

# RMC Engineering Leadership: A Four-Pillar Approach

## Royal Military College of Canada

Cindy Suurd Ralph, Juan G. Beltran

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### Abstract

The Royal Military College of Canada (RMC) delivers Canada's oldest mandatory leadership program associated with an engineering degree in Canada, wherein each student prepares for a leadership role in the Canadian Armed Forces (CAF) by completing a four-pillar degree program comprising academics, military, physical fitness, and bilingualism.

### Program Description

In 1874, a legislative enactment initiated the establishment of a Canadian military college. Due to its military nature, leadership training has been ingrained since the Royal Military College of Canada (RMC) welcomed its inaugural cohort of cadets in June 1876. Initially, the engineering curriculum had two streams: Military and Civil Engineering. The 1930s introduced a phase of greater specialization, as cadets selected concentrations in Mechanical, Electrical, or Civil Engineering. The exigencies of the Second World War necessitated a temporary closure in 1942 to support the war effort. The institution reopened in 1948, extending its engineering offerings to Chemical Engineering. Computer and Aeronautical Engineering followed suit in 1982 and 2008, respectively [1, 2].

RMC aims to prepare skilled, adaptable individuals who can lead in complex environments [9]. Education goes beyond academic success, consisting of four interconnecting pillars: Academics, Military, Physical Fitness, and Bilingualism [3, 4]. Officer/Naval Cadets (Cadet Wing) reside together, organized in squadrons. The Director of Cadets (Colonel) and, ultimately, the Commandant of the College (Commodore or Brigadier-General) are responsible for the functioning of this military organization [5]. Progression to leadership positions with increasing responsibilities within the Cadet Wing is a central aspect of the RMC experience [6].

Furthermore, engaging in physical fitness routines and participating in sports activities is compulsory. Formal courses in Athletics include leadership development elements [7]. The Academic pillar is unique as the College Core Curriculum mandates minimum requirements to study Canadian History, Language and Culture, Political Science, International Relations,

Leadership, and Ethics [8]. Thus, all RMC cadets (approximately 1200 students) participate in the leadership training embodied in the four pillars [3, 4]. Engineering students represent about a third of the cadet population.

### **Connecting Themes**

Effective leadership in the CAF is defined as directing, motivating, and enabling others to accomplish the mission professionally and ethically while developing or improving capabilities that contribute to mission success [10].

The doctrine of the CAF places a strong emphasis on two essential leadership functions: leading individuals and leading the institution. Within the CAF hierarchy, leaders across the lower to middle ranks, including cadets and recent RMC graduates, are primarily focused on the art of leading people. In contrast, senior leaders bear the crucial responsibility of leading the institution itself, a role vital for maintaining current military capabilities and developing future professional proficiencies [10].

*Leadership in the Canadian Forces Conceptual Foundations* outlines that Junior officers move at the tactical and operational levels, which means they influence people in organized teams in a direct, face-to-face manner. The goal is to execute near-term plans and solve real-time problems. In contrast, senior officers operate at the strategic level, where leaders require a broader perspective and must develop and maintain capabilities that will enable success at the tactical and operational levels. At the strategic level, leaders' Influence on organizational performance is often indirect. Specifically, leaders are expected to adapt to and influence the external environment and achieve alignment across organizations' systems and sub-systems while exercising stewardship of the military profession [10].

Notably, many CAF members continue to work in the civilian job market after they complete their military service [11]. Leadership skills likely learned at RMC and the military may be highly relevant to practicing engineers in Canada [12, 13].

### **Instructional Strategies and Teamwork**

In line with the core curriculum, students must take academic courses that treat the subject of leadership [8]. In first year, students take Introduction to Human Psychology, where they are taught what influences people to think, feel, and behave the way they do. In third year, in the course Organizational Behaviour and Leadership, cadets are introduced to the impact of individual, group, and organizational factors on workplace performance and satisfaction. Cadets discuss how to use Organizational Behaviour to improve the performance and well-being of colleagues and subordinates. Finally, in their final term prior to graduation, students take the

course Military Professionalism and Ethics, where they are presented with psychological models for ethical decision-making, value conflicts, and ethical dilemmas.

Under the Military Pillar, every officer and naval cadet must maintain a satisfactory level of performance throughout their time at RMC; this includes demonstrating good military conduct, a positive attitude, class attendance, followership, and teamwork [3,4,7,8]. In addition, every cadet assumes at least one leadership position within the cadet chain of responsibility [6]. These roles serve as a platform for practical application and personal growth. To excel in these capacities, cadets receive guidance and mentorship from senior students and dedicated military personnel [5]. Military activities focus on personal development, followership, and teamwork in the first year. In the second year, preparations for assuming a leadership role are introduced. In the third year, leadership roles are assumed. In the fourth year, positions of broad responsibility are undertaken as preparations for commissioning commence [6]. Leadership and followership evaluations are conducted at the beginning of each academic term. Specifically, the Training Wing evaluates each cadet's performance and provides them with tailored one-on-one feedback [14].

Physically and mentally demanding, student life at RMC requires officer cadets to prioritize and manage their time efficiently. Physical and mental demands are emphasized at RMC because operational physical fitness comprises the physical abilities and mental capacity to perform physically demanding occupational/operations tasks. In addition, CAF Officers must maintain a very high level of physical fitness to lead by example and inspire their subordinates [4]. Teamwork is a sine qua non: there is not enough time to do everything alone!

### **Equity, Diversity, and Inclusion (EDI)**

EDI is an essential consideration for the CAF. Notwithstanding Canada's distinguished reputation as a pioneer in integrating women into its armed forces [15], being among the first countries to open all occupations to women and boasting the highest proportions of serving women among its allies (16.3% as of April 2022, [16]), ongoing efforts are dedicated to enhancing the representation of three vital Employment Equity groups within the CAF: women, visible minorities, and Indigenous Peoples. Presently, a concerted drive exists to augment the presence of CAF members hailing from these groups. At present, 9.6% of serving military personnel belong to visible minority backgrounds, while Indigenous individuals constitute between 2.8% and 5.5% of the force, depending on the source cited [17,18]. Notably, the representation of women and visible minorities at RMC surpasses that of the broader CAF, standing at 25% for both groups. However, it is worth acknowledging that this proportion remains lower than the corresponding representation within Canadian civilian universities [19]. RMC's institutional EDI Action Plan 1) holds the organization accountable to ensure the fair and respectful treatment of all people; 2)

considers the diversity represented in Canadian society; and 3) strives for an environment where everyone feels welcome, respected, and fully encouraged to contribute towards innovation and excellence [20].

Gender diversity, socialization, culture, and organizational change are discussed in the compulsory Organizational Behaviour and Leadership course described above [8]. Furthermore, most federal employees and CAF members must be familiar with Gender Based Analysis (GBA) Plus, an analytical process used to assess how women, men and gender diverse people may experience policies, programs, and initiatives [21]. What is more, the CAF and the Department of National Defence (DND) are engaged in a culture change whereby "Every member of the CAF and the DND team is entitled to work in an environment of mutual respect, dignity, and inclusion, where they have the opportunity to contribute and achieve their full potential." [22] The Faculty of Engineering at RMC fully embraces this objective. As we aim for excellence within our four-pillar structure, we strive to become an exemplar of this ideal.

### **Our Impact**

Although a formal evaluation has not been conducted, the Canadian Military Colleges<sup>1</sup> produce approximately 25-30% of CAF officers [23,24] and 55-62% of the senior CAF leadership [24,25].

### **Next Steps**

To summarize, RMC Engineering has six accredited programs with mandatory athletics, language, and leadership (both military and academic) components. Students have many opportunities to exercise leadership and are personally coached. Although there is no formal leadership-in-engineering teaching, academic courses that teach leadership are mandatory.

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<sup>1</sup> The Canadian Military Colleges include the Royal Military College of Canada in Kingston, Ontario, the Royal Military College Saint Jean in Saint-Jean-sur-Richelieu, Quebec, and the Canadian Forces College in Toronto.

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