

SEC SYLLABUS (2019)

GEOGRAPHY

SEC 15

SYLLABUS

Geography SEC 15 Syllabus	(Not available in September) Paper I (2hrs) + Paper II (2hrs) + Fieldwork
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Introduction

That study of geography enhances the student's awareness of man's global physical and human environment. This is achieved by means of geographic methods, including observation, data gathering and interpretative skills. The knowledge, understanding and skills obtained help the student to form proper values and attitudes, as well as to assess, interpret and attempt solutions to spatial socio-environmental problems. Therefore the student's role in society will be more effective.

Aim

The syllabus aims at providing teachers of Geography a choice of materials which should suit a variety of teaching approaches. It also provides teachers and students with an opportunity to look at environmental problems both in Malta and abroad. Less Economic Developed Countries are included due to their geographical interactions with the developed world.

Assessment

Objectives

The examination will assess candidates' abilities in relation to three areas:

1. *Knowledge and understanding*

Candidates are expected to:

- recall specific facts in connection with the syllabus content;
- show understanding of geographical concepts, ideas, principles contained in the syllabus and their application in the context of the physical and human environments;
- show understanding of the spatial patterns and interactions within these environments; and
- demonstrate locational knowledge applied to the Maltese Islands and the rest of the world including Less Economic Developed Countries.

2. *Skills*

Candidates are expected to:

- observe, record, classify and interpret data collected in the field or from secondary sources, to form conclusions and communicate ideas.
- Read, interpret and use maps, photos and statistical data; and
- Represent geographical information in simple map form (sketch-maps), graphs or diagrams, and to write in a coherent manner.

3. *Values and Attitudes*

Candidates are expected to:

- demonstrate awareness of environmental issues in terms of the conservation and the protection of both the physical and the human environments; and
- form reasonable judgements in relation to environmental issues of a geographical nature.

Scheme of Assessment

The examination will consist of two papers of two hours' duration each and an assessment of two short Geography Fieldwork Reports. Both papers will be set in English and candidates are

expected to answer in good English. The Fieldwork Reports must also be submitted in English. Orderly presentation and appropriate spelling of key geographical terms are necessary.

Exam Papers:

Paper I (80 marks) will consist of 10 compulsory structured questions testing the candidates' knowledge and understanding of the whole syllabus content as well as a range of geographical skills. Candidates have to answer all questions.

Question 1 will be based on the material contained in unit 1 of this syllabus, that is on reading and interpretation of Topographic Maps (Survey Maps). A list of Conventional Map Symbols will be provided with the map. This question will carry a total of 16 marks.

Question 2 will consist of a world outline map, on the Mercator or Molweide projection. Candidates will be tested on the recall of facts, related to locational knowledge listed in unit 2 of this syllabus as well as specific application related to units 3 to 19 in the syllabus. Question 2 will also carry 16 marks. In the remaining 8 structured questions candidates will be tested on the knowledge and understanding of the whole syllabus content as well as a range of geographical skills such as analysis and interpretation of data, drawing and labelling of diagrams, interpretation of weather maps and satellite images. These questions will carry a total of 48 marks.

Paper II (100 marks) There will be two versions of Paper II. Candidates are required to indicate on the registration form which Paper II they wish to sit for. No change in the choice of paper will be allowed after the registration period.

Paper IIA and IIB will be divided into two sections.

Section A will consist of four questions based on the material contained in the units 3, 4, 5, 6, 7, 8, 9, 10 and 11 of this syllabus. Candidates will be required to answer any two questions from Section A. Each question carries 25 marks.

Section B will also consist of four questions from which candidates will be required to answer any two. Each question carries 25 marks. Questions in Section B will be based on the material contained in units 12, 13, 14, 15, 16, 17, 18 and 19 of this syllabus.

Questions in Paper IIB will be easier than those in Paper IIA.

The use of non-programmable calculators and geometrical instruments is permitted in both papers.

Fieldwork Reports (10 marks each) The Geography Fieldwork Reports have to be two individual reports concerning two different aspects of geography and from two different locations. These should be compiled during the candidate's course of studies and assessed by the teacher.

The Reports should be available at the candidate's school for moderation by the Markers' Panel. The school

assessments (the total sum of both Fieldwork Reports) should reach the MATSEC Examinations Board on a date set by the MATSEC Support Unit. Candidates may be called for an interview relating to their Fieldwork Reports.

Each Geography Fieldwork Report should be between 800 and 1000 words long and should include relevant and well-annotated illustrations, based on observations in the field. Candidates

are expected to observe, investigate and record geographical phenomena in an urban, rural or coastal environment. A wide choice of fieldwork experiences is available in Appendix I.

When assessing the candidates' Fieldwork Reports, the teacher/Markers' Panel will look for evidence that the candidates have:

- stated the aims and objectives of the fieldwork; made observations and collected data;
- included relevant illustrations (graphs, sketches, maps, photographs, tables, etc.);
- summarised and evaluated their findings; and
- presented their work clearly, neatly and in an orderly fashion.

At this level fieldwork in schools can be organised on a class basis so the location may be common for all students but differentiation in assessment would come out after careful consideration of the way the above criteria are presented in their individual reports.

Private candidates who left school before 1994 will not be expected to present their Fieldwork Report/s. Their mark will be obtained by pro-rating of the written papers. Candidates who studied the subject at school and are re-sitting the subject as private candidates may carry forward the Fieldwork report mark from the previous session. If this is prior to 2011 the candidate will be allowed to present one Fieldwork Report of 1500 and 2000 words as in previous syllabuses. Candidates who have never studied the subject at school but have prepared the Fieldwork Reports privately will be expected to present their Fieldwork Reports to the MATSEC Board. Private candidates may be called for an interview about their work.

Results

Candidates sitting for Paper I and Paper IIA may qualify for grades 1, 2, 3, 4 or 5. The results of candidates who do not obtain at least a grade 5 shall remain Unclassified (U).

Candidates sitting for Paper I and Paper IIB may qualify for grades 4, 5, 6 or 7. The results of candidates who do not obtain at least a grade 7 shall remain Unclassified (U).

Grade 1 corresponds to the following levels of attainment:

A Knowledge about locations and places

The student is able to:

Show very evident knowledge of a very wide range of geographical vocabulary, theories and issues

Describe and explain correctly relationships and correlations among different environmental factors

Identify and compare many features, forms and patterns from maps, diagrams, photographs and graphs

B Understanding characteristics of the Earth's major physical systems and their interaction

The student is able to:

Show a very thorough understanding of the workings of the natural systems and cycles

Explain and analyse extensively the interrelationships among the natural systems and cycles

Analyse and interpret most causes and effects of the interactivity of the natural systems and cycles

C Understanding relationships between human activities and physical processes

The student is able to:

Explain and analyse the distribution patterns in human activities and natural processes
Explain and analyse the interdependence of people, places and environments
Set many local, national and international facts and figures within a geographical context

D Acquisition of techniques, skills and competences to be utilised in a geographical enquiry

The student is able to:

Conduct an out-of-school fieldwork exercise
Compare, interpret and analyse maps, photos and graphs
Create graphs and maps necessary for geographical enquiry
Discuss geographical themes and theories
Show great awareness of the environment to be protected and enhanced
Investigate well an issue through visual aids and quantitative methods
Make thorough pro-active use of ICT for the geographical enquiry

Grade 5 corresponds to the following levels of attainment:

A Knowledge about locations and places

The student is able to:

Show very good knowledge of much of the geographical vocabulary
Describe, in a very satisfactory way, the geographical features, forms and patterns
Identify many geographical features, forms and simple patterns from maps or photographs

B Understanding characteristics of the Earth's major physical systems and their interaction

The student is able to:

Express and comment, in some detail, the workings of some natural systems and cycles
Comment about the interrelationships among some natural systems and cycles
Analyse some causes and results of the interactivity of some natural systems

C Understanding relationships between human activities and physical processes

The student is able to:

Understand and explain the distribution patterns in human activities and natural processes
Understand and explain the interdependence of people, places and environments
Set some local and national facts and figures within a geographical context

D Acquisition of techniques, skills and competences to be utilised in a geographical enquiry

The student is able to:

Work within a team in an in-school fieldwork exercise
Compare and interpret maps, photos and graphs necessary for geographical enquiry
Discuss geographical themes and theories
Show great awareness of the environment to be protected and enhanced
Illustrate a topic through sketches and through simple quantitative methods
Make some pro-active use of ICT for the geographical enquiry

Grade 7 corresponds to the following levels of attainment:

A Knowledge about locations and places

The student is able to:

Show knowledge of a limited and basic geographical vocabulary
Recall and use the knowledge acquired
Recognise some features and forms on maps and photographs

B Understanding characteristics of the Earth's major physical systems and their interaction

The student is able to:

- Show a simple understanding of the general workings of a natural system or cycle
- Explain in a simple way the interrelationships among two natural systems or cycles
- Comment about some causes and some results of the interactivity of natural systems

C Understanding relationships between human activities and physical processes

The student is able to:

- Show a simple understanding of some location of human activities and natural processes
- Demonstrate a simple understanding of the interdependence of people, places and environments
- Set some local facts and figures within a geographical context

D Acquisition of techniques, skills and competences to be utilised in a geographical enquiry

The student is able to:

- Follow a simple in-school fieldwork exercise
- Interpret simple maps and photos necessary for geographical enquiry
- Communicate verbally basic geographical messages and ideas
- Show basic awareness of the environment to be protected and enhanced
- Illustrate a topic through simple sketches
- Make simple use of information technology for geographical enquiry

The Syllabus

<p>1. Reading and Interpretation of Topographic Maps (Survey Maps)</p>	<p>Basic cartographic skills: scales, measurement of distances and areas, map symbols, grid references, direction, map enlargement and reduction, shape contours, section drawing and intervisibility and gradients. Recognition of landforms resulting from river, ice and marine erosion. Interpretation of settlements, urban/rural landuse patterns, communication patterns and location of economic activity.</p>
<p>2. Locational Knowledge</p>	<p>1. The location of all seven continents and five oceans. 2. Awareness of the 24 different Time Zones in the world and calculation of Time (plus or minus from Greenwich Meridian). Important lines of latitude: Equator, Tropic of Cancer, Tropic of Capricorn, Arctic Circle, Antarctic Circle. 3. The location of these major seas; the Gulf of Mexico, Caribbean Sea, North Sea, Baltic Sea, Caspian Sea, Mediterranean Sea, Red Sea, Persian Gulf, Arabian Sea, Bay of Bengal, Coral Sea. 4. The major Ocean Currents: the Northern and Southern Equatorial Currents, the North Pacific, Californian, Peruvian, Kuro Siwo in the Pacific Ocean, the Gulf Stream, North Atlantic Drift, Labrador, Brazil and Benguela Current in the Atlantic Ocean. 5. The major Fold Mountain Systems: the Rockies, Andes, Alps, Atlas, Drakensberg, Himalayas, Australian Alps. 6. The major Volcanoes: Mauna Kea, Mauna Loa, Mt. St Helens, Mt. Pelèe, Mt. Cotopaxi, Mt. Chimborazo, Mt. Nevado del Ruiz, Mt. Vesuvius, Mt. Etna, Mt. Kilimanjaro, Mt. Krakatoa, Mt. Pinatubo, Mt.</p>

	<p>Fujiyama, Montserrat, Tristan da Cunha, Surtsey.</p> <p>7. Major tectonic plates: Pacific Plate, Nazca Plate, North American Plate, South American Plate, Antarctic Plate, Juan de Fuca Plate, African Plate, Eurasian Plate, Indo-Australian Plate.</p> <p>8. Location of hot deserts: Californian, Arizona, Atacama, Sahara, Namib, Kalahari, Arabian, Thar, Gobi, Australian.</p> <p>9. Distribution of major world biomes: Tundra, Taiga (coniferous forests), Temperate Deciduous Forests, Temperate Grasslands, Mediterranean, Hot Desert, Tropical Rainforests, Savanna grasslands.</p> <p>10. These major rivers: St. Lawrence, MacKenzie, Mississippi, Missouri, Colorado, Orinoco, Amazon, Parana, Rhône, Rhine, Danube, Volga, Indus, Ganges, Hwange-Ho, Yangtze, Murray-Darling, Nile, Zambezi, Niger and Congo.</p> <p>11. Location of major HEP stations: Aswan High Dam, Three Gorges Dam, Itaipu.</p> <p>12. The location of these countries and their capital cities:</p> <p>a. All the Mediterranean countries.</p> <p>b. All the EU countries.</p> <p>c. These countries: Canada, USA, Mexico, Brazil, Argentina, Venezuela, Sudan, Democratic Republic of Congo, South Africa, Kenya, Egypt, Saudi Arabia, Iraq, Iran, India, China, Japan, Indonesia, Russia, Bangladesh, Australia.</p> <p>13. The location of these major ports: Vancouver, Seattle, San Francisco, Los Angeles, New York, Caracas, Rio de Janeiro, São Paulo, Buenos Aires, Rotterdam, Antwerp, Barcellona, Marseilles, Trieste, Genoa, Valletta, Istanbul, Port Said, Cape Town, Mumbai, Madras, Singapore, Hong Kong, Shanghai, Tokyo, Osaka-Kobe, Sydney, Melbourne.</p>
<p>3. The Earth as a Planet</p>	<p>The movements (rotation and revolution) of the Earth. Effects of the Earth's rotation – day and night. Effects of the Earth's revolution – (a) the seasons; (b) the varying lengths of day and night.</p> <p>Lines of longitude and latitude – how they are measured.</p> <p>Locating the main lines of longitude and latitude – Prime meridian (Greenwich) (0°), International Date Line (180°), Equator (0°), North Pole (90°N), South Pole (90°S), Tropic of Cancer (23½°N), Tropic of Capricorn (23½°S), Antarctic Circle (66½°S), Arctic Circle (66½°N). Locating places using latitude and longitude. Longitude and time. Standard time zones and the International Date Line.</p>
<p>4. Rocks and Soils</p>	<p>Formation, characteristics, uses and examples of Igneous, Sedimentary and Metamorphic rocks.</p> <p>Permeability of rocks. Limestone (Karst) characteristic landforms</p>

	<p>and formation; swallow holes, resurgence, dry valleys, limestone pavements, bedding planes, joints, clints, grykes, caverns, stalactites, stalagmites and pillars. Quarrying –benefits and problems, Rocks of the Maltese Islands: origin, basic properties and uses of the 5 strata of rock.</p> <p>Weathering: The differences between physical, chemical and biological weathering. The processes of freeze-thaw/frost shattering, exfoliation and limestone solution.</p> <p>Soil: Soil profile (Horizons A,B,C). Formation and properties of soil (air, water, organic matter and mineral particles). Water movement in the soil –leaching and capillary action.</p> <p>Soil erosion and management: Natural causes of soil erosion. Common farming practices which lead to soil erosion. Soil conservation.</p>
<p>5. Plate Tectonics</p>	<p>Structure of the earth: core, mantle and crust (continental and oceanic crust). Convection currents in the mantle and the idea of continental drift. Major Plates of the Earth’s crust. The movement of the Earth’s plates – constructive boundaries, destructive boundaries and conservative boundaries. Plate movements and the formation of fold mountains. The relationship between earthquakes, volcanoes and plate boundaries.</p> <p>Earthquakes: The causes of earthquakes: focus, epicentre and seismic waves. Measurement of earthquakes: the Richter Scale. Effects of an Earthquake – short and long-term impact– social, economic and environmental impact. Resisting earthquakes</p> <p>Case studies: Kobe earthquake, 1995. Tsunami of SE Asia, 2004.</p> <p>Volcanoes: Formation and features of composite cone, acid and basic lava volcanoes – crater, secondary or parasitic cone, lava tube, magma chamber, side vents. Volcanic activity: active, dormant and extinct volcanoes. Predicting and preparing for volcanic eruptions. The hazards and benefits of volcanoes.</p> <p>Case Studies: Mount St Helens USA. 1980. Mount Etna (Sicily).</p>
<p>6. The Hydrological Cycle and Rivers</p>	<p>Processes, flows and stores in the hydrological cycle. Sources of water in the Maltese Islands: Reverse Osmosis Plants and Underground water. The drainage basin as a system: inputs,</p>

	<p>throughputs and outputs. The drainage basin – source, mouth, tributary, confluence, watershed, main river. Factors affecting the rate of a river’s discharge. Processes of river erosion – abrasion or corrasion, solution or corrosion, hydraulic action and attrition. Processes by which a river transports its load: traction, saltation, suspension and solution. River landforms in the uplands – formation of V-shaped valleys, gorges, interlocking spurs, waterfalls and rapids. The river and its valley in the lowlands: formation of meanders, ox-bow lakes, flood plain, levées, and deltas (arcuate and bird’s foot). Human activities in rivers and their valleys</p> <p>Flooding: Causes of flooding. Flood hydrographs. Flood management.</p> <p>Case studies: River flooding in Bangladesh. Flood control – the Three Gorges Dam.</p>
<p>7. Coasts</p>	<p>Wave motion – the swash and backwash Different types of waves – constructive and destructive waves. The process of coastal erosion – abrasion, hydraulic action, attrition and corrosion/solution. Coastal features created by erosion: cliff recession, wave-cut platforms, notches, headlands and bays, caves, arches, stacks and stumps, with specific reference to coastal localities in the Maltese Islands. Wave transport – longshore drift. Coastal features created by deposition: beaches, spits, bars, tombolos and sand dunes. Physical management of the coast: (sea walls, groynes, boulder barrier, beach nourishment).</p>
<p>8. Glacial Landscapes</p>	<p>The Ice Age. Processes of ice erosion – abrasion, plucking and freeze-thaw weathering (frost shattering) Processes that lead to the formation of glacial features – hanging valleys, corries (cirques/cwms), pyramidal peaks (horns), truncated spurs, arêtes, U-shaped glacial troughs, ribbon lakes. Types of moraine – ground, lateral, medial and terminal. Features of glacial deposition – erratics and drumlins. Land use in glacial areas (farming, forestry, water supply, HEP and tourism).</p>
<p>9. Hot Deserts</p>	<p>Desert environment: rainfall and temperature characteristics. Weathering: the effects of exfoliation. Water as an agent in the formation of desert scenery (wadis, playas, isolated hills – inselbergs, mesas and buttes). Landforms produced by wind: deflation hollows, rock pedestals, yardangs and zeugens, and sand dunes (barchans).</p>

<p>10. Weather and Climate</p>	<p>Recording and interpreting the elements of weather and climate – temperature, humidity, rainfall, pressure, wind speed and direction. Temperature and rainfall graphs. How to find out the: mean daily temperature, daily range of temperature, mean monthly temperature, mean annual temperature and the mean annual range of temperature. Interpretation of synoptic charts/ simple weather maps and simple satellite photos.</p> <p>Factors affecting temperature: Latitude, maritime effect, altitude, prevailing winds and ocean currents.</p> <p>Rainfall: Convectional, frontal and relief or orographic rainfall.</p> <p>Depressions and Anticyclones: Weather sequence of a typical depression. Winter and summer anticyclones. Tropical storms: formation and effects.</p> <p>Microclimate of an Urban Area: Temperature (urban heat island), air quality (photochemical smog), precipitation and wind. Climate of the Maltese Islands: distribution and reliability of rainfall, mean temperatures and prevailing winds).</p> <p>Case Study: Katrina 2005</p>
<p>11. World Climates and Ecosystems</p>	<p>Ecosystems: How an ecosystem works. Basic processes of an ecosystem: flow of energy and the recycling of nutrients. Distribution of major climatic types.</p> <p>Tropical Rainforest: Equatorial climate. Appearance (vegetation levels) and adaptation of the vegetation. Rainforest water and nutrient cycle. Case Study: Causes and effects of deforestation in the Amazon Rainforest. Sustainable Forestry.</p> <p>Tropical Savanna Grasslands: Tropical Continental Climate. Appearance and adaptation of the vegetation. Case Study: Desertification in the Sahel.</p> <p>Mediterranean: Mediterranean type of Climate. Natural Vegetation: Woodland and scrub (maquis and garigue).</p>

