



**UNIVERSITY OF CALICUT**

**Abstract**

PG Diploma in Educational Technology- SDE- Regulations, Scheme, and Syllabus-implemented-w.e.f 2014 admissions- Erratum issued.

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**G & A - IV - J**

U.O.No. 4100/2015/Admn

Dated, Calicut University.P.O, 22.04.2015

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*Read:-U.O.No.5192/2014/Admn Dated 29.05.2014 -- PG Diploma in Educational Technology*

**ORDER**

The following Erratum is issued to the University Order read above.

**ERRATUM**

Clause 1 in the Regulations and Syllabus is corrected to read as follows:

**1. ELIGIBILITY FOR ADMISSION TO THE COURSE**

Candidate for admission to the first year of the PG Diploma course shall be required to have completed the UG Degree (any discipline) of this University or any other University recognised by University of Calicut.

The U.O. read above stands modified to this extent.

Usha K  
Deputy Registrar

To

School of Distance Education/ all the Institutions/Dept.s/Centers under University of Calicut.

Forwarded / By Order

Section Officer



**UNIVERSITY OF CALICUT**

**Abstract**

PG Diploma in Educational Technology- SDE- Regulations, Scheme, and Syllabus-approved implemented-w.e.f 2014 admissions-Orders issued.

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**G & A - IV - J**

U.O.No. 5192/2014/Admn

Dated, Calicut University.P.O, 29.05.2014

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*Read:-*1.Item no. 2 (1) of the minutes of the meeting of the Board of Studies in Education (PG) held on 06.09.2013.

2.Item no. 1 of the minutes of the meeting of the Faculty of Education held on 19.02.2014.

3.Item no. II (J) (page 22) of the minutes of the Academic Council held on 20.03.2014.

4.Orders in the file of even no..

**ORDER**

The Board of Studies in Education (PG) resolved to approve the Regulations, Scheme, and Syllabus of PG Diploma in Educational Technology under SDE vide paper read as (1) above.

The Faculty of Education has resolved to approve the resolutions of the Board of Studies in Education PG , vide paper read as (2).

The Academic Council has also approved the minutes of the Faculty of Education , vide paper read as (3).

Sanction has, therefore, been accorded to implement the Regulations, Scheme, and Syllabus of PG Diploma in Educational Technology under SDE, w.e.f 2014 admissions.

Orders are issued accordingly.

(The syllabus is available in the website of the University: [universityofcalicut.info](http://universityofcalicut.info))

Muhammed S  
Deputy Registrar

To

To all the Institutions/Dept.s/Centers under University of Calicut.

Forwarded / By Order

Section Officer

# P.G DIPLOMA IN EDUCATIONAL TECHNOLOGY

## REGULATIONS AND SYLLABUS

### 1. ELIGIBILITY FOR ADMISSION TO THE COURSE

Candidate for admission to the first year of the PG Diploma course shall be required to have completed the UG Degree (any discipline) of this University or any other University recognized by Bharathiar University.

### 2. COURSE OF STUDY

The course of study for the PG Diploma in Educational Technology shall consist of the following:

- 8 papers (7 + 1) including Project Work.
- Examination shall be conducted at the end of year

### 3. SCHEME OF EXAMINATIONS

Paper	Name of the Paper	University Examinations	
		Duration in Hrs	Max. Marks
Paper 1	<u>Theory</u> Educational Technology	3	100
Paper 2	Psychology of Learning	3	100
Paper 3	Instructional Technology	3	100
Paper 4	Systems Approach to Instructional Media	3	100
Paper 5	E-learning Management System	3	100
Paper 6	Educational Video Production	3	100
Paper 7	Computer Based Instruction	3	100
Paper 8	Project Work and Viva-Voce	-	100

#### 4. SYLLABUS

The syllabus for various subjects shall be clearly demarcated into five viable units in each paper / subject.

#### 5. DURATION OF THE COURSE

The course shall extend over a period of one year. There shall not be less than prescribed instructional days for one year. Examinations shall be conducted at the end of year for the respective subjects.

#### 6. MEDIUM OF INSTRUCTION AND EXAMINATIONS

The medium of instruction and examination for all the papers shall be in English.

#### 7. PASSING REQUIREMENTS

(i) A candidate shall be declared to have passed the examination in a subject if he/she secured not less than 50% in the University examinations.

(ii) A candidate who successfully completes the course and passes the examinations prescribed in all the subjects of study shall be declared to have been qualified for the PG Diploma courses.

(iii) If a candidate does not complete the course successfully within a period of 2 years from the date of his/her joining he/she will not be eligible to receive the PG Diploma.

#### 8. CLASSIFICATION OF SUCCESSFUL CANDIDATES

(i) All the candidates securing not less than 60% of the aggregate marks shall be declared to have passed in FIRST CLASS provided they have passed the examination in every subject within one year of joining the course.

(ii) Other successful candidates shall be declared to have passed the examinations in SECOND CLASS.

#### 9. CONFERMENT OF THE DIPLOMA

No candidate shall be eligible for conferment of the Diploma unless he / she has undergone the prescribed course of study for a period of not less than one year in an institution approved by / affiliated to the University or has been exempted there from in the manner prescribed and has passed the examinations as have been prescribed therefore.

## PAPER1: EDUCATIONAL TECHNOLOGY

### Objectives

1. To enable the students understand the meaning, scope and concept of Educational Technology.
2. To enable the students compare the software approach with the hardware approach to educational technology
3. To enable the students develop necessary skills in the use of selected multimedia applications in the teaching-learning process.

### Unit – I: Concept & Principles of Educational Technology

- Educational Technology: definition, meaning, scope and relevance to modern education.
- Technology of education & technology in education
- Foundations of educational technology: Psychology, Sociology, communication and management.
- Systems approach as applied to educational technology

### Unit – II: Communication & Educational Technology

- Communication: definition, meaning and importance
- Communication process
- Theories and models of communication: Shanon's model, Westley and Machean model, Leagan's model and Berlo's model.
- Mass communication: meaning and media.

### Unit – III: Audio-Visual Aids in Education

- Meaning, significance and advantages of AV Aids.
- Projected Aids: Films, Filmstrips, OHP & slides.
- Non-projected Aids: Graphic, display, 3-D, Audio aids viz., Radio, TV, CCTV and Activity aids.
- Criteria for selection of appropriate AV aids.

### Unit – IV: APPLICATIONS OF EDUCATIONAL TECHNOLOGY

- Distance Education: A conceptual framework
- Open Universities, Schools and virtual universities
- Education through print, radio, TV, multimedia and Internet.
- Experiments and projects in Educational Television
- Development of self-instructional materials in distance education.

### Unit – V: CLASSROOM TEACHING MODELS

- Classroom climate: meaning, significance, importance and measurement
- Models of teaching: analysis of different teaching models with References to their format, Principles: Glacer model, classroom meeting model, concept attainment model and Inquiry model.
- Interaction analysis: meaning, significance, tools and methods of interaction analysis.
- Microteaching: meaning, significance and practice and descriptive analysis of the components of different teaching skills.

## References

1. Bruner, J.S. (1963) *The Process of Education*, New York: Vintage Books.
2. Dececo, John, P (Ed.) (1964) *Educational Technology*. New York, Holt Rinebert Winston.
3. Skinner, B.T. (1968) *The Technology of Teaching*. New York: Applenton Century Crofts.
4. Kulkarni, S.S. (1986) *Introduction to Educational Technology*, New Delhi: Oxford & IBH.
5. Kumar, K.L. (1997) *Educational Technology*. New Delhi: New Age International (P) Ltd.
6. Vedanayagam, E.G. (1989) *Teaching Technology for College Teachers*. New Delhi: Sterling Publishers (P) Ltd.
7. Aggarwal, J.C. (1995) *Essential of Educational Technology: Teaching Learning Innovations in Education*. Delhi: Vikas Publishing House (P) Ltd.

## PAPER2: PSYCHOLOGY OF LEARNING

### Objectives

1. To enable the students to understand the meaning, principles and methods of Educational Psychology.
2. To make the students to understand the process of learning and the factors / conditions which facilitate the learning process.
3. To design learning situations which enable the learners to use various styles and strategies of learning.

### Unit – I: Educational Psychology

- Psychology – Meaning, Branches, Scope and Methods.
- Cognitive Development – Piaget's learning and stages of cognitive development.
- Pedagogy – Concept, tools, skills and strategies.

### Unit – II Learning & Factors Affecting Learning

- Learning – Concept and Principles
- Approaches to learning – behavioral, cognitive, humanistic and information processing approach.
- Factors affecting learning – Intrinsic and Extrinsic motivation, memory and forgetting, aspiration and achievement motivation, attention and perception, individual difference – intelligence, creativity, aptitude and personality.

### Unit – III Behavioral Approaches to Learning

- Principles and models of behavioral learning
- Classical and operant conditioning and social learning
- Using behavioral approaches to teaching and learning.

### Unit – IV: Cognitive Approaches to Learning

- Principles and Models of cognitive learning
- Learning how to learn and guidelines for teaching learning skills
- Critical thinking and guidelines for teaching critical thinking
- Creative thinking and guidelines for teaching creativity

### Unit – V: Information Processing Approaches to Learning

- Principles and models of Information processing.
- Principles of attention, memory and forgetting.
- Information processing and Piagetian views.
- Information processing and study habits.

### References

1. Skinner, E., Charles, Educational Psychology, New Delhi: Prentice Hall.
2. Lindgren Henry, Educational Psychology in the classroom. Asia Publishing House.
3. Stephens, Psychology of Classroom Learning, Holt Rinchart.



4. Dececco, Psychology of learning and instruction, New Delhi: Prentice Hall.

## PAPER3: INSTRUCTIONAL TECHNOLOGY

### Objectives

1. To understand the meaning and significance of Instructional Technology
2. To relate instructional objectives to instructional technology
3. To assess the relative effectiveness among different instructional development models.

### Unit – I: Instructional Technology: Fundamentals

- Instructional Technology: meaning, definition, development and scope
- Writing instructional objectives: the ABCD method.
- Instructional Technology process: learner, teacher and curriculum, material triangle.
- Need assessment and task analysis procedures.

### Unit – II: Instructional Development Models

- Kemp model
- Instructional development institute model
- Inter-service procedures for instructional system development model.
- Criterion referenced instruction model
- UNESCO ISD model

### Unit – III: Instructional Design and Techniques

- Stages of instructional design: information processing, learning events and learning outcomes: concepts and meaning
- Instructional designs: objective-based, skill-based, competency based, learning style based and combination of teaching strategies and instructional designs.
- Instructional technology for large groups: Psycho-dynamics of group learning, lecture method, seminar, symposium, panel discussion, team teaching, project approach and workshop.
- Instructional technology – small groups: group discussions, simulation approach, role-playing, buzz group technique, brainstorming, case discussions and assignments.

### Unit – IV: Individualized Instructional Techniques

- Meaning, significance and importance
- Tutorials, mastery learning and Keller plan
- Programmed instruction: nature, types and development
- Computer assisted instruction: characteristics, types and development of CAI materials.
- Language Laboratory

### Unit – V: Instructional Evaluation and Remedial Teaching

- Measurement and Evaluation: meaning, significance and importance
- Criterion referenced and norm-referenced testing.
- Innovations in evaluation: credit system, semester pattern, grading system, question Bank and Computerized test construction and administration.
- Remedial teaching: meaning, diagnosis, principles of diagnosis, steps in diagnosis etc.

## References

1. Kumar, K.L. (1997) Educational Technology. New Delhi: New Age International (P) Ltd.
2. Vedanayagam, E.G. (1989) Teaching Technology for College Teachers. New Delhi: Sterling Publishers (P) Ltd.
3. Aggarwal, J.C. (1995) Essential of Educational Technology: Teaching Learning Innovations in Education. Delhi: Vikas Publishing House (P) Ltd.
4. Romiszowski, A.J. (1974) The selection and Use of Instruction: A systems Approach. London: Kogen Page.
5. Khirk, Frederick, G. and Gustafson, Kent, (1989) Instructional Technology, New York: CBS College Publishing.
6. Davis, I.K. (1981) Instructional Technique. New York: Mcgraw Hill.
7. Trow, W.C. (1963) Teachers and Technology: New Designs of Learning. USA: Appleton Century Crofts.
8. Cuban, Lorry, (1986) Teachers and Machines: The classroom use of Technology, New York: Teachers College.
9. Paul, Sattler (1969) History of Instructional Technology.
10. Pillay J.K. (1989) Method of Teaching & Science of Learning, Madurai: Madurai Kamaraj University.
11. Stephen, M.A. and Stanely, R. (1985) Computer Based Instruction: Methods and Development. NJ: Prentice Hall.

## PAPER4: SYSTEM APPROACH TO INSTRUCTIONAL MEDIA

### Objectives

1. To enable the students understand the concept of system approach to educational communication.
2. To enable the students to analyze the principles of system analysis and instructional design and media.
3. To help the student to understand the importance of feed back and other control mechanism.

### Unit – I: Concept of System Approach

- System: concept and definition
- Characteristics of systems analysis: input-process-output
- Rationale, scope and limitations
- Types and classification of system
- Systems analysis in different fields
- Operations research.

### Unit – II: Analysis of Sub-Systems

- Education as a sub-system: a system with sub-systems.
- Curriculum Development: personnel, Selection of Materials and Methods, evaluation.
- Characteristics of media system
- Stages in system analysis.

### Unit – III: Instructional Systems

- Instructional Systems analysis: System view of instruction.
- Models of system approach to instruction: Glaser and Silvern models.
- Types of instructional problems: Instructional objectives, entry behaviour, instructional procedures and performance assessment.

### Unit – IV: Design & Educational Media

- Significance of Systems approach to Educational Communication and learning.
- Principles of learning system designing: Individualized procedures in learning and programmed instruction.
- Modular scheduling
- Multimedia approach

### Unit – V: Feedback & Evaluation of System

- Importance of Feedback in System Design Process: Cybernetic, control mechanisms and implications.
- Criteria for assessing the efficiency of a systems
- Guiding principles for a system design: system design and designer
- Educational implications of systems analysis.

### References

1. Teaching Strategies – A Systems Approach open University Publications, UK 1972.

2. Aspects: Educational Technology Vol. I to IXX: Association of programmed learning and Educational Technology.
3. Poostar et.al., Theory and Practice of Programmed Instruction, UNESCO Paris.
4. Russel, J. Modular Instruction Inoopulis 1974.
5. Faur, Edgar et.al., Learning to be, UNESCO, 1972.
6. Hery Man, J.L. The System Approach and Education.
7. Pillay, G.S. Instructional Designing, Nirmal Pub. Madurai 1991.

## PAPER5: E-LEARNING MANAGEMENT SYSTEMS

### Objectives

1. To make the students to know the basic concept, principles and applications of e-learning.
2. To inculcate the applications, principles and uses of computer languages and packages for e-learning package production.
3. To enable the students to produce the e-learning software by using computer and videographic techniques.

### Unit I: Teaching and learning Process

- Centre for E- learning, E- lectures
- Learning tasks and assessments
- Learning Management Systems
- Process of developing E-learning assessment
- Development and migration of learning contents

### Unit II: Instruction design, Content Writer and Subject Matter Experts

- Instructional Designer: Analytical and communication skills development
- Specifying learning objectives, selection of interactive exercises
- Creation of evaluation questions, formative and summative evaluations.
- Content Writer: Order of words, images, video, and audio elements, time, budget, and technology constraints, navigation directions, links, special functions, software behaviors – Enriching Creativity to increase learner engagement.
- Subject Matter Experts (SME): Associating the core content and original materials - access to source materials and References, create flow diagrams, provide sample dialogue, and shape simulated settings, final deliverable for accuracy.

### Unit III: E-learning Project Team, Project Manager and Administrators

- Team roles and responsibilities, Degrees in instructional design, psychology, programming, art, and other areas of study - Roles of client/sponsor and vendor
- Project Manager: Approval process, obtaining feedback from evaluations, implementing revisions, drafting progress reports, Good organization skills, time management.
- Ability to juggle multiple tasks, Proficiency using scheduling, productivity, and communication tools.
- Administrators: Facilitate communication, track expenditures, reproduction and distribution of materials.
- Increases in the size of teams and projects, contribute to the need for oversight by administrative personnel.

### Unit IV: Accelerating Visual Communication

- Screen layouts, Collecting Digital documents
- 2D and 3D image manipulations
- Assemble multimedia elements like text, image, audio, video, graphics and
- animation

- Interface items such as buttons, windows, and menus; and specific graphics and animations.
- Audio video producers - quality reviews.

#### Unit V: Integrating E-learning components

- Internet, training package production
- multimedia packages on variety of topics

#### References

1. E-learning – Gaurav and S.M Nafay Kumail
2. Integrating Technology into Teaching and Learning – Michael D. Williams – 2<sup>nd</sup> Edition - Prentice Hall
3. Instructional Media and Technology for Learning – Heinich.
4. Information Visualization – Spence.

## PAPER6: EDUCATIONAL VIDEO PRODUCTION

### Objectives

1. To enable the students aware of the principles, uses and recent trends in Educational Video Technology.
2. To provide an understanding and skills in scripting, planning, production, direction and validation of educational video programme.
3. To enable the students understand and apply types, formats and role of graphics and animation in educational video production.

### Unit I: Video Technology

- Educational Video Technology: meaning, scope and advantages.
- Video as a teaching and learning tool and criteria for choosing video.
- Video camera: Principles, parts and its importance, operations, types and specialties of each type.
- Developing video programme brief, selecting and outlining the content and target audience and deciding the format and treatment.

### Unit II: Planning Process

- Script Writing: Finalization of theme, format and target groups, general script, shooting script, rehearsal script and significance of shooting script in educational video programme, role of subject expert in script writing.
- Role-play, graphics and animation: role of visuals in video production, forms and characteristics of visuals and visual mixing.
- Shooting: shot composition and different types of shots: analysis, testing, panning, zooming, fading, dissolving, freezing, superimposing, lettering, graphics and file shots.
- Lighting and sound recording: principles, purposes and various forms of lighting, different types of microphones, direct sound recording and dubbing, sound and music effects.

### Unit III: Educational Video Production

- Final video script, shot compositions and location
- Lighting, color, recording and visual continuity
- Graphic, animation, lettering, drawings and diagrams.
- Recording of sound, sound continuity and recording narration and music

### Unit IV: Editing and Mixing

- Editing: Need and equipment for editing, editing script, rough cuts and final cuts, erasing and fading technique, assembly and insert modes of editing and advanced editing techniques.
- Mixing: equipment and video script for mixing the visual and audio, techniques of mixing different visual forms, techniques of mixing voice and music, techniques of mixing the sound and visuals.
- Production assessment: role of subject experts and technicians in assessment, assessment during production and postproduction assessment.

### Unit V: Budgeting and Evaluation

- Budgeting: Man and materials, resource management, time and financial budgeting.



- Evaluation: Evaluating the audience for the impact, audience perception of video programme, evaluating the whole programme, cost-benefit analysis of video programme.
- Copy rights: General copy right provisions, obtaining permission to use copy right materials, protecting copy right and making acknowledgements and legal problems.

### References

1. Film Animation a Simplified Approach – John Halas (UNESCO 1976).
2. The Small Television Studio – Talbot-Smith, Angold-Stephens (Birmingham – Bymons).
3. Making Television – A Video Production Guide for Teacher – Le Baron.
4. Basic Film Techniques – Ken Daley (Focal Press, 1980)
5. TV Camera Operation – General Millerson (Focal Press, 1978)
6. The Techniques of light for Television and Motion Picture – Gerald Millerson (Focal Press, 1982).
7. The Technique of Film Editing – Karl Reisz, Gavin Millar.
8. TV Commercial Film Editing – Carmine R De Sarlo (McFarland 1985).
9. The Technique of Sound Studio – Niskett, Alec. (Focal Press, 1986)
10. The Technique of Film Music (Focal Press)
11. Video Production Guide, Video-in for Publications.

## PAPER 7: COMPUTERBASED INSTRUCTION

### Objectives

1. To examine and evaluate the existing materials made for computers and interactive multimedia.
2. To explore the potentials of the advanced computer based technologies viz., e-mail, Internet, www, etc. ineffective teaching and learning.
3. To develop instructional materials in different modes of computer based instruction viz. tutorial, drill and practice and simulation.

### Unit I: ComputerBased Instruction: AConceptualFramework

- Basic information on Computers: parts and functioning
- A short history of computers in education.
- Uses of computers in education: administrative use, teaching about computers and teaching with computers.
- Computer as a tool of education: word processing software, statistical analysis packages, graphic software, power point and software for teaching languages, science and mathematics.
- Computer as medium of communication and an overview of programming languages viz., BASIC, C, VB, HTML and JAVA.

### Unit II: Methodsof ComputerBased Instruction

- Methods of CBI: Meaning, significance and scope
- Tutorials: Presentation of information, questions and responses, judging responses, providing feedback, sequencing lesson segments and closing of a tutorial.
- Drill and Practice: Basic drill procedure, introduction of a drill, item characteristics, item selection procedures, item grouping procedures and data storage.
- Simulations: Physical simulations, procedural simulations, situational simulations and process simulations, factors in simulations, introduction of the simulation, presentations and interpretations and completion of the simulation.
- Instructional Games: types of games, factors in games, introduction of the game and the body and conclusion of the game.

### Unit III: Developmentof ComputerBased InstructionalMaterials.

- Eight-step model for developing computer based instructional materials.
- Lesson design: defining purpose, collection or resource materials, generation of ideas for the lesson and organizing the ideas.
- Display production: writing & revising primary and secondary texts producing storyboard check fir overlaying displays, drawing and revising graphic displays and planning other output assembling the story boards, reviewing the story board assembly and making revision.
- Flowcharting & programming: Flow-charting the steps, programming and error detection.
- Lesson evaluation and revision: quality review phase, pilot testing and validation.

#### Unit IV: Computerized Test Construction and Administration

- Computerized Test Construction and Administration: Concept, Meaning, scope and importance.
- Nature of the test: Purpose, objectives, length, item banking, size of question pool, the questions, feedback, passing score, timing, data to be collected and presentation of results.
- Implementation of the Test: instructor's as well as students' role, during the test: instructor's as well as students' role and after the test.
- Computerized question banking: selection of items of different types, specification of objectives, item analysis, establishing the psychometric properties of the items, etc.
- Online testing – A Critical Appraisal.

#### Unit V: Web-Based Instruction

- Meaning, Significance, Scope and Importance
- Guiding principles in Web-based Instructional Design
- General Framework for the development of web-based instruction
- Delivering effective instruction via web
- Computer mediated communication: Internet, telnet, e-mail, voice mail, chat etc.

#### References

1. Berge, Z.L. and Collins, M.P. (1999) Computer Mediated Communication and the Online Classroom (Vol.1-3) Cresskil, N.S.: Hampton Press.
2. Khan, B.H. (1977) Web-based Instruction. Englewood Cliffs: Educational Technology Publications.
3. Rheingold, H. (1993) The Virtual Community. Reading: M.A. Addison Wesley.
4. David Hardisty and Scott Windeatt (1989) Computer Assisted Language Learning. Oxford: OUP.
5. Kumar K.L. (1996) Educational Technology. New Delhi: New Age International Publishers.
6. Stephen, M.A. and Stanely, R. (1985) Computer Based Instruction: methods and Development. NJ: Prentice Hall.
7. Harasim, L. (1990) Online Education: Perspectives on a New Environment. NY: Praeger.
8. Harasim, L. (1993) Global Networks: Computers and International Communication. Cambridge: MIT Press.