Ministry of Education

Test Blueprint for National Exit Examination to be held in 2015 E.C

Band: 5

Program: - Bachelor of Science in Urban Transport Management

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1. Introduction

The Ministry of Education of Ethiopia has announced the implementation of exit exam for all undergraduate program students (public and private), beginning with the 2022/2023 academic year, in order to improve the quality of graduates produced by higher learning institutions. The exit exam aimed at checking whether students have acquired the required knowledge, skills and attitudes or not. To implement this, it requires determining competency areas for a specific program, which is already completed. Based on the competency areas prepared, it needs to plan the construction of tests.

Planning of a test is a first and vital step in the construction of an achievement test. An achievement test demands very systematic and careful planning, as a fact that good planning is a symbol of success. Tests are the tools that provide scores that measure level of student learning and study program learning outcomes. In order to achieve the valid and reliable measurement of student learning and program learning outcomes, the development of valid and reliable test is the mandatory. Test should be able to measure student performance in all dimensions of knowledge, skill and attitude. The carefully planned test construction contributes to improve the overall quality of the test in terms of test content validity, difficulty level, discrimination power and test reliability. Test preparation is not an easy task; it requires a careful planning and guideline to make the task simple. Test construction needs the preparation of test blue print.

Test blueprint is defined as a complete plan that explains how to develop a test. The term refers to a map or specification of assessment to ensure that all aspects of the curriculum and educational domains are covered by the assessment programs over a specified period of time. It helps curriculum developers/test constructors to match various competencies with the course content and the appropriate modality of assessment.

Generally, test blueprint will help to ensure tests: 1) Appropriately assess the achievement of instructional objectives of the course; 2) Appropriately reflect key course goals, objectives and the material learned or covered during the instruction period; and 3) Include the appropriate item formats along with the knowledge and skills being assessed.

Keeping the purpose developing blueprint in mind, the team has prepared this test blueprint document in order to help the test developers or content specialists in their process of valid and reliable test construction. The major points considered in the process of preparing this test blue print guideline were the core competencies that have been already identified for the themes of courses, the course contents, course credit hours, and the learning outcomes with their corresponding levels of achievement by learning domains. In line with these, the number of test items that should adequately assess the performance of students in all the content topics will be determined through discussion with the content specialists who construct the blueprint and test for their corresponding study program.

Therefore, the main purpose of this document is to give direction on how to develop blueprint for content specialists so that they can develop a test blueprint for their respective program.

2. Objective of test blueprint

Test blueprint preparation is generally opted to assist the preparation of a test that is representative, broadly sampled, and consisting of complete knowledge domain expected of the Ethiopian higher education students on completion of their study program. The specific objectives of test blueprint are to:

- Facilitate the construction of a representative and balanced test items for the selected courses in accordance with the competencies identified.
- Guide test developers or writers to write or set appropriate test items.

3. Expected profiles of graduates

The Urban Transport Management curriculum is designed with the view that graduates shall be able to develop scientific knowledge, critical thinking and problem solving ability, effective communication skills and ethical responsibility in area of Urban Transport Management. Specifically the graduates of Urban Transport Management should be able to:

- Have a critical understanding of the concepts of transportation system, transport development, and its principles and implement in the sector.
- Acquire managerial and technical skills to tackle transport challenges and apply the same effectively as a transport professional.

- Care for ethical values, and provide leadership role models in national, regional and local development with a clear understanding of values and needs of the country.
- Use different theories and models to understand and explain spatio-temporal processes, trends and patterns related to urban transport management.
- Identify, collect and compile information through archives, field survey; aerial photographs and remotely sensed data to alleviate spatio-temporal problems of urban transport management.
- Use and handle basic urban transport management studio equipment effectively.
- Critically undertake transportation research which are beneficial to society in terms of its major components, and control entities and properly present the research output.
- Marketing transport services to clients and negotiate contracts, coordinate transport logistics as per requirements of transport entity and control consignment and dispatch documents according to operation guidelines, procedures and formats.
- Evaluate and design resource mobilization strategies, application of rules and regulations, the capacities of transport entities in terms of their reliability.
- Evaluate transport operations and prepare performance report for further decision-making.
- Plan and design innovative interventions in terms of transportation policies, management procedures and operations useful in the City.
- Initiate and participate actively in community services and developmental activities and be capable of work cooperatively for the common good of society.

4. General Objective of the program

Generally, the envisaged program aims at satisfying the need for trained manpower capable of planning and managing the transportation sector of the Addis Ababa City Government as well as private sectors efficiently.

4.1 Specific Objectives

Specifically, the program expects to achieve the following objectives:

- To educate the participants and make them suitable for improving, and managing the transportation system of Addis Ababa,
- To enable them to participate in and contribute to the transport policy formulation and implementation with adequate analytical skills.

- To strengthen their skills in transport and development, urban transport economics, urban transport planning, sustainable urban transport management.
- To build up the capacity of the students further in undertaking scientific research on transport and planning issues.
- To equip participants in employing the transport management software within the transport system so as to make the system efficient, reliable, and convenient to the stakeholders.
- To provide the participants skills in identifying, analyzing, and managing transport operations and present scientific reports in the form of article, posters or oral presentation.

5. Courses to be included in the Exit Exam

Table 1: List of Courses in Urban Transport Management Program

No	List of Themes	List of Courses	Course Code	ECTS	Cr.Hr
1	Transportation Fundamental Theories	Urban and Regional Development Planning	UTMa 2052	5	3
		Transport Development and Society	UTMa 2031	7	4
		Urban Transport Economics and Governance	UTMa 2061	5	3
		Urban Transport Modes and Challenges	UTMa 2081	5	3
2	Transportation planning and policy basics	Fundamentals of Traffic Engineering	UTMa 3081	5	3
		Urban Transportation and Land Use Modeling	UTMa 3051	5	3
		Urban transport planning and management	UTMa 2051	5	3
		Transport Policy	UTMa 2041	5	3
3	Transport vehicles and Technologies	Intelligent Transport System	UTMa 4081	5	3
		Fundamentals of Motor Vehicles and maintenance	UTMa 3092	5	3

4	Transport and Logistics	Ports, terminals and parking management	UTMa 3091	5	3
		Transport Logistics and Supply Chain Management	UTMa 3101	5	3
5	Safety in Transportation	Road Safety, Transport Rules and Regulations	UTMa 3082	7	4
6	Fundamentals of Environment and Transport	Transport and Environment	UTMa 3111	5	3
Total		**14 Courses**		**74**	**44**

Table 2: Learning outcomes in terms of the three domains (Cognitive, Affective and Psychomotor)

Themes	Name of Courses	Cr. Hr	Share of themes in number	General objective	Content	Specific objectives	Learning outcomes								No. of items
							Cognitive						Affective	Psychomotor	
							Remembering	Understanding	Application	Analysis	Evaluation	Creation/Synthe			
Transportation Fundamental Theories	Urban &Regional Development Planning	3	29	Use theories and techniques in analyzing urban and regional development planning.	Introduction to Urban and Regional Planning	Identify urban and regional panning phases		1							
					The History of Urban Development	Explain the history of urban development in Ethiopia	1								
					Urban Development	Explain urban development challenges			1						
					Regional Development	Differentiate regional development theories				1					
						Explain the uses of central place theory		1							
					Economics of selected Policy Issues	Assess the economics of urban transport policy		1							
						Assess the economics of urban housing policy		1							
	Transport Development & Society	4		Understanding the processes, trends and patterns of urban transport development from spatial and temporal perspective.	Concepts of transportation System	Understand the concept of transport system		1							
					Types of transportation Modes	Identify modes of transportation		1							
					Concepts of graph theory	Understand the use of graph theory		1							
						Use accessibility matrix in transport network analysis			1						
					Types of Society	Identify types of society		1							
					Sociological analysis of Transport Structure and Development	Explain social factors affecting transport structure		1							
					Mobility and	Understand mobility and		1							

					inequality	inequality in different socioeconomic structures									
					Transport and Social Development	Grasp the relationship between society and mobility		1							
	Urban Transport Economics and Governance	3		Understand basic concepts related to urban transport and economics, transport demand, urban transport economics and pricing, transport good governance and the role of actors in transport governance	Introduction to Economics & governance	Understand the concept transport economics		1							
						Understand the specific roles of transport in urban economic sphere		1							
					Classification of human economic activities	Conceptualize basic concepts related to urban transport and Economics		1							
						Explain the dynamics of urban economic structure		1							
					Transport governance	Analyze the implementation of good governance in transportation		1							
					Transport models	Understand the application of transport models		1							
					Cost function in transport	Analyze the issue of cost in urban economics				1					
	Urban Transport Modes& Challenges	3		Classify and compare different types of urban transportation modes as well as demonstrate transportation principles, challenges of urban transport in developing and developed economies	Conceptual Focus	Identify different types of urban transportation modes	1								
						Explain individual modes of transport		1							
					Paratransits	Explain the advantage of paratransit service		1							
					Public Modes	Classify different types of urban transportation modes		1							
						Compare different types of urban public transportation		1							
					Urban Transport Challenges	Identify challenges of urban transport	1								
						Suggest solutions for urban transport challenges						1			
Transportation planning and policy basics	Fundamentals of Traffic Engineering	3		understand how to correlate the traffic flow	Traffic Engineering Studies	Correlate traffic flow fundamental elements				1					
					Capacity and Level of Service	Understand the concept of Junction type selection and		1							

				elements, the concept of junction type selection and design and different intersection controlling mechanisms		design.									
					Traffic Flow Theory	Application traffic flow theory			1						
					Junction Type Selection and Design	Identify transportation junction type	1								
					Intersection Control	Understand the different intersection controlling mechanisms		1							
					Signal Design and Timing	Able to design the signal timing of the signalized intersection						1			
			28		Capacity & Level of Service	Analyze methodology for freeways and Multilane Highway				1					
	Urban Transportation and Land Use Modeling	3		Understand transport system, interaction of land use and transportation & Familiarize with urban land use modeling	Transportation & Land use	Explain characteristics of effective transport system		1							
						Explain the interaction of land use and transportation		1							
						Explain the effects of transport problems		1							
					Land Use Modeling	Identify major urban land use models		1							
						Identify steps of Land use planning		1							
						Understand application urban land use modeling				1					
					Suitable Location Analysis Strategies	List approaches used for suitable location decision making	1								
	Urban transport planning and management	3		Understand transport planning ,	Introduction to Transport Planning	Understand the elements of transport planning		1							
						Understand the urban transport planning process		1							

				transport modeling & trip production.		Explain the role of transport planning		1							
					Transport Planning Strategies	Familiarized with traffic planning strategies and different approaches.		1							
					Travel Survey and Traffic Count	Familiarize with transport data gathering tools: travel survey and traffic count		1							
					Traffic Management	Understand the regulatory measures for Traffic Management		1							
					Transport Modelling	Understand the interaction of four stage of transport modeling process				1					
	Transport Policy	3		Identify approaches in transport policy formulation, Evaluate different best practices on urban transport policy& analyze the implementation of policy related to gender in transportation	Definition and Concepts	Understand the why of transport policy		1							
						Discuss transport policy processes and policy measures		1							
					Approaches in Transport Policy Formulation	Identify types of objectives in policy formulation		1							
						Identify approaches in transport policy formulation		1							
					Gender, disability and transportation	Understand the importance of gender main streaming in urban transportation and policy								1	
					Ethiopian Transport Policy	Analyze Ethiopian transport policy				1					
					Best Practices (Transport Policies from Cross Countries)	Identify baste practices in development of transport policies from cross countries		1							
Transport vehicles & Technologies	Intelligent Transport System	3		Comprehend applications of modern transport information,	Introduction to Transport Information Systems	Comprehend the significance of modern transport information systems in efficient transport		1							

				Input data and generate software environments		management.									
					Intelligent Transport Systems	Identify types of intelligent transport System ITS		1							
						Demonstrate the use of the ITS Technologies in transport management			1						
					ITS Applications and ITS Economics	Apply different analytical software (GIS, TRANSCAD etc), in solving transportation problems and managing transport databases.								1	
						Explain advanced traffic management system (ATMS)		1							
						Explain advanced public transportation systems (APTS)		1							
					Transport Studio- Software Applications in Transport management	Interpret data within specific software environments		1						1	
	Fundamentals of Motor Vehicles & maintenance	3	14	Identify structure of motor vehicles, acquainted with basic knowledge on maintenance of motor vehicles	Introduction to Motor Vehicles	Identify skeletal structure of motor vehicles,	1								
					The Engine System	Explain motor vehicle engine system		1							
						Understand the operating principles and theory of motor vehicles,		1							
					The Power Transmission Unit	Explain the function of power transmission unit		1							
					The Carriage & Controlling Unit	Identify motor vehicle controlling Unit		1							
					Introduction to Vehicle Maintenance and Management System	Identify major types of vehicles maintenance		1							
						Explain vehicles resource management		1							

Transport and Logistics	Ports, terminals and parking management	3	14	Identify types of ports, parking management and challenges in Addis Ababa	Concepts of Ports, Terminals and Parking	List types of ports and multimodal terminals	1								
					Types and Models of Vehicle parking	Identify types/models of vehicle parking		1							
					Parking management	Comprehend parking management principles		1							
						Identify the major tools parking management		1							
						Grasp parking management strategies		1							
						Explain parking management problems		1							
						Identify major ways of parking management		1							
	Transport Logistics and Supply Chain Management	3		Identify supply chain management, demonstrate vehicle &implement efficient vehicle maintenance	Introduction	Understand concept of supply chain management		1							
					Supply Chain Management	Identify the main activities in the supply chain		1							
					Inventory Management	Explain inventories and EOQ models		1							
						Undertake sensitivity analysis in the transport sector			1						
					Transport	Understand basic transport economics and pricing		1							
					Urban logistics	Elaborate urban logistics & distribution Systems				1					
					Creating a sustainable supply chain	Recognize ways of reducing the transport-intensity of supply chains		1							
Safety in Transportation	Road Safety, Transport Rules and Regulations	4	9	Understand road safety, importance of road safety education	Definition & concepts	understand the concepts of road safety, Transport Rules and Regulation							1		
						List ways of managing road safety problems	1								

				&Ethiopian and Addis Ababa road safety conditions	Transport rules & regulations	Explain the importance of road safety education for the community		1							
						Explain transport-mode specify safety rules and regulations		1							
					Transport conventions	Comprehend international conventions and insurance in transportation		1							
						Challenges of implementing International Transport conventions		1							
						Explain the nature of insurance transportation		1							
					Ethiopia and Addis Ababa Road Safety Conditions	Explain the characteristics road traffic accidents in Ethiopia and Addis Ababa		1							
					Assessment of Road Safety Works in Ethiopia, Addis Ababa	Explain challenges of traffic law enforcement in Ethiopia		1							
Fundamentals of Environment and Transport	Transport and Environment	3	6	Understand concept of Environment and identifying environmental problems, effects, and externalities	Basic Concepts in Environment & Development	Explain the major strategic factors for development		1							
						Comprehend the basic concepts of environment and development		1							
					Issues Related With Environment	Understand principles of environmentally sustainable development		1							
					Transport and Environment	Evaluate the impacts of transport sector on environment					1				
					Environmental externalities	Identify policy options for dealing with Environmental Externalities		1							

					Globalization, Transport and the Environment	Identify the relationship between globalization and environment	1								
						Total									100

Ministry of Education
Higher Education Sub-sector
Share of Competencies (KSA) per Courses

Program Name:- <u>Urban Transport Management</u>

Table 3: Share of Competencies (KSA) per Courses

R.No.	Themes	Course Name	Cr Hours	Share of Courses	Share of Competencies (in %)			Remark
					Knowledge	Skill	Attitude	
1	Transportation Fundamental Theories	Urban and Regional Development Planning	3	7	7			
		Transport Development and Society	3	8	8			
		Urban Transport Economics and Governance	3	7	7			
		Urban Transport Modes and Challenges	3	7	7			
2	Transportation planning and policy basics	Fundamentals of Traffic Engineering	3	7	7			
		Urban Transportation and Land Use Modeling	3	7	7			
		Urban transport planning and management	3	7	7			
		Transport Policy	3	7	6		1	

3	Transport vehicles and Technologies	Intelligent Transport System	3	7	6	1		
		Fundamentals of Motor Vehicles and maintenance	3	7	7			
4	Transport and Logistics	Ports, terminals and parking management	3	7				
		Transport Logistics and Supply Chain Management	3	7	7			
5	Safety in Transportation	Road Safety, Transport Rules and Regulations	4	9	8		1	
6	Fundamentals of Environment and Transport	Transport and Environment	3	7	7			
		Total (Aggregate)	44					

Ministry of Education

Higher Education Sub-sector

Calculation on share of themes, courses, competencies for a Program

Program Name:- <u>Urban transport Management</u>

Table 3: Calculation on share of themes, courses, competencies for a Program

Themes	Course Name	Learning outcomes	Credit hour	Weight of course or proportion	Number of test items from each course	**Cognitive**						**Affective**	**Psychomotor**	Total
						Remember	Understand	Apply	Analyze	Evaluate	Create			
Theme One Share = 29items from the total	1		3	3/13 = 0.23	0.23*29 = 7	1	4	1	1	-	-	-		7
	2		4	4/13 = 0.3	0.3*29 = 8		7	1	-	-	-	-	-	8
	3		3	3/13= 0.23	0.23*29 = 7	-	6	-	1	-		-	-	7
	4		3	3/13 = 0.23	0.23*29 = 7	2	4	-	-	-	1	-	-	7
	Theme one total credit		**13**											

Theme Two Share = 28items from the total	1		3	3/12 = 0.25	0.25*27 = 7	1	3	1	1	-	1	-	-	7
	2		3	3/12 = 0.25	0.25*27 = 7	1	5	1	-	-	-	-	-	7
	3		3	3/12 = 0.25	0.25*27 = 7	-	6		1	-	-	-	-	7
	4		3	3/12 = 0.25	0.25*27 = 7	-	5	-	1	-	-	1	-	7
	Theme two total credit		**12**											
Theme three Share = 14 items from the total	1		3	3/6 = 0.5	0.5*14 =7	-	5	1	-	-	-	-	1	7
	2		3	3/6 = 0.5	0.5*14 = 7	1	6	-	-	-	-	-	-	7
	Theme three total credit		**6**											
Theme four Share = 14 items from the total	1		3	3/6 = 0.5	0.5*14 = 7	1	6	-	-	-	-	-	-	7
	2		3	3/6 = 0.5	0.5*14 = 7	-	5	1	1	-	-	-	-	7
	Theme four total credit		**6**											
Theme five Share = 9 items from the total	1			4/4 = 1	1*9 = 9	1	7	-	-	-	-	1	-	9
	Theme five total credit		4											
Theme six Share = 6 items from the total	1		3	3/3 = 1	1*6 =6	1	4	-		1	-	-	-	6
	Theme six total credit		**3**											
Total for the program			44			3	19	21	21	24	16	4	12	100

Note: The number of items assigned in the levels of domains is based on the nature of learning outcomes/objectives.

7. Conclusion

Exit examination can have a vital role in producing knowledgeable, skillful and attitudinally matured graduates. It contributes to prepare competent graduates as it can serve as a quality check for effectiveness. It also helps in improving academic programs quality and effectiveness. Furthermore, it can create the platform for cooperation among academic programs at different universities to work jointly to improve the programs quality. In view of this, this document is produced to assist the setting of the exit examinations for all programs, which is being delivered by Ministry of Education. To meet the graduation profile, competency and learning outcome, exit exam competency selection and identifying core course was done for 2015 EC graduating students. As a result, preparing test blueprint is necessary to prepare fairly distributed items based on learning domain criteria.