

THAPAR UNIVERSITY, PATIALA
Thapar Technology Campus Patiala 147004 Punjab
India - 147004

Date Sheet For Program MBA,BTech,BE,MA,BSCMSC,PhD,PhDP,ME,BEMBA,MCA,MTech,MSc and Semester

Date Sheet Code: 16170DDEST

Sl No.	Date / Day	Time	Course No	Course Name
1	05/12/2016 Monday	09:00	PBC304	MOLECULAR BIOLOGY AND RDNA TECHNOLOGY
			PBT202	BIOPROCESS TECHNOLOGY
			PCY307	CATALYSIS AND REAGENTS
			PEI304	CIRCUIT DESIGNING AND TESTING
			PMC313	GRAPH THEORY AND APPLICATIONS
			PMC323	THEORY OF COMPUTATION
			PME301	POLITICAL ECONOMY OF DEVELOPMENT
			PPH301	PARTICLE PHYSICS
			UBT304	MOLECULAR BIOLOGY
			UMA007	NUMERICAL ANALYSIS
2	05/12/2016 Monday	14:00	DMC001	ADVANCED NUMBER THEORY
			PBT107	INTRODUCTION TO LIFE SCIENCES (FOR NON-MEDICAL GROUP)
			PBY102	BIOPROCESS ENGINEERING
			PCH106	REACTION ENGINEERING & REACTOR ANALYSIS
			PCS104	ADVANCED DATA STRUCTURES AND ALGORITHMS
			PCY108	CHEMICAL BIOLOGY
			PES105	ATMOSPHERIC SCIENCES, METEOROLOGY AND CLIMATE CHANGE
			PIM101	BASIC MATHEMATICS
			PMC104	FUNDAMENTALS OF COMPUTER SCIENCE AND C PROGRAMMING
			PMP105	RESEARCH METHODS, STATISTICS AND ETHICAL ISSUES IN PSYCHOLOGY
			PPH101	CLASSICAL MECHANICS
			UCE502	WATER SUPPLY ENGINEERING
			UCH505	PROCESS EQUIPMENT DESIGN-I
			UCS518	COMPUTER NETWORKS
			UHU032	HUMAN VALUES, ETHICS AND IPR
			UHU034	HUMAN VALUES, HUMAN RIGHTS & IPR
			UME502	AUTOMOBILE ENGINEERING
			UTA003	COMPUTER PROGRAMMING
UTA007	COMPUTER PROGRAMMING - I			
3	06/12/2016 Tuesday	09:00	UME706	MECHANICAL VIBRATIONS
4	06/12/2016 Tuesday	14:00	PTH103	INTERNAL COMBUSTION ENGINES
			UCS303	OPERATING SYSTEMS
			UEI501	CONTROL SYSTEMS
			UES011	THERMO-FLUIDS
5	07/12/2016 Wednesday	09:00	PMP304	PSYCHOLOGICAL ASSESSMENT
			UCH701	CATALYTIC PROCESSES
			UCS861	SOFT COMPUTING
			UCS862	MOBILE COMPUTING
			UCS863	PARALLEL AND DISTRIBUTED COMPUTING
			UEE802	INTELLIGENT ALGORITHMS IN POWER SYSTEM
			UMT721	MODELING AND SIMULATION OF PHYSICAL SYSTEM
			UTA004	INFORMATION TECHNOLOGY
6	07/12/2016 Wednesday	14:00	PCS107	TECHNOLOGY & INNOVATION
			PHU301	ENTREPRENEURSHIP AND IPR
			PMC108	ALGEBRA-I
			PMP102	INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY

THAPAR UNIVERSITY, PATIALA
Thapar Technology Campus Patiala 147004 Punjab
India - 147004

Date Sheet For Program MBA,BTech,BE,MA,BSCMSC,PhD,PhDP,ME,BEMBA,MCA,MTech,MSc and Semester

Date Sheet Code: 16170DDEST

Sl No.	Date / Day	Time	Course No	Course Name
6	07/12/2016 Wednesday	14:00	UEC505	MICROWAVE ENGINEERING
			UEC801	ADVANCED SOLID STATE DEVICES
			UMA001	MATHEMATICS - I
			UMA003	MATHEMATICS-I
7	08/12/2016 Thursday	09:00	PBY304	BIOPROCESS EQUIPMENT DESIGN
			PBY305	DRUG DESIGN & DEVELOPMENT
			PCA315	DATA STRUCTURE AND ALGORITHMS
			PCE301	EARTHQUAKE RESISTANT DESIGN OF STRUCTURES
			PCY316	CHEMICAL KINETICS AND SURFACE CHEMISTRY
			PEE339	POWER SYSTEM OPERATION UNDER DEREGULATION
			PMC306	PROBABILITY AND STATISTICS
			PME309	MULTINATIONAL ENTERPRISES AND INDUSTRIAL POLICY
			PPE333	SWITCHED MODE POWER SUPPLIES AND UPS
			PPH303	SEMICONDUCTOR PHYSICS
			PVL333	SYSTEM ON CHIP
			PWC321	NEXT GENERATION WIRELESS SYSTEMS AND NETWORKS
			PWC322	ADVANCED ERROR CONTROL CODING THEORY
			UBT504	IMMUNOTECHNOLOGY
			UCE723	GROUND WATER ENGINEERING
			UCS803	ARTIFICIAL INTELLIGENCE AND APPLICATIONS
			UEC803	RADAR, SATELLITE AND NAVIGATIONAL AIDS
			UEI511	PRINCIPLES OF COMMUNICATION ENGINEERING
			UEI832	DIGITAL IMAGE PROCESSING
			UES012	ENGINEERING MATERIALS
			UME703	FLUID MACHINERY
			UTA002	MANUFACTURING PROCESSES
			8	08/12/2016 Thursday
DSS003	GLOBAL MARKETING AND E-BUSINESS			
DSS007	STRATEGIC HR IN GLOBAL ENVIRONMENT			
PBC104	BIOANALYTICAL TECHNIQUES			
PBT111	CELL AND MOLECULAR BIOLOGY			
PCA514	CRYPTOGRAPHY AND NETWORK SECURITY			
PCD107	FINITE ELEMENT METHODS			
PCE104	STRUCTURAL MATERIALS			
PCH214	PROCESS INTEGRATION			
PCY201	ELECTROCHEMISTRY AND THERMODYNAMICS			
PEC108	EMBEDDED SYSTEM DESIGN			
PEE108	STATIC PROTECTIVE RELAYING			
PEI105	ADVANCED MICROCONTROLLERS			
PES109	WATER AND WASTEWATER TREATMENT TECHNOLOGIES - I			
PIN104	DESIGN OF HYDRAULIC STRUCTURES			
PME104	ECONOMIC ENVIRONMENT, ETHICS AND CORPORATE SOCIAL RESPONSIBILITY			
PPH109	COMPUTATIONAL METHODS IN PHYSICS			
PPI313	METAL FORMING			
PTH202	REFRIGERATION AND AIR CONDITIONING SYSTEM DESIGN			
RM7302	RESEARCH METHODS			

THAPAR UNIVERSITY, PATIALA
Thapar Technology Campus Patiala 147004 Punjab
India - 147004

Date Sheet For Program MBA,BTech,BE,MA,BSCMSC,PhD,PhDP,ME,BEMBA,MCA,MTech,MSc and Semester

Date Sheet Code: 16170DDEST

Sl No.	Date / Day	Time	Course No	Course Name
8	08/12/2016 Thursday	14:00	UCE503	ADVANCED STRUCTURAL ANALYSIS
			UCH506	PROCESS INSTRUMENTATION AND CONTROL
			UCS507	COMPUTER ARCHITECTURE AND ORGANIZATION
			UEC511	BASICS OF COMMUNICATION ENGINEERING
			UEE502	HIGH VOLTAGE ENGINEERING
			UEI512	ROBOTICS AND RELATED INSTRUMENTATION
			UEI843	EMBEDDED CONTROL SYSTEM
			UIE502	PRODUCT DESIGN & DEVELOPMENT
			UMA005	INTRODUCTORY MATHEMATICS-I
9	09/12/2016 Friday	09:00	UME507	INDUSTRIAL ENGINEERING
			UCS855	ASPECT ORIENTED PROGRAMMING
10	09/12/2016 Friday	14:00	DMC007	RESEARCH METHODOLOGY
			PBY104	APPLIED IMMUNOLOGY AND VACCINE TECHNOLOGY
			PMC105	DISCRETE MATHEMATICAL STRUCTURE
			PMP104	PHYSIOLOGICAL PSYCHOLOGY
			PSE106	SOFTWARE ENGINEERING CONCEPTS AND METHODOLOGIES
			UCH403	CHEMICAL TECHNOLOGY-II
			UEE302	ELECTRO MAGNETIC FIELD THEORY
			UEN002	ENERGY AND ENVIRONMENT
			UHU081	ENGINEERING ECONOMICS
			UME511	METAL CASTING AND JOINING
			UTA001	ENGINEERING GRAPHICS
			UTA008	ENGINEERING DESIGN - I
			11	10/12/2016 Saturday
PBT313	MOLECULAR MEDICINE AND DIAGNOSTICS			
PCA310	INFORMATION MANAGEMENT SYSTEMS			
PCY308	ORGANIC STRUCTURE ANALYSIS			
PMC305	MATHEMATICAL METHODS			
PME307	E-BUSINESS			
PMM324	NON-DESTRUCTIVE TESTING OF MATERIALS			
PMP305	POSITIVE PSYCHOLOGY AND WELL BEING			
PPH302	NUCLEAR PHYSICS			
PPI312	METAL CASTING AND JOINING			
UBT305	BIOPHYSICS			
UCS802	COMPILER CONSTRUCTION			
UEC802	FIBER OPTIC COMMUNICATION			
UES010	SOLIDS AND STRUCTURES			
UME702	COMPUTER AIDED MANUFACTURING			
12	10/12/2016 Saturday	14:00	PBC103	BIOINORGANIC AND BIOPHYSICAL CHEMISTRY
			PBT109	BIOTECHNIQUES AND INSTRUMENTATION
			PCA513	COMPUTER GRAPHICS
			PCD103	MECHATRONICS
			PCD108	MACHINE TOOL DESIGN
			PCE103	ADVANCED STRUCTURAL DESIGN
			PCE105	ADVANCED FOUNDATION ENGINEERING
			PCH107	SEPARATION PROCESSES
			PCL107	WEB TECHNOLOGIES
			PCS106	PARALLEL AND DISTRIBUTED COMPUTING

THAPAR UNIVERSITY, PATIALA
Thapar Technology Campus Patiala 147004 Punjab
India - 147004

Date Sheet For Program MBA,BTech,BE,MA,BSCMSC,PhD,PhDP,ME,BEMBA,MCA,MTech,MSc and Semester

Date Sheet Code: 1617ODDEST

Sl No.	Date / Day	Time	Course No	Course Name			
12	10/12/2016 Saturday	14:00	PCY109	STEREOCHEMISTRY AND PHOTOCHEMISTRY			
			PEC105	ADVANCED COMMUNICATION SYSTEMS			
			PEE107	POWER SYSTEM TRANSIENTS AND MITIGATION			
			PEI104	PROCESS MODELLING AND CONTROL			
			PES108	SOLID WASTE MANAGEMENT			
			PIS108	CRYPTOGRAPHY			
			PME103	ECONOMICS OF GROWTH AND DEVELOPMENT			
			PPH108	DIGITAL SYSTEMS AND MICROPROCESSORS			
			PTH104	ADVANCED FLUID MECHANICS			
			PVL109	FPGA BASED SYSTEM DESIGN			
			UCE501	SOIL MECHANICS			
			UCE722	CONSTRUCTION MATERIALS AND TECHNIQUES			
			UCH501	CHEMICAL REACTION ENGINEERING-I			
			UCS506	BIG DATA ANALYTICS AND BUSINESS INTELLIGENCE			
			UEC502	DIGITAL SIGNAL PROCESSING			
			UEC507	MICROPROCESSORS AND MICROCONTROLLERS			
			UEE503	NETWORK ANALYSIS AND SYNTHESIS			
			UHU005	HUMANITIES FOR ENGINEERS			
			UHU033	TOTAL QUALITY MANAGEMENT			
			13	12/12/2016 Monday	09:00	UME503	INDUSTRIAL METALLURGY AND MATERIALS
PBC303	NANOBIO MATERIALS						
PBT305	PLANT BIOTECHNOLOGY						
PCA309	COMPUTER NETWORKS						
PEE340	RENEWABLE ENERGY SYSTEMS						
PMC304	MECHANICS						
PME303	INDUSTRIAL ORGANISATION						
PMP303	PSYCHOTHERAPEUTIC TECHNIQUES						
UBT302	FOOD SCIENCE						
UCE701	GROUND IMPROVEMENT						
UCH721	FOOD TECHNOLOGY						
UCS852	SOFTWARE VERIFICATION AND VALIDATION						
UCS854	SOFTWARE QUALITY MANAGEMENT						
UEC404	SIGNALS & SYSTEMS						
UEC604	MODERN CONTROL THEORY						
UEE845	MICROCONTROLLERS AND APPLICATIONS						
UEI801	ADVANCED PROCESS CONTROL						
14	12/12/2016 Monday	14:00				PBC102	CELL BIOLOGY AND PHYSIOLOGY
						PBT110	MICROBIOLOGY
						PCA521	OPEN SOURCE WEB DEVELOPMENT USING LAMP TECHNOLOGY
			PCE102	ADVANCED SOLID MECHANICS			
			PCS105	ADVANCED OPERATING SYSTEM			
			PCY104	QUANTUM CHEMISTRY			
			PEC104	ANTENNA SYSTEMS			
			PEE106	MODELLING AND ANALYSIS OF POWER SYSTEM			
			PEI103	INTELLIGENT CONTROL TECHNIQUES AND APPLICATIONS			
			PES107	ENVIRONMENTAL SCIENCES			
			PIN102	INFRASTRUCTURE PLANNING AND MANAGEMENT			
			PIS105	SECURE CODING			

THAPAR UNIVERSITY, PATIALA
Thapar Technology Campus Patiala 147004 Punjab
India - 147004

Date Sheet For Program MBA,BTech,BE,MA,BSCMSC,PhD,PhDP,ME,BEMBA,MCA,MTech,MSc and Semester

Date Sheet Code: 16170DDEST

Sl No.	Date / Day	Time	Course No	Course Name
14	12/12/2016 Monday	14:00	PMC106	DIFFERENTIAL EQUATIONS
			PME102	MACROECONOMICS-I
			PMP103	DEVELOPMENTAL PSYCHOLOGY
			PPH104	MATHEMATICAL PHYSICS
			PSE105	SOFTWARE DESIGN AND CONSTRUCTION
			PVL108	DEVICE PHYSICS AND TECHNOLOGY
			UCE506	CONSTRUCTION MANAGEMENT
			UCH502	MASS TRANSFER-I
			UCS503	SOFTWARE ENGINEERING
			UEC501	DIGITAL COMMUNICATION SYSTEMS
			UEE504	POWER ELECTRONICS
			UME304	MANUFACTURING TECHNOLOGY
			UME836	OPERATIONS MANAGEMENT
			15	13/12/2016 Tuesday
PCY302	SYMMETRY AND GROUP THEORY			
UEN003	ENVIRONMENTAL STUDIES			
16	13/12/2016 Tuesday	14:00	UMA031	OPTIMIZATION TECHNIQUES
			UEC001	ELECTRONIC ENGINEERING
			UEC303	ELECTRONICS ENGINEERING
			UEC402	COMPUTER ARCHITECTURE
			UEC509	COMPUTER ARCHITECTURE
			UME504	MACHINE DESIGN
17	14/12/2016 Wednesday	09:00	UPH004	APPLIED PHYSICS
			PBC301	NUTRITIONAL AND CLINICAL BIOCHEMISTRY
			PBT304	PHARMACEUTICAL TECHNOLOGY
			PBY302	STEM CELL & TISSUE ENGINEERING
			PCA104	OPERATING SYSTEMS
			PMC303	COMPUTER NETWORKS
			PME302	INDIAN ECONOMY
			PMP301	PSYCHODIAGNOSTICS AND TREATMENT
			PPH317	CHARACTERIZATION TECHNIQUES
			PPH328	NUCLEAR REACTOR PHYSICS
			PWC336	WIRELESS COMMUNICATION PROTOCOL
			UBT303	BIOCHEMISTRY II
			UCH712	DISTILLATION PROCESSES
			UCS304	INFORMATION MANAGEMENT SYSTEM
			UCS871	NATURAL LANGUAGE PROCESSING
			UCS872	NETWORK SECURITY AND CRYPTOGRAPHY
			UEC301	ANALOG ELECTRONIC CIRCUITS
			UEC503	INFORMATION THEORY AND CODING
			UEC742	MEMS
			UEC853	WIRELESS ADHOC NETWORKS
			UEE301	DIRECT CURRENT MACHINES AND TRANSFORMERS
UEE801	ELECTRIC DRIVES			
UEI802	INSTRUMENTATION SYSTEM DESIGN			
UME306	MECHANICS OF MACHINES			
UME701	ADVANCE MACHINE DESIGN			
18	14/12/2016	14:00	PBY101	MOLECULAR BIOLOGY & rDNA TECHNOLOGY

THAPAR UNIVERSITY, PATIALA
Thapar Technology Campus Patiala 147004 Punjab
India - 147004

Date Sheet For Program MBA,BTech,BE,MA,BSCMSC,PhD,PhDP,ME,BEMBA,MCA,MTech,MSc and Semester

Date Sheet Code: 16170DDEST

Sl No.	Date / Day	Time	Course No	Course Name
18	14/12/2016 Wednesday	14:00	PCA515	CLOUD COMPUTING AND VIRTUALIZATION
			PCA516	DATA WAREHOUSING AND DATA MINING
			PCD105	COMPUTER AIDED MANUFACTURING
			PCE101	ADVANCED STRUCTURAL ANALYSIS
			PCH101	CHEMICAL ENGINEERING THERMODYNAMICS
			PCS103	ADVANCED ARTIFICIAL INTELLIGENCE
			PCY102	INORGANIC CHEMISTRY
			PEC101	DISCRETE TIME SIGNAL PROCESSING
			PEE105	ADVANCED POWER ELECTRONICS
			PEI102	INDUSTRIAL INSTRUMENTATION AND CONTROL
			PES106	ENVIRONMENTAL REMOTE SENSING AND GIS ANALYSIS
			PIN103	REMOTE SENSING AND GIS
			PIS107	ADVANCED COMPUTER NETWORKS
			PMC107	REAL ANALYSIS - I
			PME101	MICROECONOMICS-I
			PMP101	HISTORY AND SYSTEMS OF PSYCHOLOGY
			PPH103	QUANTUM MECHANICS
			PSE104	SOFTWARE PROJECT MANAGEMENT
			PTH101	ADVANCED THERMODYNAMICS
			PVL103	DIGITAL VLSI DESIGN
			PVL347	SOFT COMPUTING TECHNIQUES
			UCE505	TRANSPORTATION ENGINEERING - I
			UCG501	GAME DESIGN, DEVELOPMENT AND PROGRAMMING
			UCH503	INDUSTRIAL POLLUTION ABATEMENT
			UDP006	INTRODUCTION TO ELECTRONICS ENGINEERING
			UDP008	INTRODUCTION TO MECHANICAL ENGINEERING
			UEI502	DATA ACQUISITION SYSTEMS
UML501	MACHINE LEARNING			
USE501	SOFTWARE DESIGN AND CONSTRUCTION			
19	15/12/2016 Thursday	09:00	UEE843	POWER SYSTEM PLANNING
20	15/12/2016 Thursday	14:00	PBC101	BIOMOLECULES AND ENZYMOLOGY
			PBT103	BIOCHEMISTRY
			PCY321	REARRANGEMENTS AND RETROSYNTHESIS
			UCB008	APPLIED CHEMISTRY
			UEI505	SIGNAL CONDITIONING AND DATA ACQUISITION SYSTEM
			UHU002	BUSINESS AND TECHNICAL COMMUNICATION
			UHU003	PROFESSIONAL COMMUNICATION
21	16/12/2016 Friday	09:00	UMA032	NUMERICAL AND STATISTICAL METHODS
			UME704	HEAT AND MASS TRANSFER
			UCS405	DISCRETE MATHEMATICAL STRUCTURES
22	16/12/2016 Friday	14:00	UEI803	VIRTUAL INSTRUMENTATION
			UME705	MACHINING SCIENCE
			PCY101	ANALYTICAL CHEMISTRY
23	17/12/2016 Saturday	09:00	UEC504	MICROPROCESSORS
			UEI504	MICROPROCESSORS AND APPLICATIONS
			PBC305	BIOETHICS, BIOSAFETY AND IPR
			PBT306	ANIMAL AND STEM CELL TECHNOLOGY
			PCA316	SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

THAPAR UNIVERSITY, PATIALA
Thapar Technology Campus Patiala 147004 Punjab
India - 147004

Date Sheet For Program MBA,BTech,BE,MA,BSCMSC,PhD,PhDP,ME,BEMBA,MCA,MTech,MSc and Semester

Date Sheet Code: 16170DDEST

Sl No.	Date / Day	Time	Course No	Course Name
23	17/12/2016 Saturday	09:00	PCD204	INDUSTRIAL AUTOMATION
			PCE323	INDUSTRIAL STRUCTURES
			PCL105	STATISTICAL METHODS AND ALGORITHMS
			PEE327	HIGH VOLTAGE TECHNOLOGY
			PEI309	OPTIMAL AND ROBUST CONTROL
			PHU003	PROFESSIONAL COMMUNICATION
			PIN314	ADVANCED RAILWAY AND AIRPORT ENGINEERING
			PMC208	OPERATIONS RESEARCH
			PME351	SUMMER INTERNSHIP
			PMM333	ADVANCED IRON AND STEEL PROCESSING
			PMP351	SUMMER INTERNSHIP
			PPE342	DISTRIBUTED GENERATION AND MICROGRID
			PPH305	COMPUTATIONAL METHODS IN PHYSICS
			PTH323	TWO-PHASE FLOW AND HEAT TRANSFER
			PVL334	HIGH SPEED VLSI DESIGN
			UCE304	BUILDING MATERIALS AND CONSTRUCTION
			UCE504	STEEL STRUCTURE DESIGN - I
			UCH301	MATERIAL AND ENERGY BALANCES
			UCH504	ENERGY TECHNOLOGY
			UCS048	DATA STRUCTURES AND IT
			UCS508	GRAPHICS AND VISUAL COMPUTING
			UEC508	VLSI DESIGN
			UEC804	WIRELESS AND MOBILE COMMUNICATION
UEE804	OPERATION AND CONTROL OF POWER SYSTEMS			
UEI403	ELECTRICAL AND ELECTRONIC MEASUREMENTS			
UMA065	GRAPH THEORY AND APPLICATIONS			
UME510	INDUSTRIAL AUTOMATION			
24	17/12/2016 Saturday	14:00	DCE009	DURABILITY OF CONCRETE PARAMETERS, METHODS AND MEASUREMENTS
			DMC008	METRIC FIXED POINT THEORY
			DMC013	RESEARCH METHODOLOGY
			DPM003	THEORETICAL PHYSICS
			DSS005	RESEARCH METHODOLOGY
			PCA408	MOBILE APPLICATION DEVELOPMENT
			PEE109	POWER SYSTEM DYNAMICS AND STABILITY
			PEI107	DIGITAL SIGNAL PROCESSING AND TECHNIQUES
			PET101	CONVENTIONAL ENERGY TECHNOLOGIES
			PMA102	RESEARCH METHODOLOGY
			PMC424	FINITE ELEMENT METHODS
			PME105	MATHEMATICAL AND STATISTICAL METHODS
			PVL110	VLSI ARCHITECTURE
			PWC104	STOCHASTIC PROCESSES AND INFORMATION THEORY
			UBT003	INTRODUCTION TO BIOTECHNOLOGY
			UEE001	ELECTRICAL ENGINEERING
			UEE522	ENERGY AUDITING AND MANAGEMENT
			UEI503	DIGITAL SIGNAL PROCESSING AND APPLICATIONS
			UEI623	OBJECT ORIENTED PROGRAMMING AND APPLICATIONS
			UEN001	ENVIRONMENTAL STUDIES
			UES009	MECHANICS
			UIE503	LEAN MANUFACTURING

Date Sheet For Program MBA,BTech,BE,MA,BSCMSC,PhD,PhDP,ME,BEMBA,MCA,MTech,MSc and Semester**Date Sheet Code: 16170DDEST**

Sl No.	Date / Day	Time	Course No	Course Name
24	17/12/2016 Saturday	14:00	UME505 UMT402	MANUFACTURING TECHNOLOGY SENSORS AND TRANSDUCERS
25	19/12/2016 Monday	09:00	UTA012	INNOVATION AND ENTREPRENEURSHIP