

# AVIATION SCIENCE

## Admission to Program

This program is only open to Officer Cadets already employed by the UAE Defence Force. Selection to the program is conducted annually by a committee nominated by the General Head Quarters of the Armed Forces (GHQ) in consultation with HCT. The entry requirements for the Bachelor in Aviation Science is jointly determined by the UAE Air Force & Defence Force and HCT to meet the requirements of the UAE Defence Force as an employer and the standards for higher education as set by the CAA. Students wishing to take this program should apply to the UAE Defence Force to enter employment with the UAE Defence Force in the first instance.

## Program Mission

Prepare future Officers as exceptional leaders of the UAE Armed Forces providing them with a sound understanding of military sciences, aerosciences and flight in order for them to become professional military pilots on the international defense stage with a vision for the future, and an ethos of loyalty, obedience and dedication to the national duty.

## Program Description

The Bachelor of Aviation Science Program prepares students for employment as an Officer in Military Aviation employed in a general or specialist Aviation Operations position in the UAE Defence Force.

The program provides training for general employment as an Officer or specific employment as a specialist through one of four concentrations:

- Fixed Wing Pilot
- Helicopter Pilot
- UAV Pilot

## Program Learning Outcomes

*In addition to the generic graduate outcomes related to the Bachelor graduates of the Higher Colleges of Technology, cadets, upon completion of the modified program, will be able to:*

- PLO 1: Function in multidisciplinary teams and develop military leadership capabilities to support and conduct tactical military operations.
- PLO 2: Communicate effectively and concisely military ideas, directions and communications in written, oral and visual form.
- PLO 3: Identify, formulate, and solve scientific and operational problems encountered in the practice of performing the role of a military aviation officer.
- PLO 4: Identify the latest military technology and supporting environmental and societal concepts to assist all aspects of military aviation operations.
- PLO 5: Interpret military orders and utilise supporting aviation data, principles and military technology to plan and execute military aviation operations.
- PLO 6: Operate a range of military aviation equipment in the training environment.

### Area of Concentration PLOs:

- PLO 7 Fixed Wing Pilot: Pilot a fixed wing training aircraft on a range of Fixed Wing Military Training Missions.

- PLO 8 Helicopter Pilot: Pilot a rotary wing training aircraft on a range of Helicopter Military Training Missions.
- PLO 9 UAV Pilot: Pilot a UAV training aircraft and operate UAV Sensor Systems on a range of UAV Military Training Missions.

## Requirements

### Completion Requirements

Students must successfully complete a minimum of 124 credits, including:

Code	Title	Credit Hours
	Military Studies	12
	Aviation Core	52
	Aviation Electives	27
	General Studies	33
<b>Total Credit Hours</b>		<b>124</b>

Code	Title	Credit Hours
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#### Aviation Science Core Courses

Required Credits: 52

AVS 1013	Aviation Electric and Magnetic Fundamentals	3
AVS 1023	Aviation Calculus	3
AVS 2113	Meteorology I	3
AVS 2123	Principles of Flight	3
AVS 2133	Survival	3
AVS 2143	Aircraft Systems and Components	3
AVS 3003	Avionics	3
AVS 3013	Instruments	3
AVS 3023	Aero Engines	3
AVS 3033	Navigation	3
AVS 3042	Meteorology II	2
AVS 3103	Airmanship	3
AVS 3113	Aviation Safety	3
AVS 3123	Advanced Navigation	3
AVS 3143	Human Factors	3
AVS 4012	Aviation Physiology	2
AVS 4143	Capstone Project	3
MTS 1133	Warfare Tactics	3

#### Military Studies Courses

Required Credits: 12

MTS 1002	Leadership	2
MTS 1102	Staff Duties	2
MTS 1112	Topography	2
MTS 1123	Air Force History and Organisation	3
MTS 2103	Aircraft Weapons Systems	3

#### Aviation Science Elective Courses

(For Students not opting for a Concentration)

Required Credits: 27

ADF 3103	Air and Space Power	3
ADF 4112	Airspace Management	2
ADF 4134	Aircraft Recognition	4

AFT 4006	Aeroplane Ground School Training	6
AFT 4015	Aeroplane General Handling Ground School	5
AFT 4025	Aeroplane General Handling Flying	5
AFT 4101	Aeroplane Instrument Flying Ground School	1
AFT 4112	Aeroplane Instrument Flying	2
AFT 4202	Aeroplane Navigation Flying Phase	2
AFT 4212	Aeroplane Formation Flying Phase	2
AFT 4221	Aeroplane Night Flying Phase	1
AVS 2153	Radar Systems	3
AVS 3133	Aircraft Performance: Aeroplane	3
AVS 3153	Electronic Warfare Systems	3
AVS 3163	Principles of Flight: Helicopter	3
AVS 3173	Missile Systems	3
AVS 4003	Aircraft Performance: Helicopter	3
HFT 4002	Helicopter General Handling Ground School I	2
HFT 4013	Helicopter General Handling Ground School II	3
HFT 4022	Helicopter General Handling Basic	2
HFT 4103	Helicopter General Handling Advanced	3
HFT 4113	Helicopter Instrument Flying Ground School	3
HFT 4122	Helicopter Instrument Flying	2
HFT 4203	Helicopter Navigation	3
HFT 4212	Helicopter Night Flying	2
HFT 4221	Helicopter Mission Flying	1
UAV 4003	UAV Pilot Ground School	3
UAV 4012	UAV Pilot General Handling Ground School	2
UAV 4022	UAV Pilot General Handling Flying	2
UAV 4031	UAV Pilot Instrument Flying	1
UAV 4041	UAV Pilot Navigation Flying	1
UAV 4103	Unmanned Aircraft Operations	3
UAV 4113	Unmanned Vehicle Systems	3
UAV 4203	UAV Ground School	3
UAV 4213	UAV Flight Training (Simulated)	3
UAV 4223	UAV Mission Training (Simulated)	3

**General Studies**

Required Credits: 33

**English, Arabic or other Languages**

Required Credits: 12

**Humanities or Art**

Required Credits: 6

**Information Technology or Mathematics**

Required Credits: 6

**The Natural Sciences**

Required Credits: 3

**The Social or Behavioral Sciences**

Required Credits: 6

## Concentrations

**Concentration Name: Fixed Wing Pilot**

Total Credit Hours: 27

Concentration Curriculum:

Code	Title	Credit Hours
AFT 4006	Aeroplane Ground School Training	6
AFT 4015	Aeroplane General Handling Ground School	5
AFT 4025	Aeroplane General Handling Flying	5
AFT 4101	Aeroplane Instrument Flying Ground School	1
AFT 4112	Aeroplane Instrument Flying	2
AFT 4202	Aeroplane Navigation Flying Phase	2
AFT 4212	Aeroplane Formation Flying Phase	2
AFT 4221	Aeroplane Night Flying Phase	1
AVS 3133	Aircraft Performance: Aeroplane	3
Concentration Code: AFT		

**Concentration Name: Helicopter Pilot**

Total Credit Hours: 27

Concentration Curriculum:

Code	Title	Credit Hours
AVS 3163	Principles of Flight: Helicopter	3
AVS 4003	Aircraft Performance: Helicopter	3
HFT 4002	Helicopter General Handling Ground School I	2
HFT 4013	Helicopter General Handling Ground School II	3
HFT 4022	Helicopter General Handling Basic	2
HFT 4103	Helicopter General Handling Advanced	3
HFT 4113	Helicopter Instrument Flying Ground School	3
HFT 4122	Helicopter Instrument Flying	2
HFT 4203	Helicopter Navigation	3
HFT 4212	Helicopter Night Flying	2
HFT 4221	Helicopter Mission Flying	1
Concentration Code: HFT		

**Concentration Name: UAV Pilot**

Total Credit Hours: 27

Concentration Curriculum:

Code	Title	Credit Hours
AVS 3133	Aircraft Performance: Aeroplane	3
UAV 4003	UAV Pilot Ground School	3
UAV 4012	UAV Pilot General Handling Ground School	2
UAV 4022	UAV Pilot General Handling Flying	2
UAV 4031	UAV Pilot Instrument Flying	1
UAV 4041	UAV Pilot Navigation Flying	1
UAV 4103	Unmanned Aircraft Operations	3
UAV 4113	Unmanned Vehicle Systems	3
UAV 4203	UAV Ground School	3
UAV 4213	UAV Flight Training (Simulated)	3
UAV 4223	UAV Mission Training (Simulated)	3
Concentration Code: UAV		

## Ideal Study Plan

## Recommended Sequences of Study

Fixed Wing Pilot Concentration

Year 1		
Semester 1		Credit Hours
AES 1013	Arabic Communications	3
LSS 1003	Life and Future Skills	3
MTS 1002	Leadership	2
<b>Credit Hours</b>		<b>8</b>
Semester 2		
AES 1003	Emirati Studies	3
MTS 1102	Staff Duties	2
MTS 1112	Topography	2
<b>Credit Hours</b>		<b>7</b>
Semester 3		
ICT 2013	Computational Thinking and Coding	3
LSC 1103	Professional Communication and Reporting	3
LSC 1503	Academic Spoken Communication	3
LSM 1103	Technical Mathematics	3
PST 1173	Islamic Studies	3
<b>Credit Hours</b>		<b>15</b>
Year 2		
Semester 4		
AHM 1203	Aviation Physics	3
AVS 1023	Aviation Calculus	3
AVS 2113	Meteorology I	3
AVS 2123	Principles of Flight	3
AVS 2133	Survival	3
AVS 2143	Aircraft Systems and Components	3
LSC 3023	Professional English	3
<b>Credit Hours</b>		<b>21</b>
Semester 5		
AVS 1013	Aviation Electric and Magnetic Fundamentals	3
AVS 3023	Aero Engines	3
AVS 3033	Navigation	3
AVS 3042	Meteorology II	2
AVS 3103	Airmanship	3
AVS 4143	Capstone Project	3
MTS 2103	Aircraft Weapons Systems	3
<b>Credit Hours</b>		<b>20</b>
Semester 6		
AVS 3003	Avionics	3
AVS 3013	Instruments	3
AVS 3113	Aviation Safety	3
AVS 3123	Advanced Navigation	3
AVS 3133	Aircraft Performance: Aeroplane	3
AVS 3143	Human Factors	3
MTS 1123	Air Force History and Organisation	3
<b>Credit Hours</b>		<b>21</b>
Year 3		
Semester 7		
AFT 4006	Aeroplane Ground School Training	6
AFT 4015	Aeroplane General Handling Ground School	5
AVS 4012	Aviation Physiology	2
LSS 1123	Basic Research Methods	3
MTS 1133	Warfare Tactics	3
<b>Credit Hours</b>		<b>19</b>
Semester 8		
AFT 4025	Aeroplane General Handling Flying	5
AFT 4101	Aeroplane Instrument Flying Ground School	1
AFT 4112	Aeroplane Instrument Flying	2
<b>Credit Hours</b>		<b>8</b>
Semester 9		
AFT 4202	Aeroplane Navigation Flying Phase	2

AFT 4212	Aeroplane Formation Flying Phase	2
AFT 4221	Aeroplane Night Flying Phase	1
<b>Credit Hours</b>		<b>5</b>
<b>Total Credit Hours</b>		<b>124</b>

### Helicopter Pilot Concentration

Year 1		
Semester 1		Credit Hours
AES 1013	Arabic Communications	3
LSS 1003	Life and Future Skills	3
MTS 1002	Leadership	2
<b>Credit Hours</b>		<b>8</b>
Semester 2		
AES 1003	Emirati Studies	3
MTS 1102	Staff Duties	2
MTS 1112	Topography	2
<b>Credit Hours</b>		<b>7</b>
Semester 3		
ICT 2013	Computational Thinking and Coding	3
LSC 1503	Academic Spoken Communication	3
LSM 1103	Technical Mathematics	3
PST 1173	Islamic Studies	3
<b>Credit Hours</b>		<b>12</b>
Year 2		
Semester 4		
AHM 1203	Aviation Physics	3
AVS 1023	Aviation Calculus	3
AVS 2113	Meteorology I	3
AVS 2123	Principles of Flight	3
AVS 2133	Survival	3
AVS 2143	Aircraft Systems and Components	3
LSC 3023	Professional English	3
<b>Credit Hours</b>		<b>21</b>
Semester 5		
AVS 1013	Aviation Electric and Magnetic Fundamentals	3
AVS 3023	Aero Engines	3
AVS 3033	Navigation	3
AVS 3042	Meteorology II	2
AVS 3103	Airmanship	3
AVS 4143	Capstone Project	3
MTS 2103	Aircraft Weapons Systems	3
<b>Credit Hours</b>		<b>20</b>
Semester 6		
AVS 3003	Avionics	3
AVS 3013	Instruments	3
AVS 3113	Aviation Safety	3
AVS 3123	Advanced Navigation	3
AVS 3143	Human Factors	3
MTS 1123	Air Force History and Organisation	3
<b>Credit Hours</b>		<b>21</b>
Year 3		
Semester 7		
AFT 4006	Aeroplane Ground School Training	6
AFT 4015	Aeroplane General Handling Ground School	5
AVS 4012	Aviation Physiology	2
LSS 1123	Basic Research Methods	3
MTS 1133	Warfare Tactics	3
<b>Credit Hours</b>		<b>19</b>
Semester 8		
AFT 4025	Aeroplane General Handling Flying	5
AFT 4101	Aeroplane Instrument Flying Ground School	1
AFT 4112	Aeroplane Instrument Flying	2
<b>Credit Hours</b>		<b>8</b>
Semester 9		
AFT 4202	Aeroplane Navigation Flying Phase	2

MTS 1133	Warfare Tactics	3
<b>Credit Hours</b>		<b>18</b>
<b>Semester 8</b>		
HFT 4103	Helicopter General Handling Advanced	3
HFT 4113	Helicopter Instrument Flying Ground School	3
HFT 4122	Helicopter Instrument Flying	2
<b>Credit Hours</b>		<b>8</b>
<b>Semester 9</b>		
HFT 4203	Helicopter Navigation	3
HFT 4212	Helicopter Night Flying	2
HFT 4221	Helicopter Mission Flying	1
<b>Credit Hours</b>		<b>6</b>
<b>Total Credit Hours</b>		<b>121</b>

### UAV Pilot Concentration

<b>Year 1</b>		
<b>Semester 1</b>		
AES 1013	Arabic Communications	3
LSS 1003	Life and Future Skills	3
MTS 1002	Leadership	2
<b>Credit Hours</b>		<b>8</b>
<b>Semester 2</b>		
AES 1003	Emirati Studies	3
MTS 1102	Staff Duties	2
MTS 1112	Topography	2
<b>Credit Hours</b>		<b>7</b>
<b>Semester 3</b>		
ICT 2013	Computational Thinking and Coding	3
LSC 1103	Professional Communication and Reporting	3
LSC 1503	Academic Spoken Communication	3
LSM 1103	Technical Mathematics	3
PST 1173	Islamic Studies	3
<b>Credit Hours</b>		<b>15</b>
<b>Year 2</b>		
<b>Semester 4</b>		
AHM 1203	Aviation Physics	3
AVS 1023	Aviation Calculus	3
AVS 2113	Meteorology I	3
AVS 2123	Principles of Flight	3
AVS 2133	Survival	3
AVS 2143	Aircraft Systems and Components	3
LSC 3023	Professional English	3
<b>Credit Hours</b>		<b>21</b>
<b>Semester 5</b>		
AVS 1013	Aviation Electric and Magnetic Fundamentals	3
AVS 3023	Aero Engines	3
AVS 3033	Navigation	3
AVS 3042	Meteorology II	2
AVS 3103	Airmanship	3
AVS 4143	Capstone Project	3
<b>Credit Hours</b>		<b>17</b>
<b>Semester 6</b>		
AVS 3003	Avionics	3
AVS 3113	Aviation Safety	3
AVS 3123	Advanced Navigation	3
AVS 3133	Aircraft Performance: Aeroplane	3
AVS 3143	Human Factors	3
AVS 3153	Electronic Warfare Systems	3
MTS 1123	Air Force History and Organisation	3
<b>Credit Hours</b>		<b>21</b>

### Year 3

<b>Semester 7</b>		
AVS 4012	Aviation Physiology	2
LSS 1123	Basic Research Methods	3
UAV 4003	UAV Pilot Ground School	3
UAV 4012	UAV Pilot General Handling Ground School	2
MTS 1133	Warfare Tactics	3
<b>Credit Hours</b>		<b>13</b>
<b>Semester 8</b>		
UAV 4022	UAV Pilot General Handling Flying	2
UAV 4031	UAV Pilot Instrument Flying	1
UAV 4041	UAV Pilot Navigation Flying	1
UAV 4103	Unmanned Aircraft Operations	3
UAV 4113	Unmanned Vehicle Systems	3
<b>Credit Hours</b>		<b>10</b>
<b>Semester 9</b>		
UAV 4203	UAV Ground School	3
UAV 4213	UAV Flight Training (Simulated)	3
UAV 4223	UAV Mission Training (Simulated)	3
<b>Credit Hours</b>		<b>9</b>
<b>Total Credit Hours</b>		<b>121</b>

## Faculty and Academic Staff

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