7 4930K 3.4 GHz or higher and the VGA card should be GTX 780 or higher. Equivalent AMD VGA card may also be provided with MS Office suite latest version installed.

c. Any digital peripheral / glues / distribution amplifier required with the system should be quoted as per the offered workflow design.

5. Laptop Touch Screen ≥15□

- Processor: Intel□ Core□ i5 processor or better, 2.40 GHz or more.
- Operating system: Windows 10, 64bit.
- Display: 14.0" or 15.0□
- Memory: 8GB (4GB x2) DDR3 1600Mhz or more.
- Hard drive: 500GB 5400RPM for laptop, SATA hard drive.
- Open Office suite latest version.
- Optical drive.
- Wi-Fi, LAN, Bluetooth.
- HDMI true HD support Out Put.
- Built-in speakers for laptop.
- Ports: network connector RJ45, HDMI, USB 3.0, headphone jack, microphone jack, SD card reader.
- Battery capacity 4 hours or more continuous use.
- Ampli-speakers for the PCs.

6. Vision Mixer/Switcher

For connecting Cameras, Interactive Panel and Tablet: 4-CH HD Video Switcher with Inbuilt Frame Synchronizer on all inputs, Frame Storage capabilities, supporting 2-CH HD-SDI, 2-CH HDMI inputs, 2-CH HD-SDI & 1-CH HDMI outputs, 1 x Chroma-Keyer, 1x DSK.

7. Audio mixer:

Input channels: 8 Channels with minimum 6 Mic/Line selectable inputs.

I/O interface: XLR / Phono, (balanced/un-balanced).

Input sensitivity: Mic -60 db or better, Line 0 db Audio
frequency response: ≤ 20 Hz - ≥ 20 KHz ± 0.5 db
Total harmonic distortion & noise: ≤ 0.01 % -30dbBu input routed to Mix, Mic gain 30dB
S/N ratio: Better than 100 dB
EQ bands: 2 (HF, MF & LF)
Variable send (aux) buses: Minimum 2
Returns: Minimum 2

Other features:

- True, professional +48V phantom power (min 2 I/P) for condenser microphones.
- Linear / Slider fader.
- RCA / Phono playback inputs and record outputs.
- Peak LEDs on all input channels.
- Mute and PFL on input channels. Output metering.

8. Microphones:

UHF wireless Lavalier / collar diversity microphone with Compatible Receiver having minimum of 6 selectable channels as per Indian region

THD:	≤ 1 %
Signal/Noise ratio:	≥ 100 dB
Rf output:	≥ 25 mW
Battery life (operating time):	Min. 8 hours (2AA Batteries)
Polar pattern:	Supercardiod / Hypercardiod / Cardiod
Mic type:	Electret /Condenser / permanent Polarised
Frequency range:	≤ 40 Hz to ≥ 20 kHz ± 3db,
Receiver Output:	XLR (Balanced) Line output
Accessories:	Wind shield, Mic Clip & other standard accessories

9. Active speaker (2 way)

Type:	Active
Low/mid driver dimensions:	5" or more
Tweeter dimensions (mm):	20 mm to 40 mm
RMS: (Both LF + HF):	≥ 50 watts
Frequency response:	≤45 Hz - ≥ 20000 Hz
Max. SPL:	≥ 100 dB
Protection circuits:	Overload

Controls: Treble, volume, mains switch (on/off)

Line inputs:	Minimum 1
Line inputs connectors:	XLR & 6.3 mm Jack
Input Sensitivity:	Selectable -10 dB/+4 dB
Operating voltage:	230 V A C ± 10%, 50 Hz

10. Studio Cool Lights:

STUDIO LED Lights□for Day Lights:

a) LED ≥ 50 W with diffuser & Barn-doors.

1. Colour temperature: about 5600K & 3200K
2. Control: Manual.
3. Ceiling Mount.
4. On board system to control intensity from 0-100%
6. 4 leaf barn door, diffusers, C clamp, safety bond

b) LED Diffused Panel lights, ≥ 50 W □

1. Colour temperature: about 5600K
2. Control: Manual
3. Ceiling Mount
4. 4 leaf barn-door, diffusers, C clamp, safety bond.

11. UPS:

Approved Brands Company ISO 9001 with minimum 30 minutes backup. Sealed maintenance free VRLA Battery. If more wattage UPS is required, bidder should justify the same by submitting the Power Load requirement of the equipment. Some of the features required in UPS are:

- Single Phase IN and Single Phase OUT
- Wattage: ≥ 10 KVA
- Type:(On-line) IGBT
- Input power factor: ≥ 0.98
- Output power factor: 0.8 or better
- Input power supply: 160 V - 270 V 50HzAC.
- Output 230 V ±1%, 50 Hz AC.
- Isolated I/p o/p. Battery Bank with Frame/Rack

B) Post Production processes & Standards.

- Video recording format: Full HD 1920x1080 pixels.
- Videos aspect ratio: 16:9 (widescreen).
- Module Delivery: 1080i following MPEG-4 AVC Compression.
- Audio Channel 1 to have Mixed Audio Track.
- Font size: Heading: 24-30; Sub-heading: 22-26; Body: 20-24;
- Full screen Video Frame.
- All graphs and diagrams must have clear font.
- The expert/teacher should speak extempore as delivery made in case of classroom set-up and avoid reading from written material or a Teleprompter.
- Video frame to maintain 6-8% headroom;
- Video quality and Audio levels should be constantly monitored while recording.

Voice modulation be taken care of. Video clips or audio clips from eminent experts, outdoor shooting, lab based demo etc. can be used appropriately.

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विश्वविद्यालय अनुदान आयोग

विश्वविद्यालय अनुदान आयोग ('स्वयं' के माध्यम से ऑनलाइन ज्ञान–अर्जन पाठ्यक्रमों हेतु क्रेडिट ढ़ाँचा) विनियम, 2016

नई दिल्ली, 19 जुलाई, 2016

मि0 सं0 1–100/2016/मूक्स(ई–कॉटेंट) 1. प्रस्तावना.—

1.1 जबकि शिक्षा के प्रसार हेतु उच्चतर शिक्षा तक पहुंच को व्यापक बनाया जाना तथा प्राद्यौगिकी में हुई प्रगति का उपयोग कर तत्संबंधी लागत को कम करना है,

1.2 जबकि पारम्परिक एवं ऑनलाइन शिक्षा सहित, शिक्षा प्रदान करने के लिए वृहद् मुक्त ऑनलाइन पाठ्यक्रम (एमओओसी) एक व्यावहारिक मॉडल के रूप में उभरे हैं,

1.3 जबकि ऑनलाइन ज्ञान–अर्जन के भारतीय स्वरूप ''स्वयं'' (युवा एवं उच्चाकांशी बौद्धिकों के लिए सक्रिय ज्ञान–अर्जन की अध्ययन पद्धति) को ज्ञान–अर्जन के स्वदेशी प्लेटफॉर्म पर आरंभ किया जा रहा है।

1.4 जबकि ई–ज्ञान अर्जन की कहीं–भी, कभी–भी पद्धति तथा पारंपरिक और कक्षागत चॉक–एंड–टॉक अध्यापन पद्धति के बीच तालमेल बिठाने की आवश्यकता है ताकि एक अनुपम विषयवस्तु अंतरण प्रणाली को विकसित किया जा सके जो शिक्षार्थियों की आवश्यकताओं की पूर्ति कर सके तथा भौगोलिक सीमाओं से इतर ज्ञान का निर्बाध अंतरण सुनिश्चित कर सके।

1.5 जबकि एक ऐसी विनियामक प्रणाली स्थापित किए जाने की आवश्यकता है, जिससे ऑनलाइन ज्ञान–अर्जन तथा सामान्य कक्षागत ज्ञान–अर्जन के बीच निर्बाध संबध स्थापित किया जा सके।

अतः अब;

विश्वविद्यालय अनुदान आयोग, विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 (1956 का तीसरा) की धारा 26 की उप–धारा(1) के खण्ड (च) और (छ) के अन्तर्गत प्रदत्त शक्तियों का प्रयोग करते हुए निम्नवत विनियम बनाता है, नामतः

2. लघु शीर्ष, अनुप्रयोग एवं प्रवर्तनः

2.1 इन विनियमों को **विश्वविद्यालय अनुदान आयोग ('स्वयं' के माध्यम से ऑनलाइन ज्ञान–अर्जन पाठ्यक्रमों हेतु क्रेडिट ढाँचा) विनियम, 2016** कहा जाएगा।

2.2 यह विनियम किसी केन्द्रीय अधिनियम, प्रान्तीय अधिनियम, अथवा किसी राज्य/संघशासित प्रदेश अधिनियम के अन्तर्गत स्थापित और निगमित सभी विश्वविद्यालयों तथा ऐसे विश्वविद्यालयों से मान्यताप्राप्त सभी संस्थानों तथा विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 की धारा 3 के तहत ऐसे सभी समविश्वविद्यालय संस्थानों पर लागू होंगे।

2.3 यह विनियम ऐसे छात्रों के क्रेडिट अंतरण पर भी लागू होंगे जिन्होंने देश में किसी भी शैक्षिक संस्थान में एक नियमित/अंशकालिक छात्र के रूप नामांकन प्राप्त किया है।

2.4 यह विनियम शासकीय राजपत्र में प्रकाशन की तिथि से लागू होंगे।

3. परिभाषाएं

3.1 'शैक्षिक परिषद्' एक निकाय होता है जिसे 'स्वयं' के माध्यम से अनुमेय ऑनलाइन ज्ञान–अर्जन पाठ्यक्रमों के संबंध में निर्णय लेने सहित किसी संस्थान में सभी शैक्षिक मामलों के संबंध में भी निर्णय लेने हेतु शक्ति प्राप्त होती है।

3.2 'पाठ्यक्रम' का अभिप्राय एक पत्र से होगा जिसे विषय के भाग के रूप में कम से कम एक सेमेस्टर तक पढ़ाया जाएगा।

3.3 'चतुर्ष्पदीय पद्धति': चतुर्ष्पदीय पद्धति का अभिप्राय एक ई–ज्ञान अर्जन प्रणाली से है, जिसके निम्नवत घटक हों:

- प्रथम पद एक ई–अनुशिक्षण है: जिसमें एक सुव्यवस्थित रूप में दृश्य–श्रव्य विषयवस्तु, एनीमेशन फिल्में, स्मियुलेशन, वर्चुअल लैब अंतर्विष्ट हैं।
- द्वितीय पद एक ई–विषयवस्तु है: जिसमें जहां–कहीं भी आवश्यक हों, पीडीएफ, ई–पुस्तकें, दृष्टांत, वीडियो प्रदर्शन, दस्तावेज और इंटरेक्टिव स्मियुलेशन अंतर्विष्ट हैं।
- तृतीय पद एक वेब–संसाधन है: जिसमें विषय से संबंधित लिंक, इंटरनेट पर मुक्त वस्तुविषय, मामला अध्ययन, उपाख्यान संबंधी जानकारी, विषयों तथा लेखों का क्रमिक विकास अंतर्विष्ट हैं।
- चतुर्थ पद एक स्व–मूल्यांकन पद्धति है: जिसमें बहु विकल्प प्रश्न (एमसीक्यू), समस्या, प्रश्नोत्तरी, निर्दिष्ट कार्य एवं उनके हल, चर्चा हेतु मंच के विषय तथा बार–बार पूछे जाने वाले प्रश्न (एफएक्यू), सामान्य भ्रान्तियों के संबंध में स्पष्टीकरण अंतर्विष्ट हैं।

3.4 'मेजबान संस्थान' का अभिप्राय उस संस्थान से है जिससे पाठ्यक्रम की पेशकश करने वाला मुख्य अन्वेषक (पीआई)/विषय विशेषज्ञ (एसएमई) संबंद्ध है तथा जिसे विनियामक प्राधिकरण द्वारा विधिवत् रूप से मान्यता प्रदान की गई है/अनुमोदित किया गया है।

3.5 'संस्थान' का अभिप्राय देश में पंजीकृत तथा कार्य प्रचालन करने वाले किसी शिक्षा संस्थान से है।

3.6 'वृहद् मुक्त ऑनलाइन पाठ्यक्रम' (एमओओसी) ऐसे ऑनलाइन पाठ्यक्रम हैं जो यहां उल्लिखित चतुर्ष्पदीय शिक्षणशास्त्रीय पद्धति के अनुरूप विकसित किये गये हैं तथा भारत सरकार के 'स्वयं' प्लेटफॉर्म पर उपलब्ध कराये गए हैं।

3.7 'वृहद् मुक्त ऑनलाइन पाठ्यक्रम' (एमओओसी) संबंधी दिशानिर्देशों' का अभिप्राय ऑनलाइन–ज्ञानअर्जन के विषय पर मानव संसाधन विकास मंत्रालय द्वारा जारी किए गए दिनांक 11 मार्च, 2016 के दिशानिर्देशों तथा मानव संसाधन विकास मंत्रालय द्वारा जारी किये गये तत्संबंधी उत्तरवर्ती अनुबंधों से है।

3.8 'राष्ट्रीय वृहद् मुक्त ऑनलाइन पाठ्यक्रम समन्वयकर्ता' (एनएमसी) भारत सरकार द्वारा इस प्रयोजनार्थ विनिर्दिष्ट ऐसी एक राष्ट्रीय स्तरीय एजेन्सी है जिसका उद्देश्य ऑनलाइन पाठ्यक्रमों को तैयार करने संबंधी कार्य का समन्वय करना तथा ज्ञान अर्जन के एक विनिर्दिष्ट क्षेत्र में उनकी गुणवत्ता की निगरानी करना है।

3.9 'मूल संस्थान' का अभिप्राय उस संस्थान/विश्वविद्यालय/महाविद्यालय से है जहां पर छात्र एक नियमित/अंशकालिक छात्र के रूप में नामांकित है।

3.10 'प्रधान अन्वेषक' (पीआई): प्रधान अन्वेषक किसी प्रतिष्ठित शैक्षिक संस्थान से एक विषयवस्तु विशेषज्ञ (एसएमई) होगा जिसे एनएमसी द्वारा दिए गए किसी विशिष्ट क्षेत्र में वृहद् मुक्त ऑनलाइन पाठ्यक्रम' (एमओओसी) विकसित करने तथा पूर्ण करने का कार्य सौंपा गया हो।

3.11 'क्षेत्र' का अभिप्राय ज्ञान अर्जन के एक विशिष्ट स्तर जैसे कि माध्यमिक विद्यालय, अभियांत्रिकी/अभियांत्रिकी से इतर डिप्लोमा/उपाधि/स्नातकोत्तर स्तर से है।

3.12 'विषय' का अभिप्राय शिक्षा संस्थान में पढ़ाई जा रही एक ऐसी विधा से है (जैसे–गणित) जिसमें विशिष्ट पाठ्यक्रम मौजूद हैं तथा जिनमें परिणामतः प्रमाणपत्र/डिप्लोमा/उपाधि प्रदान की जाती है।

3.13 'स्वयं–मंच' मानव संसाधन विकास मंत्रालय, भारत सरकार द्वारा विकसित किया गया तथा चलाया जा रहा एक ऐसा सूचना प्रौद्योगिकी प्लेटफॉर्म है जिसका उद्देश्य वृहद् मुक्त ऑनलाइन पाठ्यक्रम (एमओओसी) पद्धति पर ऑनलाइन ज्ञान–अर्जन पाठ्यक्रमों की पेशकश करना है।

4. ऑनलाइन ज्ञान अर्जन पाठ्यक्रमः

4.1 मेजबान संस्थान के माध्यम से राष्ट्रीय वृहद् मुक्त ऑनलाइन पाठ्यक्रम समन्वयकर्ता द्वारा अंतिम रूप से तैयार की गई अनुसूची के अनुरूप चिह्नित पीआई द्वारा 'स्वयं' के प्लेटफॉर्म पर ऑनलाइन ज्ञान–अर्जन पाठ्यक्रम उपलब्ध कराए जाएंगे।

4.2 'स्वयं' प्रतिवर्ष 01 जून तथा 01नवम्बर को, संस्थानों के सभी कुल सचिवों को आगामी सेमेस्टर में पेशकश किए जा रहे पर ऑनलाइन ज्ञान–अर्जन पाठ्यक्रमों के संबंध में जानकारी मुहैया कराएगा।

4.3 सभी संस्थान 'स्वयं' द्वारा अधिसूचना जारी किए जाने की तिथि से चार सप्ताह के भीतर सक्षम प्राधिकारी के माध्यम से 'स्वयं' के प्लेटफॉर्म द्वारा पेशकश किए जा रहे ऑनलाइन पाठ्यक्रमों पर विचार करेगी तथा अपनी शिक्षा संबंधी अपेक्षाओं को ध्यान में रखते हुए उन पाठ्यक्रमों के संबंध में निर्णय लेगा जिन्हें वह क्रेडिट अंतरण की अनुमति प्रदान करेगा।

4.4 यह निर्णय लेते हुए, विद्या परिषद, *अन्य बातों के साथ–साथ* स्वयं' के ऑनलाइन पाठ्यक्रमों को स्वीकृति प्रदान करने पर विचार कर सकती है, यदिः

क) संस्थान में किसी पाठ्यक्रम को चलाने के लिए उपयुक्त शिक्षण कर्मचारिवृंदों की अनुपलब्धता हो अथवा
ख) छात्रों के इच्छित वैकल्पिक पत्र (पाठ्यक्रमों) की पेशकश करने के लिए सुविधाएं संस्थान में उपलब्ध नहीं हों परंतु वे 'स्वयं' के मंच पर उपलब्ध हों।
ग) 'स्वयं' के माध्यम द्वारा पेशकश किए गए पाठ्यक्रम, संस्थान की शिक्षण–ज्ञान अर्जन प्रक्रिया को लाभ पहुंचायेंगे।

4.5 संस्थान की कक्षा में प्रत्येक ऐसा छात्र जिसने किसी विशिष्ट पत्र (पाठ्यक्रम) का चुनाव किया हो उसे उस पाठ्यक्रम/पत्र हेतु वृहद् मुक्त ऑनलाइन पाठ्यक्रम (एमओओसी) के लिए पंजीकरण कराना अपेक्षित होगा।

4.6 'स्वयं' के माध्यम से पेशकश किए जा रहे ऑनलाइन ज्ञान–अर्जन पाठ्यक्रमों को स्वीकृति देते हुए यह सुनिश्चित किया जाएगा कि पाठ्यक्रमों को चालू रखने के लिए मूल संस्थान द्वारा अनिवार्य वास्तविक सुविधाएं यथा प्रयोगशालाएं, कम्प्यूटर सुविधाएं, पुस्तकालय आदि निशुल्क तथा पर्याप्त मात्रा में उपलब्ध कराई जाएंगी।

4.7 मूल संस्थान द्वारा पाठ्यक्रम की संपूर्ण अवधि के दौरान छात्र को मार्गदर्शन उपलब्ध कराने तथा प्रयोगशाला/क्रियात्मक सत्रों/परीक्षा को सुविधापूर्ण ढ़ग से आयोजित करवाने के लिए एक पाठ्यक्रम समन्वयकर्ता/सुविधा प्रदाता को नियुक्त किया जाए।

5. वृहद् मुक्त ऑनलाइन पाठ्यक्रमों का मूल्यांकन एवं प्रमाणीकरण

5.1 मेजबान संस्थान और प्रधान अन्वेषक (पीआई) उनके द्वारा आरंभ किए गए वृहद् मुक्त ऑनलाइन पाठ्यक्रम (एमओओसी) हेतु पंजीकृत छात्रों के मूल्यांकन के लिए उत्तरदायी होंगे।

5.2 मूल्यांकन पूर्व–निर्धारित मानदंडों तथा मानकों पर आधारित होंगे तथा पाठ्यक्रम की संपूर्ण अवधि के दौरान विनिर्दिष्ट साधनों जैसे चर्चा, मंच, प्रश्नोत्तरी, निर्दिष्ट कार्य, सत्रीय परीक्षाओं और अन्तिम परीक्षाओं के माध्यम से व्यापक मूल्यांकन पर आधारित होंगे।

5.3 जबकि परीक्षा हेतु ऑनलाइन पद्धति को प्राथमिकता दी जानी चाहिए, तथापि, प्रधान अन्वेषक (पीआई) अन्तिम परीक्षा को संचालित करने की पद्धति पर निर्णय लेने हेतु प्राधिकृत होगा। पाठ्यक्रम को पेशकश किए जाने के समय पाठ्यक्रम की विवरणिका में इस संबंध में घोषणा की जाएगी।

5.4 यदि अन्तिम परीक्षा लिखित में संचालित की जाती है तो इसे आयोजित करने हेतु इच्छुक किसी महाविद्यालय/विद्यालय के माध्यम से आयोजित करवाया जाना चाहिए। इस संबंध में अंतिम निर्णय प्रधान अन्वेषक (पीआई) तथा मेजबान संस्थान द्वारा लिया जाएगा।

5.5 परीक्षा संचालित करवाने तथा मूल्यांकन पूर्ण किए जाने के पश्चात मेजबान संस्थान के माध्यम से प्रधान अन्वेषक (पीआई) घोषित की गई मूल्यांकन योजना के अनुसार अंक/ग्रेड प्रदान करेगा।

5.6 अन्तिम परीक्षा के समापन की तिथि से चार सप्ताह के भीतर छात्र के साथ–साथ उनके मूल संस्थान को अन्तिम अंक/ग्रेड की जानकारी भेजी जाएगी।

5.7 मूल संस्थान 'स्वयं' पाठ्यक्रम के प्रधान अन्वेषक (पीआई) द्वारा मेजबान संस्थान के माध्यम से छात्र द्वारा प्राप्त किए गए अंक/ग्रेड को छात्र की अंक तालिका में शामिल करेगा जिसकी विश्वविद्यालय द्वारा अंतिम रूप से उपाधि/डिप्लोमा प्रदान करने के लिए गणना की जाती है, बशर्ते कि जिन कार्यक्रमों में प्रयोगशाला/प्रयोगात्मक घटक सम्मिलित हों, तो मूल संस्थान, प्रयोगात्मक/प्रयोगशाला घटक हेतु छात्रों का मूल्यांकन करेगा और तद्नुसार इनमें प्राप्त अंकों/ग्रेडों को समग्र अंको/ग्रेड में सम्मिलित करेगा।

5.8 वृहद् मुक्त ऑनलाइन पाठ्यक्रम (एमओओसी) के सफलतापूर्वक पूर्ण हो जाने के संबंध में प्रमाणपत्र पर प्रधान अन्वेषक द्वारा हस्ताक्षर किए जाएंगे तथा इन्हें मेजबान संस्थान द्वारा जारी किया जाएगा और मूल संस्थान को भेजा जाएगा।

6. एमओओसी की क्रेडिट मोबिलिटी

6.1 'स्वयं' प्लेटफॉर्म के माध्यम से छात्रों द्वारा ऑनलाइन ज्ञान अर्जन पाठ्यक्रमों द्वारा अर्जित किए गए क्रेडिट के लिए मूल संस्थान छात्रों को समकक्ष क्रेडिट प्रदान करेगा।

6.2 कोई भी विश्वविद्यालय वृहद् मुक्त ऑनलाइन पाठ्यक्रमों (एमओओसी) के माध्यम से अर्जित क्रेडिट की मोबिलिटी के लिए किसी भी छात्र को इंकार नहीं करेगा।

7. वृहद् मुक्त ऑनलाइन पाठ्यक्रमों (एमओओसी)के अबाधित समेकन हेतु विश्वविद्यालय के नियमों तथा विनियमों में किए जाने वाले अपेक्षित संशोधन

7.1 प्रत्येक संस्थान, इन विनियमों को जारी किए जाने की तिथि से चार सप्ताह के भीतर अपने सक्षम प्राधिकारी के माध्यम से अपने अध्यादेशों, नियमों, विनियमों आदि में किए जाने वाले अपेक्षित संशोधनों के बारे में निर्णय लेगा ताकि इन विनियमों के उपबंधों को उनमें सम्मिलित किया जा सके।

8 अनंतिम उपाय

8.1 विश्वविद्यालय अनुदान आयोग तीन वर्ष के इस अवस्थान्तरणीय काल के दौरान इन विनियमों के कार्यान्वयन के समक्ष आने वाले मुद्दों का समाधान करने के लिए एक स्थायी समिति का गठन करेगा।

प्रो जसपाल एस सन्धू, सचिव, यूजीसी

[विज्ञापन–III/4/असा./182 (113)]

UNIVERSITY GRANTS COMMISSION

UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016.

New Delhi, the 19th July, 2016

No. F.1-100/2016(MOOCs/e-content) 1. Preamble.—

1.1 Whereas Education has to widen the access to higher education and bring down its cost by using technological advances,

1.2 Whereas Massive Open Online Courses (MOOCs) have emerged as a viable model for imparting education, involving conventional and online education,

1.3 Whereas the Indian version of online learning is being launched on an indigenous platform of learning, named as SWAYAM (Study Web of Active Learning by Young and Aspiring Minds),

1.4 Whereas there is a need to create synergies between the salient features of anytime-anywhere format of e-Learning and the traditional classroom-based chalk and talk method to develop a unique content delivery mechanism, which is responsive to learners' needs and ensures seamless transfer of knowledge across geographical boundaries,

1.5 Whereas there is a need to put in place a regulatory mechanism that would allow seamless connect between the online learning and the regular class room learning,

Now therefore;

University Grants Commission in exercise of the powers conferred by clause (f) and (g) of sub-section (1) of Section 26 of the UGC Act 1956 (No. 3 of 1956), makes the following Regulations, namely;

2. Short title, Application and Commencement:

2.1 These Regulations shall be called the **UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016**.

2.2 These shall apply to all universities established or incorporated by or under a Central Act, a Provincial Act, or a State/Union Territory Act and all institutions recognized by or affiliated to such Universities and all institutions deemed to be universities under Section 3 of the UGC Act, 1956.

2.3 These shall further apply to the transfer of credits of such students who are enrolled as regular/part-time students in any educational institution in India.

2.4 These shall come into force from the date of their publication in the official Gazette.

3. Definitions:

3.1 'Academic Council' is the body empowered to take decisions regarding all academic matters in an institution including the decision regarding permitting online learning courses through SWAYAM.

3.2 'Course' shall mean a paper which is taught for at least one semester as a part of a subject

3.3 'Four quadrant approach': the four Quadrant approach means e-learning system that has the following components:

- Quadrant-I is e-Tutorial: that shall contain: Video and Audio Contentinan organised form, Animation, Simulations,Virtual Labs.
- Quadrant-II is e-Content: that shall contain: PDF/e-Books/illustration, video demonstrations, documents and Interactive simulations wherever required.
- Quadrant-III is Web Resources: that shall contain: Related Links, Open Content on Internet, Case Studies, An ecdotalin formation, Historical development of the subject, Articles.
- Quadrant-IV is Self-Assessment : that shall contain: MCQ, Problems, Quizzes, Assignments and solutions, Discussion forum topics and setting up the FAQ, Clarifications on general misconceptions.

3.4 'Host Institution' shall mean the institution duly recognised/approved by the regulating authority, to which the PI/SME offering the course belongs.

3.5 'Institution' shall mean any academic institution registered and functioning in India.

3.6 'MOOCs': Massive Open Online Courses (MOOCs) are such online courses which are developed as per the pedagogy stated herein; following the four quadrant approach and made available on the SWAYAM platform of Government of India.

3.7 'MOOCs Guidelines' shall mean guidelines on online learning issued by the MHRD vide its orders dated 11th March 2016 and subsequent addendums issued by the MHRD.

3.8 'National MOOCs Coordinator' (NMC) is a Nation level agency designated as such by the Government, for the purpose of coordinating the production of the online courses and for overseeing their quality in a designated sector of learning.

3.9 'Parent Institution' shall mean the institution/university/college where the student is enrolled as a regular/part-time student.

3.10 'Principal Investigator (PI)': The PI shall be a Subject Matter Expert (SME) belonging to a reputed educational institution, identified and entrusted with the task of developing and delivering MOOCs in a given area by the NMC.

3.11 'Sector' shall mean a particular level of learning such as high school, engineering/non-engineering diploma/degree/post-graduation.

3.12 'Subject' shall mean a discipline (eg Mathematics) taught in an educational institution consisting of specific courses, resulting in awarding of a certificate/diploma/degree.

3.13 'SWAYAM platform' is an IT platform developed and made functional by the Ministry of Human Resource Development of Government of India for the purpose of offering online learning courses on the MOOCs pattern.

4. Online learning courses:

4.1. The online learning courses shall be made available on the SWAYAM Platform by the PI identified by the National MOOCs Coordinator, through the Host Institution, as per the schedule finalised by him/her.

4.2. The SWAYAM shall notify to the Registrars of all the Institutions, on 1st June and 1st November every year, the list of the online learning Courses going to be offered in the forthcoming Semester.

4.3. All the Institutions shall, within 4 weeks from the date of notification by SWAYAM, consider through their Competent Authoritythe online learning courses being offered through the SWAYAM platform; and keeping in view their academic requirements,decide uponthe courses which it shall permit for credit transfer.

Provided that an Institution can only allow up to 20% of the total courses being offered in a particular program in a Semester through the online learning courses provided through SWAYAM platform.

4.4. While making this decision, the Academic Council may, *interalia*, consider allowing online courses of SWAYAM if:

a) There is non-availability of suitable teaching staff for running a course in the Institution or
b) The facilities for offering the elective papers (courses), sought for by the students are not on offer in the Institution, but are available on the SWAYAM platform.
c) The courses offered on SWAYAM would supplement the teaching-learning process in the Institution.

4.5 Every student,in the class of the institution,offering a particular paper (course) would be required to register for the MOOCs for that course/paper.

4.6 While allowing the online learning Courses offered by SWAYAM, it shall be ensured that the physical facilities like Laboratories, computer facilities, library etc, essential for pursuing the courses shall be made available free and in adequate measure by the parent institution.

4.7 The parent institution must designate a course coordinator/facilitator to guide the students throughout the course and to facilitate/conduct the Lab/Practical sessions/examinations.

5. Evaluation and Certification of MOOCs

5.1. The host institution and the PI shall be responsible for evaluating the students registered for the MOOCs course launched by him/her.

5.2. The evaluation should be based on predefined norms and parameters and shall be based on a comprehensive evaluation throughout the length and breadth of course based on specified instruments like discussions, forums,quizzes, assignments, sessional examinations and final examination.

5.3. Whereas an online examination would be the preferred mode, the PI shall be authorised to decide on the mode of conducting the final examination. This shall be announced in the overview of the Course at the time of offering the course.

5.4. In case, apen and paper final examination is to be conducted, the same shall be offered through any college/school volunteering to conduct the same. The decision in this respect will be of the PI and the host institution.

5.5. After conduct of the examination and completion of the evaluation, the PI through the host institution shall award marks/grade as per the evaluation scheme announced.

5.6. The final marks/grade shall be communicated to the students as well as the parent institution of the student, within 4 weeks from the date of completion of the final examination.

5.7. The parent Institution shall, incorporate the marks/grade obtained by the student, as communicated by the Host Institution through the PI of the SWAYAM course in the marks sheet of the student that counts for final award of the degree/diploma by the University with the proviso that the programs in which Lab/Practical Component is involved, the parent institution will evaluate the students for the practical/Lab component and accordingly incorporate these marks/grade in the overall marks/grade

5.8. A certificate regarding successful completion of the MOOCs course shall be signed by the PI and issued through the Host Institution and sent to the Parent Institution.

6. Credit Mobility of MOOCs

6.1. The parent Institution shall give the equivalent credit weightage to the students for the credits earned through online learning courses through SWAYAM platform in the credit plan of the program.

6.2. No university shall refuse any student for credit mobility for the courses earned through MOOCs.

7. Amendment required in University Rules and Regulations for Seamless Integration of MOOCs

7.1 Every Institution, shall within 4 weeks from the date of issue of these Regulations, shall decide through their Competent Authority, the amendments required in their Ordinances, Rules, Regulations etc to incorporate provisions of these Regulation.

8. Transitory Measures

8.1 The UGC shall notify a Standing committee to resolve any issues that may arise in the implementation of these regulations during the transition period of three years.

Prof. JASPAL S. SANDHU, Secy. UGC

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अखिल भारतीय तकनीकी शिक्षा परिषद्

अधिसूचना

नई दिल्ली, 17 अगस्त, 2016

अभातशिप (स्वयं के माध्यम से ऑनलाईन अधिगम पाठ्यक्रम के लिए क्रेडिट (ढांचा) (फ्रेमवर्क) विनियम, 2016

फा. सं. अभातशिप/पी और एपी/स्वयं/2016.—1. उद्देश्यिका :

1.1 यतः शिक्षा को उच्चतर शिक्षा की पहुँच को व्यापक बनाना है और प्रौद्योगिकीय प्रगति का प्रयोग करते हुए इसकी लागत को कम करना है।

1.2 यतः व्यापक मुक्त ऑनलाईन पाठ्यक्रम (एमओओसी) पारंपरिक और ऑनलाईन शिक्षा का प्रयोग करते हुए शिक्षा प्रदान करने के लिए व्यवहार्य मॉडल के रूप में उभरा है।

1.3 यतः अधिगम के एक स्वदेशी प्लेटफार्म पर **स्वयं** (युवा और महत्वांकाक्षी मेधावियों द्वारा सक्रिय अधिगम का अध्ययन वेब) नामक ऑनलाईन अधिगम के भारतीय संस्करण का शुभारंभ किया जा रहा है।

1.4 यतः एक विशिष्ट विषय–वस्तु वितरण तंत्र विकसित करने के लिए, जो शिक्षार्थियों की आवश्यकताओं के प्रति उत्तरदायी हैं और समस्त भौगोलिक सीमाओं में ज्ञान का निर्बाध अंतरण सुनिश्चित करता है, ई–शिक्षण के कभी भी–कहीं भी (प्रारूप) तथा पारंपरिक कक्षा आधारित चॉक एवं व्याख्यान पद्धति की मुख्य विशेषताओं के बीच अभिक्रियाएं सृजित करने की आवश्यकता है।

1.5 यतः एक ऐसा विनियामक तंत्र स्थापित करने की आवश्यकता है, जो ऑनलाईन शिक्षण और नियमित कक्षा अधिगम के बीच निर्बाध संपर्क प्रदर्शित करे।

अतः, अब :

अखिल भारतीय तकनीकी शिक्षा परिषद् अखिल भारतीय तकनीकी शिक्षा परिषद् अधिनियम, 1987 (1987 का 52) की धारा 10 (ञ) और (पांच) के साथ पठित धारा 23 की उपधारा (आई) के अंतर्गत प्रदत्त की गई शक्तियों का प्रयोग करते हुए निम्नलिखित नियम बनाती है, अर्थात् (Sub-Section (i) of Section 23 read with Section 10 (i) and (v))

2. संक्षिप्त नाम, लागू होना और प्रारंभ :

2.1 इन विनियमों को अखिल भारतीय तकनीकी शिक्षा परिषद् (अभातशिप) (स्वयं के माध्यम से ऑनलाईन अधिगम पाठ्यक्रम के लिए क्रेडिट (ढांचा) विनियम, 2016 कहा जाएगा।

2.2 ये किसी केन्द्रीय अधिनियम, किसी प्रांतीय अधिनियम अथवा किसी राज्य/संघ राज्य क्षेत्र के अधिनियम द्वारा स्थापित अथवा समाविष्ट सभी तकनीकी संस्थाओं और विश्वविद्यालयों तथा ऐसे विश्वविद्यालय अनुदान आयोग विश्वविद्यालयों द्वारा मान्यता प्रदान की गई अथवा उनसे संबद्ध सभी संस्थाओं तथा (यूजीसी) अधिनियम, 1956 की धारा 3 के अंतर्गत तकनीकी शिक्षा प्रदान करने वाली सभी संस्थाओं तथा मानित विश्वविद्यालयों पर लागू होंगे।

2.3 ये ऐसे छात्रों के क्रेडिटों के अंतरण पर भी लागू होंगे जो भारत में किसी शैक्षिक संस्था में नियमित/अंशकालिक छात्रों के रूप में नामांकित हैं।

ये इनके राजपत्र में प्रकाशन की तिथि से प्रवृत्त होंगे।

3. परिभाषाएं :

3.1 'शिक्षा परिषद्' ऐसा निकाय है जो किसी संस्था में समस्त शैक्षणिक मामलों के बारे में निर्णय लेने के लिए अधिकार प्राप्त है, जिसमें **स्वयं** के माध्यम से ऑनलाईन अधिगम पाठ्यक्रमों को अनुमति प्रदान करने के बारे में निर्णय भी शामिल हैं।

3.2 'पाठ्यक्रम' से अभिप्रेत है ऐसा पत्र पेपर जो किसी विषय के भाग के रूप में कम–से–कम एक छमाही (सेमेस्टर) के लिए पढ़ाया जाता है।

3.3 'चार चरणीय दृष्टिकोण' : चार चरणीय दृष्टिकोण से अभिप्रेत है ऐसी ई–शिक्षण प्रणाली जिसके निम्नलिखित अवयव हैं :

- **चरण–I** ई–शिक्षण हैः जिसमें एक संगठित स्वरूप में वीडियो और ऑडियो विषय–वस्तु, एनीमेशन, अनुकरण, वास्तविक प्रयोगशालाएं शामिल हैं।
- **चरण–II** ई–विषय–वस्तु है : जिसमें जहाँ कहीं आवश्यक हों, पीडीएफ/ई–पुस्तकें/इलस्ट्रेशन, वीडियो प्रदर्शन, दस्तावेज और सहक्रियात्मक अनुकरण शामिल हैं।
- **चरण–III** वेब संसाधन है : जिसमें संबंधित लिंक, इंटरनेट पर मुक्त विषय–वस्तु, मामला अध्ययन, ज्ञानवर्धक जानकारी, विषय का ऐतिहासिक विकास, लेख शामिल हैं।
- **चरण–IV** स्व–मूल्यांकन है : जिसमें बहु–विकल्प प्रश्न, प्रश्नोत्तरियां, दत्त–कार्य और उनके हल, विषयों पर चर्चा तथा अक्सर पूछे जाने वाले प्रश्न निर्धारित करना, सामान्य भ्रांतियों पर स्पष्टीकरण शामिल हैं।

3.4 'मेजबान संस्था' का अर्थ है विनियमन प्राधिकारी द्वारा समयक रूप से मान्यताप्राप्त/अनुमोदित संस्था जिससे पाठ्यक्रम चलाने करने वाला पीआई/एसएमई संबंधित है।

3.5 'संस्था' से अभिप्रेत है भारत में (रजिस्ट्रीकृत) पंजीकृत तथा कार्य कर रही कोई शैक्षक संस्था।

3.6 'एमओओसी' : व्यापक मुक्त ऑनलाईन पाठ्यक्रम (एमओओसी) ऐसे ऑनलाईन पाठ्यक्रम हैं जिन्हें चार चरणीय दृष्टिकोण का अनुपालन करते हुए उनमें वर्णित किए गए शिक्षा शास्त्र के अनुसार विकसित किया गया है ; तथा भारत सरकार के स्वयं प्लेटफार्म पर उपलब्ध कराया गया है।

3.7 'एमओओसी दिशा निर्देश' : से अभिप्रेत है मानव संसाधन किास मंत्रालय द्वारा ऑनलाईन षिक्षण पर उसके दिनांक 11 मार्च, 2016 के आदेश द्वारा जारी किए गए दिशा–निर्देश तथा मानव संसाधन विकास मंत्रालय द्वारा जारी पश्चात्वर्ती युक्तिाएं।

3.8 'राष्ट्रीय एमओओसी समन्वयक' : (एनएमसी) सरकार द्वारा ऑनलाईन पाठ्यक्रमों के निर्माण का समन्वयक करने तथा शिक्षण के किसी अभिहित क्षेत्र में उनकी गुणवत्ता का अनुश्रवण करने के प्रयोजन के लिए सरकार द्वारा इस प्रकार अभिहित की गई राष्ट्रीय स्तर की एजेंसी।

3.9 'मूल संस्था' : से अभिप्रेत है वह संस्था/विश्वविद्यालय/महाविद्यालय जहाँ छात्र एक नियमित/अंशकालिक छात्र क में नामांकित हुआ है।

3.10 'प्रधान अन्वेषक (पीआई)' : पीआई विषय—वस्तु विशेषज्ञ (एसएमई) होगा जो किसी प्रतिष्ठित शैक्षणिक संस्था से र होगा, जिसकी एनएमसी द्वारा इस रूप में पहचान की गई है तथा किसी निर्दिष्ट क्षेत्र में उसे एमओओसी को वि और वितरित करने का कार्य सौंपा गया है।

3.11 'सेक्टर' : से अभिप्रेत है शिक्षण का कोई विशे स्तर जैसे उच्च विद्यालय इंजीनियरी/गैर—इंजी डिप्लोमा/डिग्री/स्नातकोत्तर शिक्षा।

3.12 'विषय' : से अभिप्रेत है किसी शैक्षणिक संस्था में पढ़ाए जाने वाले विषयक्षेत्र/शाखा (अर्थात् सिविल इंजी वास्तुकला, भेषजी आदि) जिसमें विनिर्दिष्ट पाठ्यक्रम अंतर्विष्ट है जिनके फलस्वरूप सर्टिफिकेट/डिप्लोमा/डिग्री होनी है।

3.13 **'स्वयं** मंच (प्लेटफार्म') : ऐसा आईटी मंच (प्लेटफार्म) है जिसे मानव संसाधन विकास मंत्रालय, भारत सरकार एमओओसी पैटर्न पर ऑनलाईन शिक्षण पाठ्यक्रम प्रदान करने के प्रयोजनार्थ विकसित किया गया है और कार बनाया गया है।

4. ऑनलाईन शिक्षण पाठ्यक्रम :

4.1 ऑनलाईन शिक्षण पाठ्यक्रम स्वयं प्लेटफार्म पर राष्ट्रीय एमओओसी समन्वयक द्वारा उनके द्वारा अंतिम रूप प्रदान गए कार्यक्रम के अनुसार उनकी संस्था के माध्यम से पहचान किए गए पीआई द्वारा उपलब्ध कराए जाएंगे।

4.2 स्वयं सभी संस्थाओं के रजिस्ट्रारों को प्रत्येक वर्ष 1 जून और 1 नवम्बर को आगामी छमाही (सेमेस्टर) में उपलब्ध जाने वाले ऑनलाईन शिक्षण पाठ्यक्रमों की सूची अधिसूचित करेगा।

4.3 सभी संस्थाएं, स्वयं द्वारा अधिसूचना की तारीख से 4 सप्ताह के भीतर, अपने सक्षम प्राधिकारी के माध्यम से प्लेटफार्म के माध्यम से उपलब्ध कराए जा रहे ऑनलाईन शिक्षण पाठ्यक्रमों पर विचार करेंगी तथा उनकी शै आवश्यकताओं को ध्यान में रखते हुए, उन पाठ्यक्रमों पर निर्णय लेंगी जिनकी अनुमति वे क्रेडिट अंतरण के लिए करना चाहती हैं :

परंतु यह कि कोई संस्था स्वयं प्लेटफार्म के माध्यम से उपलब्ध कराए जाने वाले ऑनलाईन अधिगम पाठ्यक्रमे छमाही (सेमेस्टर) में किसी विशे कार्यक्रम में प्रदान किए जा रहे कुल पाठ्यक्रमों के 20 प्रतिशत तक की अनुम सकेगी।

4.4 निर्णय लेते समय, शैक्षणिक परिषद्, अन्य बातों के साथ—साथ स्वयं के ऑनलाईन पाठ्यक्रमों को अनुमति देने पर कर सकेगी, यदि :

क) संस्था में पाठ्यक्रम को चलाने के लिए उपयुक्त शिक्षण स्टॉफ की उपलब्धता नहीं है, अथवा

ख) छात्रों द्वारा इच्छित पत्रों (पाठ्यक्रमों) को उपलब्ध कराने के लिए मांगी गई सुविधाएं संस्था में उपलब्ध न परंतु स्वयं प्लेटफार्म पर उपलब्ध हैं।

ग) स्वयं में उपलब्ध कराए गए पाठ्यक्रम संस्था में शिक्षण—अधिगम प्रक्रिया को अनुपूरित करते हैं।

4.5 किसी विशेष पत्र (पाठ्यक्रम) को उपलब्ध कराने वाली संस्था की पाठशाला में प्रत्येक छात्र से अपेक्षित होगा कि व पाठ्यक्रम/पत्र के लिए एमओओसी हेतु रजिस्टर करें।

4.6 स्वयं द्वारा उपलब्ध कराए जाने वाले ऑनलाईन शिक्षण पाठ्यक्रमों की अनुमति प्रदान करते हुए, यह सुनिश्चित जाए कि भौतिक सुविधाएं जैसे प्रयोगशालाएं, कम्प्यूटर सुविधाएं, पुस्तकालय आदि, जो पाठ्यक्रमों को चलाने के अनिवार्य हैं, मूल संस्थाओं द्वारा निःशुल्क और पर्याप्त मात्रा में उपलब्ध कराई जा रही हैं।

4.7 मूल संस्था को पाठ्यक्रम की समूची अवधि के दौरान छात्रों का मार्गदर्शन करने तथा अनुमोदित संस्था प्रयोगशाला/प्रयोग सत्रों/परीक्षाओं को सुकर बनाने/संचालित करने के लिए एक पाठ्यक्रम समन्वयक/सहयो अवश्य अभिहित करना होगा।

5. एमओओसी का मूल्यांकन और प्रमाणन

5.2 मूल्यांकन पूर्व–परिभाशित मानदण्डों और मापदण्डों पर आधारित होगा तथा विनिर्दिष्ट क्रियाकलापों जैसे चर्चाओं, प्ररूपों, प्रश्नोत्तरियों, दत्त–कार्यों, सत्रीय परीक्षाओं और अंतिम परीक्षा के आधार पर पाठ्यक्रम की समूची अवधि के दौरान किए जाने वाले पूर्वनिर्धारित मूल्यांकन पर आधारित होगा।

5.3 जबकि ऑनलाईन परीक्षा को प्राथमिकता वाला माध्यम माना जाएगा, पीआई अंतिम परीक्षा संचालित करने के तरीके पर निर्णय लेने के लिए प्राधिकृत होगा। इसकी घोषणा पाठ्यक्रम प्रदान किए जाने के समय पाठ्यक्रम के पूर्वावलोकन में की जाएगी।

5.4 यदि पैन–पेपर द्वारा अंतिम परीक्षा संचालित की जाती है, इसे किसी ऐसे महाविद्यालय/विद्यालय के माध्यम से उपलब्ध कराया जाएगा, जो इसे संचालित करने के लिए स्वयं इच्छा व्यक्त करता है। इस संबंध में निर्णय पीआई तथा मेजबान संस्था द्वारा लिया जाएगा।

5.5 परीक्षा के संचालन तथा मूल्यांकन के संकलन के उपरांत, पीआई मेजबान संस्था के माध्यम से घोषित मूल्यांकन योजना (स्कीम) के अनुसार (अंक) ग्रेड प्रदान करेगा।

5.6 छात्रों तथा छात्र की मूल संस्था को अंतिम अंक/ग्रेड अंतिम परीक्षा की समाप्ति की तारीख से 4 सप्ताह के भीतर सूचित किए जाएंगे।

5.7 मूल संस्था छात्र द्वारा प्राप्त किए गए अंकों/ग्रेड को, जिन्हें, मेजबान संस्था द्वारा स्वयं पाठ्यक्रम के पीआई के माध्यम से सूचित किया गया है, छात्र की अंक तालिका में समाविष्ट करेगा जिसकी गणना विश्वविद्यालय द्वारा डिग्री/डिप्लोमा के अंतिम रूप से प्रदान करने के लिए की जाएगी, जिसमें यह परंतुक है कि उस कार्यक्रम में, जिसमें प्रयोगशाला/प्रयोग का अवयव शामिल है, मूल संस्था प्रयोग/प्रयोगशाला अवयव के लिए छात्र का मूल्यांकन करेगी तथा तद्नुसार इन अंकों/ग्रेड को समग्र अंकों/ग्रेड में समाविष्ट करेगी।

5.8 एमओओसी पाठ्यक्रम की सफल समाप्ति के बारे में प्रमाण–पत्र पीआई द्वारा हस्ताक्षरित किया जाएगा तथा मेजबान संस्था के माध्यम से जारी किया जाएगा और मूल संस्था को भेजा जाएगा।

6. एमओओसी की क्रेडिट संचलनता

6.1 मूल संस्था स्वयं प्लेटफार्म के माध्यम से कार्यक्रम की क्रेडिट योजना में ऑनलाईन शिक्षण पाठ्यक्रमों के माध्यम से अर्जित किए गए क्रेडिटों के लिए समकक्ष क्रेडिट वेटेज प्रदान करेगी।

6.2 कोई भी संस्था/विश्वविद्यालय एमओओसी के माध्यम से अर्जित किए गए पाठ्यक्रमों के लिए क्रेडिट संचलनता के लिए किसी छात्र को इंकार नहीं करेगा।

7. एमओओसी के निर्बाध एकीकरण के लिए विश्वविद्यालय नियमों और विनियमों में अपेक्षित संशोधन

7.1 तकनीकी शिक्षा प्रदान करने वाली प्रत्येक संस्था/विश्वविद्यालय इन विनियमों के जारी किए जाने की तारीख से 4 सप्ताह के भीतर अपने सक्षम प्राधिकारी के माध्यम से उनके अध्यादेशों, नियमों, विनियमों आदि में इन विनियमों के उपबंध समाविष्ट करने के लिए अपेक्षित संशोधन के विषय में निर्णय लेगी।

8. संक्रमणकारक उपाय

8.1 अभातशिप तीन वर्ष की संक्रमण अवधि के दौरान इन विनियमों के क्रियान्वयन में उत्पन्न होने वाले किन्हीं मुद्दों का समाधान करने के लिए स्थाई समिति अधिसूचित कर सकेगा।

प्रो. आलोक प्रकाश मित्तल, सदस्य सचिव

[विज्ञापन -III/4/असा./217 (162)]

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

NOTIFICATION

New Delhi, the 17th August, 2016

AICTE (Credit Framework for online learning course through SWAYAM) Regulations, 2016

F. No. AICTE/P&AP/SWAYAM/2016.—1. Preamble:

1.1 Whereas Education has to widen the access to higher education and bring down its cost by using technological advances.

1.2 Whereas Massive Open Online Course (MOOCs) have emerged as a viable model for imparting education, involving conventional and online education.

1.3 Whereas the Indian version of online learning is being launched on an indigenous platform of learning named as **SWAYAM** (Study Web of Active learning by Young and Aspiring Minds),

1.4 Whereas there is a need to create synergies between the salient features of any time any where format of e-Learning and traditional classroom based chalk and talk method to develop a unique content delivery mechanism which is responsive to learners' needs and ensures seamless transfer of knowledge across geographical boundaries.

1.5 Whereas there is a need to put in place a regulatory mechanism that would show seamless connect between the online learning and the regular class room learning.

Now, therefore:

All India Council for Technical Education in exercise of the powers conferred under sub-Section (i) of Section 23 read with Section 10 (i) and (v) of the All India Council for Technical Education Act, 1987 (52 of 1987), makes the following Regulations, namely:

2. Short title Application and Commencement:

2.1 These Regulations shall be called the AICTE (Credit Frame work for online learning courses through SWAYAM) Regulation 2016.

2.2 These shall apply to all Technical Institutions and Universities established or incorporated by or under a Central Act, a Provincial Act, or a State/Union Territory Act and all institutions recognized by or affiliated to such Universities and all intuitions deemed to be universities under Section 3 of the UGC Act 1956, imparting technical education.

2.3 These shall further apply to the transfer of credits of such students who are enrolled as regular/part time students in any educational institution in India.

These shall come into force from the date of their publication in the official Gazette.

3. Definitions:

3.1 'Academic Council' is the body empowered to take decisions regarding all academic matters in an institution including the decision regarding permitting online learning courses through SWAYAM.

3.2 'Course' shall mean a paper which is taught for at least one semester as a part of a subject.

3.3 Four quadrant approach: the four Quadrant approach means e-learning system that has the following components:

- **Quadrant-I** is e-Tutorial: that shall contain: Video and Audio Content in an organized form, Animation, Simulations, Virtual Labs.
- **Quadrant-II** is e-Content: that shall contain: PDF/e-Books/ illustration, video demonstrations, documents and Interactive simulations wherever required.
- **Quadrant-III** is Web Resources: that shall contain: Related Links, Open Content on internet, Case Studies, Anecdotal information, Historical development of the subject, Articles.
- **Quadrant-IV** is Self-Assessment: that shall contain: MCQ, Problems Quizzes, Assignments and solutions, Discussion forum topics and setting up the FAQ, Clarifications on general misconceptions.

3.4 'Host Institution' shall mean the institution duly recognized /approved by the regulating authority to which the PI/SME offering the course belongs.

3.5 'Institution' shall mean any academic institution registered and functioning in India.

3.6 'MOOCs': Massive Open Online Courses (MOOCs) are such online courses which are developed as per the pedagogy stated herein; following the four quadrant approach and made available on the SWAYAM platform of Government of India.

3.7 'MOOCs Guidelines' shall mean guidelines on online learning issued by the MHRD vide its orders dated 11th March, 2016 and subsequent addendums issued by the MHRD.

3.8 'National MOOCs Coordinator' (NMC) is a Nation level agency designated as such by the Government, for the purpose of coordinating the production of the online courses and for overseeing their quality in a designated sector of learning.

3.9 'Parent Institution' shall mean the institution/university/college where the student is enrolled as a regular /part-time student.

3.10 'Principal Investigator (PI)': The PI shall be a Subject Matter Expert (SME) belonging to a reputed educational institution, identified and entrusted with the task of developing and delivering MOOCs in a given area by the NMC.

3.11 'Sector' shall mean a particular level of learning such as high school engineering/non-engineering diploma/degree/post-graduation.

3.12 'Subject' shall mean a discipline/ branch (e.g. Civil Engineering, Architecture, Pharmacy etc.) taught in an educational institution consisting of specific courses, resulting in awarding of a certificate/diploma/degree.

3.13 'SWAYAM platform' is an IT platform developed and made functional by the Ministry of Human Resource Development of Government of India for the purpose of offering online learning courses on the MOOCs pattern.

4. Online learning courses:

4.1 The online learning courses shall be made available on the SWAYAM platform by the PI identified by the National MOOCs Coordinator through their Institution, as per the schedule finalized by him/her.

4.2 The SWAYAM shall notify to the Registrars of all the Institutions, on 1st June, 1st November every year, the list of the online learning courses going to be offered in the forthcoming Semester.

4.3 All the Institutions shall, within 4 weeks from the date of notification by SWAYAM, consider through their Competent Authority the online learning courses being offered through the SWAYAM platform; and keeping in view their academic requirements, decide upon the courses which it shall permit for credit transfer.

Provided that an Institution can only allow up to 20% of the total courses being offered in a particular program in a Semester through the online learning courses provided through SWAYAM platform.

4.4 While making this decision, the Academic Council may, interalia, consider allowing online courses of SWAYAM if:

a) There is non-availability of suitable teaching staff for running a course in the Institution or

b) The facilities for offering the elective papers (courses), sought for by the students are not on offer in the Institution, but are available on the SWAYAM platform.

c) The courses offered on SWAYAM would supplement the teaching-learning process in the Institution.

4.5 Every student, in the class of the institution, offering a particular paper (course) would be required to register for the MOOCs for that course/paper.

4.6 While allowing the online learning Courses offered by SWAYAM, it shall be ensured that the physical facilities like Laboratories, computer facilities, library etc. essential for pursuing the courses shall be made available free and in adequate measure by the parent institution.

4.7 The parent institution must designate a course coordinator/facilitator to guide the students throughout the course and to facilitate/conduct the Lab/Practical sessions/examinations in Approved Institutions.

5. Evaluation and Certification of MOOCs

5.1 The host institution and the PI shall be responsible for evaluating the students registered for the MOOCs course launched by him/her.

5.2 The evaluation should be based on predefined norms and parameter and shall be based on a comprehensive evaluation throughout the length and breadth of course based on specified instruments like discussions, forms, quizzes, assignments, sessional examinations and final examination.

5.3 Whereas an online examination would be the preferred mode, the PI shall be authorized to decide on the mode of conducting the final examination. This shall be announced in the overview of the Course at the time of offering the course.

5.4 In case, a pen and paper final examination is to be conducted, the same shall be offered through any college/school volunteering to conduct the same. The decision in this respect will be of the PI and the host institution.

5.5 After conduct of the examination and completion of the evaluation, the PI through the host institution shall award marks/grade as per the evaluation scheme announced.

5.6 The final marks/grade shall be communicated to the students as well the parent institution of the student, within 4 weeks from the date of completion of the final examination.

5.7 The parent institution shall, incorporate the marks/grade obtained by the student, as communicated by the Host Institution through the PI of the SWAYAM course in the marks sheet of the student that counts for final award of the degree/diploma by the University with the proviso that the programs in which Lab/Practical Component is involved, the parent institution will evaluate the students for the practical/Lab component and accordingly incorporate these marks/grade in the overall marks/grade.

5.8 A certificate regarding successful completion of the MOOCs course shall be signed by the PI and issued through the Host Institution and sent to the Parent Institution.

6. Credit Mobility of MOOCs

6.1 The parent institution shall give the equivalent credit weightage to the students for the credits earned through online learning courses through SWAYAM platform in the credit plan of the program.

6.2 No Institutions/University shall refuse any student for credit mobility for the courses earned through MOOCs.

7. Amendment required in University Rules and Regulations for Seamless Integration of MOOCs

7.1 Every Institution/University imparting Technical Education shall within 4 weeks from the date of issue of these Regulations, shall decide through their Competent Authority, the amendments required in their Ordinances, Rules, Regulations etc to incorporate provision of these Regulation.

8. Transitory Measures

8.1 The AICTE shall notify a Standing committee to resolve any issues that may arise in the implementation of these regulations during the transition period of three years.

Prof. ALOK PRAKASH MITTAL, Member Secy.

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