K. Padmanabhaiah was born on 6 October 1938 in a small hamlet in Krishna district, in the south Indian state of Andhra Pradesh.[5] After securing a master's degree in Science (MSc) from Andhra University and a master's degree in Financial Management from Jamnalal Bajaj Institute of Management Studies, he entered the Indian Administrative Service from Maharashtra cadre in 1961. His first major position came in 1970 when he was appointed as the Director of Sugar Co-Operatives in Maharashtra and during the four years he stayed in the position, the sugar industry was reported to have recorded considerable growth.[6] In 1975, he was moved to Nashik as the District Collector which coincided with the Emergency period and under his leadership, the district was adjudged as one of the best performers of the 20 point economic programme of Indira Gandhi, the then Prime Minister of India. In 1982, he was appointed as the joint secretary at the Ministry of Petroleum and Natural Gas, but moved to the Ministry of Power in 1984 where he worked for another two years. The next move was to London, as the minister of economy at the High Commission of India to the United Kingdom for a three-year stint. Returning to India, he served as the Municipal Commissioner of Greater Mumbai during 1990-91 period, followed by a move to the Ministry of Urban Development in 1993. The next year, he took over the post of the government secretary at the Ministry of Civil Aviation, simultaneously holding the chair of Air India and Indian Airlines, the two national airlines of India. In 1994, he was posted as the Union Secretary of the Ministry of Home Affairs, with additional responsibility as the secretary of Jammu and Kashmir Affairs. [6] He worked holding the posts past his statutory superannuation in October 1996, earning an extension till 1997.

When Sri Chaitanya Educational Institutions (SCEI) established an IAS Academy in 2011 to train aspiring civil service officers, Padmanabhaiah was appointed as the dean of the institution, assisting T. N. Seshan, a former Chief Election Commissioner of India, who held the chair.[8] After four years of service, he moved to the Administrative Staff College of India (ASCI), as the chairman of the Court of Governors of the institute, succeeding S. M. Datta, and holds the post till date.